

**Maintenance Library**

This edition includes REA 06-88481.

**8100**

**Information System**

**(Volume 1 of 4)**

**8130/8140**

**Processors**

**8101**

**Storage and Input/Output Unit**

**Maintenance Information**

SY27-2521-3

**Fourth Edition (August 1980)**

This is a major revision of, and obsoletes, SY27-2521-2. Extensive technical and organizational changes have been made to this manual; therefore you should look over the entire manual.

Changes and/or additions to this publication will be reported in subsequent revisions or Technical Newsletters (TNLs).

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The following listing shows, by volume (binder) number, the basic contents of the *8100 Information System Maintenance Information Manual*. The column not shaded indicates the volume you are using; the shaded columns indicate the contents of the other three volumes.

Volume 1 (Binder 1)	Volume 2 (Binder 2)	Volume 3 (Binder 3)	Volume 4 (Binder 4)
<b>Chapter 1. Start (ST)</b>	<b>Chapter 5. MAP Reference Information (MR)</b>	<b>Communications Features (CA)</b>	<b>Disk Storage (FA)</b>
ST100 Distributed Processing Programming Executive (DPPX)	<b>Display and Printer Adapter (AD)</b>	CA000 Quick Reference Guide	FA100 General Information
ST200 Distributed Processing Control Executive (DPCX)	AD100 General Information	CA100 General Information	FA200 Offline Tests
ST300 Non-IBM Program Product	AD200 Offline and Online Tests	CA200 Offline and Online Tests	FA300 Intermittent Failure Repair Strategy
ST400 Common Messages, Action Plans, and Procedures	AD300 Intermittent Failure Repair Strategy	CA300 Intermittent Failure Repair Strategy	FA400 Signal Paths and Detailed Operational Description
	AD400 Signal Paths and Detailed Operational Description	CA400 Signal Paths and Detailed Operational Description	FA500 Adjustment, Removal, and Replacement Information
	AD500 Attached Device Information	CA500 Adjustment, Removal, and Replacement Information	
<b>Chapter 2. Configuration and Maintenance Procedures (CP)</b>	<b>Bringup (BU)</b>	CA600 Cryptographic Devices, Interface and Line Descriptions, and Test Equipment Setup	<b>Power (PA)</b>
CP100 System Configuration Information	BU100 General Information	CA700 World Trade Information	PA100 General Information
CP200 Addressing and Device Attachment	BU200 Offline and Online Bringup and Basic Operator Panel Tests	CA800 Communications Specify Code (Minor) Changes	PA200 Offline Tests
CP300 MD Diskette Configuration Procedures			PA300 Intermittent Failure Repair Strategy
CP400 Maintenance Device Function and Use			PA400 Signal Paths and Detailed Operational Description
CP500 Initial Program Load (IPL)			PA500 Adjustment, Removal, and Replacement Information
CP600 Common Test Procedures and Messages			PA600 Service Checks
CP700 DPPX Testing and Fault Isolation Procedures			PA700 Locations
CP800 DPCX Testing and Fault Isolation Procedures			
		<b>Diskette Storage (DA)</b>	<b>System Control Facility (SC)</b>
<b>Chapter 3. Locations and Tools (LT)</b>		DA100 General Information	SC100 General Information
LT100 8130 Locations		DA200 Offline Tests	SC200 Offline Tests
LT200 8140 Locations		DA300 Intermittent Failure Repair Strategy	SC300 Intermittent Failure Repair Strategy
LT300 8101 Locations		DA400 Signal Paths and Detailed Operational Description	SC400 Signal Paths and Detailed Operational Description
LT400 Common Location Information		DA500 Adjustment, Removal, and Replacement Information, Part 1	SC500 SCF System Test and Internal I/O Bus Cable Change Procedures
LT500 Tools		DA600 Adjustment, Removal, and Replacement Information, Part 2	
		DA700 Voltages and Environmental Characteristics	<b>Expanded Function Panel (SP)</b>
<b>Chapter 4. General Reference Information (GR)</b>			SP100 General Information
GR100 8100 Information System Description and Operation			SP200 Offline Tests
GR200 Components			SP300 Intermittent Failure Repair Strategy
GR300 Attachable Devices			SP400 Signal Paths and Detailed Operational Description
GR400 Maintenance Aids			SP500 Adjustment, Removal, and Replacement Information
GR500 System Maintenance Approach			
GR600 Basic Data Flow			<b>Magnetic Tape Adapter (TA)</b>
GR700 8100 Information System Licensed Program Products			TA100 General Information
			TA200 Offline and Online Tests
			TA300 Intermittent Failure Repair Strategy
			TA400 Signal Paths and Detailed Operational Description
			TA500 Console Messages
			<b>Appendix A. Hexadecimal-to-Binary Conversion</b>

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## Preface

This manual contains information necessary to service hardware components of the 8100 Information System, the 8130 Processor, the 8140 Processor, and the 8101 Storage and Input/Output Unit.

## Purpose of Manual

This manual enables you to isolate 8130, 8140, and 8101 hardware problems only. It does not attempt to resolve distributed system network or programming problems. All troubleshooting begins by using one of the three General Failure Indexes (GFIs), depending on the operating system program used. According to the error indication, the GFI provides guidance toward determining the hardware problem. If isolated to the 8130, 8140, or 8101, you then use the Chapter 5 maintenance reference sections. These sections relate to specific MAPs (Maintenance Analysis Procedures) that run using the Maintenance Device, and provide the supporting information used with the MAPs to determine the field replaceable unit (FRU). Chapter 5 also provides information used to repair, replace, or adjust the FRU as necessary.

## Audience and Level of Knowledge

This manual can be used by all service representatives for both general and in-depth fault isolation. It contains step-by-step information such as the GFI, action plans, and procedures, and provides the Maintenance Analysis Procedure (MAP) reference material for each MAP and associated maintenance device fault isolation procedure. More difficult causes of failure can also be determined by using detailed information such as data flowcharts and pin-to-pin card interconnection diagrams.

## Manual Organization

This manual is organized into four volumes.

- Volume 1 contains the front matter and Chapters 1 through 4.
  - The front matter contains a listing of corequisite and companion documents, safety notices, and a skeletal table of contents.
  - Chapter 1, Start (ST), contains initial 8100 hardware fault isolation procedures. the chapter is divided into four tabbed sections:
    1. ST100 – Contains the Distributed Processing Programming Executive (DPPX) General Failure Index (GFI), and lists DPPX System Message Numbers (SMNs). It describes all failures detected by the DPPX operating system, as well as those detected by either the customer or service representative while running under DPPX. These failures can occur either during installation of the program or while performing an IPL, operating online, or executing DPPX standalone commands.
    2. ST200 – Contains the Distributed Processing Control Executive (DPCX) General Failure Index (GFI), and lists DPCX System Message Numbers (SMNs). It describes all failures detected by the DPCX operating system, as well as those detected by either the customer or service representative while running under DPCX. These failures can occur either during installation of the program or while performing an IPL, operating online, or executing DPCX standalone utilities.
    3. ST300 Non-IBM Program Product – Contains the General Failure Index (GFI) used for all failures detected by either the customer or service representative that relate to 8100 hardware. These failures can occur either prior to installation of the operating system, or while operating using a program other than DPPX or DPCX, and which are not caused by the operating system.

4. ST400 Common – Contains all common initial fault isolation information relating to any operating system environment, as well as all action plans and procedures called out by the ST100, ST200 and ST300 sections.

- Chapter 2, Configuration and Maintenance Procedures (CP), has two distinct groupings; the first (CP100 to CP300) contains all configuration-related information. It enables you to understand the physical system configuration, as well as how to use this information to complete the system configuration tables and configure the test diskettes. The second (CP400 to CP800) contains procedural information such as how to use the Maintenance Device, how to run offline and online tests, and how to select test options.
- Chapter 3, Locations and Tools (LT), has three separate sections according to machine type, that show all basic components of the 8130, 8140, and 8101 units, thus enabling you to locate them easily. The chapter also has a fourth section that shows components common to all three machine types, and a fifth section that lists the tools used to service the 8100 and describes how and when to use them.
- Chapter 4, General Reference Information (GR), consists of seven sections that enable you to generally understand the 8100 and its components, as well as the system maintenance philosophy.
- Volumes 2, 3, and 4 contain Chapter 5, MAP Reference Information (MR). This chapter contains the support material for each MAP and maintenance device procedure used to determine the failing FRU, as well as information used to perform FRU repair, adjustment, and replacement procedures. Chapter 5 is sectionalized, and each section relates to a specific logical area. In this manner, individual sections of information such as communications fault isolation (CA), and others, are easily located.

Volumes 2, 3, and 4 contain the following sections:

- Volume 2:
  - AD – Display and Printer
  - BU – Bringup tests, including the processor, basic operator panel and floating-point (8140 only, if installed) tests.
- Volume 3:
  - CA – Communications including loop and link tests
  - DA – Diskette Storage
- Volume 4:
  - FA – Disk Storage
  - PA – Power
  - SC – System Control Facility
  - SP – Expanded Function Operator Panel
  - TA – Magnetic Tape

This manual uses the following page-numbering scheme:

X-YY-Z

Where:

X = Chapter number

YY = Two-character alphabetic section number

Z = Page number

For example, 5-AD-10, where "5" is the chapter number, "AD" is the section designation, and "10" is the page number.

## Corequisite and Companion Documents

The following corequisite manuals are required for 8100 Information System hardware maintenance when the corresponding machine types are installed:

- *IBM 8100 Information System: 8809 Magnetic Tape Unit Maintenance Information Manual*
- *IBM 8130 Processor Parts Catalog*, S131-0069
- *IBM 8140 Processor Parts Catalog*, S126-0022
- *IBM 8101 Storage and Input/Output Unit Parts Catalog*, S126-0023
- *IBM 8809 Magnetic Tape Unit Parts Catalog*, S132-0009
- *IBM 8100 Information System: 3277 Display Station 1 and 2, 8100 System Attachment Online Test Procedures Troubleshooting Guide*, SY27-2522
- *IBM 8100 Information System: 3284, 3286 Printer Models 1 and 2, 8100 System Attachment Troubleshooting Guide*, SY27-2523
- *IBM 8100 Information System: 3287 Printer Models 1 and 2, 8100 System Attachment Maintenance Information*, SY27-2524
- *IBM 8100 Information System: 3288 Line Printer Model 2, 8100 System Attachment Troubleshooting Guide Including Text Print Feature*, SY27-2525
- *IBM 8100 Information System: 129 Card Data Recorder (RPQ MK6956) Troubleshooting Guide*, SY27-2552

The following hardware companion manuals provide additional detailed information that can aid in fault isolation, but are not required as part of the hardware maintenance package:

- *An Introduction to the IBM 8100 Information System*, GA27-2875
- *IBM 8100 Information System Configurator*, GA27-2876
- *IBM 8100 Information System Site Preparation Guide*, GA27-2884
- *IBM 8100 Information System: 8140 Processor Expanded Function Operator Panel Feature Description*, GA27-2879
- *IBM 8100 Information System: 8130 Processor Description*, GA27-3196
- *IBM 8100 Information System: 8140 Processor Description*, GA27-2880
- *IBM 8100 Information System: 8101 Storage and Input/Output Unit Description*, GA27-2882
- *IBM 8100 Information System: Communications, Loop and Display/Printer Attachment Description*, GA27-2883
- *IBM 8100 Information System: 8130 Processor Setup Instructions*, GA27-3221
- *IBM 8100 Information System: 8130 Processor Relocate Instructions*, GA27-3223
- *IBM 8100 Information System: 8140 Processor and 8101 Storage and I/O Setup Instructions*, GA27-2886
- *IBM 8100 Information System: 8140 Processor and 8101 Storage and I/O Relocate Instructions*, GA27-2881
- *IBM Continuity and Relay Tester User's Guide*, GA23-0015

The following software companion manuals provide additional detailed programming information that may aid in hardware fault isolation:

- *Distributed Processing Programming Executive/Base Terminal Operation*, SC27-0402
- *Distributed Processing Programming Executive/Base Operation*, SC27-0406
- *Distributed Processing Programming Executive/Base Messages and Codes*, SC27-0407
- *Distributed Processing Programming Executive/Base Diagnosis: Guide*, SC27-0410
- *Distributed Processing Control Executive Operations*, SC27-0492

## Contents

The following listing divides the contents of the entire manual by volume (binder). Only the major topical headings are included. Chapters 1 through 4 and each section of Chapter 5 contain their own complete outlines. The beginning of each volume also lists the major topical headings contained within the volume.

**Note:** *There are no overall lists of figures and abbreviations here; instead, Chapters 1 through 4 and each section of Chapter 5 contain their own lists of figures and abbreviations.*

### Volume 1 (Binder 1)

#### CHAPTER 1. START (ST)

##### ST100 Distributed Processing Programming Executive (DPPX)

- ST110 DPPX General Failure Index (GFI)
- ST120 DPPX System Message Numbers

##### ST200 Distributed Processing Control Executive (DPCX)

- ST210 DPCX General Failure Index (GFI)
- ST220 DPCX System Message Numbers

##### ST300 Non-IBM Program Product

- ST310 General Failure Index (GFI)

##### ST400 Common Messages, Action Plans, and Procedures

- ST410 Initial Program Load and Bringup Test Error Messages
- ST420 XXBC Test Control Monitor Messages
- ST430 Action Plans
- ST440 Procedures

#### CHAPTER 2. CONFIGURATION AND MAINTENANCE PROCEDURES (CP)

##### CP100 System Configuration Information

- CP110 System-Unique Configuration Charts
- CP120 General System Configuration
- CP130 DPPX Device Support and Restrictions
- CP140 DPCX Device Support and Restrictions
- CP150 8130/8140/8101/8809 Models and Options
- CP160 8100 System Hardware Maximums and Restrictions
- CP170 8100 System Logic Card Descriptions
- CP180 8100 System Logic Board Descriptions

##### CP200 Addressing and Device Attachment

- CP210 Addressing Levels
- CP220 Fixed Addressing Assignments
- CP230 How Devices Attach to the 8100

##### CP300 MD Diskette Configuration Procedures

- CP310 Configuration Procedure Start MAP
- CP320 Building a Configuration Table Using Customer Setup Diskettes
- CP330 Building a Configuration Table Using the Machine Configuration List
- CP340 Building a Configuration Table Without CSU Diskettes or the MCL
- CP350 How to Complete Tape and Display/Printer Adapter Katakana Feature Configuration Table Entries
- CP360 How to Complete Communications Adapter Configuration Table Entries
- CP370 Configuration Table Entry Summary and SSCF Switch Settings
- CP380 Communications Card Identifier
- CP390 Updating MD Diskette Configuration Table Entries

##### CP400 Maintenance Device Function and Use

- CP410 MD Keypad/Display
- CP420 How to Connect the MD to the 8130/8140
- CP430 How to Insert Diskettes and Test the MD
- CP440 MD Diskettes and Their Operation
- CP450 Common MD Displays
- CP460 MD Utilities and How to Invoke Them

##### CP500 Initial Program Load (IPL)

- CP510 IPL Parameters
- CP520 IPL Modes – What They Do and How to Use Them

##### CP600 Common Test Procedures and Messages

- CP610 Common Test Invocation
- CP620 Common Entries Used for Free-Lance Testing
- CP630 Common Offline and DPCX Online Test Messages
- CP640 Diskette Surface Analysis
- CP650 Disk Storage Surface Status and Format Utility
- CP660 How to Run Diagnostic Link Series (DLS) Tests on an 8809

##### CP700 DPPX Testing and Fault Isolation Procedures

- CP710 How to Log On and Off an 8100/DPPX System
- CP720 Running DPPX Distributed System Environment Tests (DSET) Using the Verify Command
- CP730 Error Log Data Analysis (ELDA) and How to Use It
- CP740 DPPX Error Log Records
- CP750 DISPLAY.ERRORLOG Command and How to Use It
- CP770 DPPX Test Commands and How to Use Them

##### CP800 DPCX Testing and Fault Isolation Procedures

- CP810 How to Log On and Run DPCX Online Tests
- CP820 DPCX SYSTCM Utility and How to Use It
- CP830 DPCX Error Log Utility (SYSLERR) and How to Use It
- CP840 DPCX Condition/Incident (Error) Log Records
- CP850 Additional DPCX Utilities and How to Use Them

**CHAPTER 3. LOCATIONS AND TOOLS (LT)****LT100 8130 Locations**

- LT110 8130 Basic Hardware Components
- LT120 8130 Gate and I/O Panel Designations
- LT130 8130 I/O Panel Components
- LT140 8130 Top Card Connectors
- LT150 8130 Card Locations
- LT160 8130 Cable Locations

**LT200 8140 Locations**

- LT210 8140 Basic Hardware Components
- LT220 8140 Gate and I/O Panel Designations
- LT230 8140 I/O Panel Components
- LT240 8140 Top Card Connectors
- LT250 8140 Card Locations
- LT260 8140 Cable Locations

**LT300 8101 Locations**

- LT310 8101 Basic Hardware Components
- LT330 8101 I/O Panel Components
- LT340 8101 Top Card Connectors
- LT350 8101 Card Locations
- LT360 8101 Cable Locations

**LT400 Common Location Information**

- LT410 Top Card Connector Pin Numbering
- LT420 Board and Card Pin Numbering
- LT430 8130/8140/8101 Address Labels

**LT500 Tools**

- LT510 Maintenance Device (MD)
- LT520 Teleprocessing Data Analysis Tool (TDAT), PN 453679
- LT530 DB Measurement Devices
- LT540 Portable Acoustic Coupler (PAC), PN1753805
- LT550 General Logic Probe
- LT560 Additional Tools

**CHAPTER 4. GENERAL REFERENCE INFORMATION (GR)****GR100 8100 Information System Description and Operation**

- GR110 8130/8140 Processor
- GR120 8101 Storage and Input/Output Unit

**GR200 Components**

- GR210 8130/8140/8101 Basic Components
- GR220 8130/8140/8101 Features and Attachments

**GR300 Attachable Devices****GR400 Maintenance Aids**

- GR410 Maintenance Device (MD)
- GR420 System Tests
- GR430 Utilities and Test Commands
- GR440 Error Logs
- GR450 8130/8140 Operator Panels
- GR460 Maintenance Library

**GR500 System Maintenance Approach**

- GR510 Hardware Fault Isolation
- GR520 Offline and Online Testing

**GR600 Basic Data Flow**

- GR610 8130
- GR620 8140
- GR630 8101

**GR700 8100 Information System Licensed Program Products**

- GR710 Distributed Processing Programming Executive (DPPX)
- GR720 Distributed Processing Control Executive (DPCX)

**Volume 2 (Binder 2)****CHAPTER 5. MAP REFERENCE INFORMATION (MR)****DISPLAY AND PRINTER ADAPTER (AD)****AD100 General Information**

- AD110 Components and Addressing
- AD120 Basic Operational Description
- AD130 Adapter-Unique Repair Strategy

**AD200 Offline and Online Tests**

- AD210 Offline Test Routine Descriptions
- AD220 Online Test Routine Description
- AD230 Test Messages and Status Information
- AD240 Test Error Messages and Descriptions
- AD250 Failure Action Plans

**AD300 Intermittent Failure Repair Strategy**

- AD310 Adapter-Unique Intermittent Repair Strategy
- AD320 Error Log Information Needed for the Display/Printer Adapter
- AD330 Error Log Formats and Meanings Used for the Display/Printer Adapter
- AD340 How to Use the Error Log
- AD350 Action Plans to Correct Intermittent Failures

**AD400 Signal Paths and Detailed Operational Description**

- AD410 Board Signal Paths
- AD420 Adapter-to-Port Signal Path Check
- AD450 Display/Printer Adapter Detailed Description and Data Flow
- AD470 Card Logic Signals

**AD500 Attached Device Information**



## **BRINGUP (BU)**

### **BU100 General Information**

- BU110 Components and Addressing
- BU120 Basic Operational Description and Data Flow
- BU130 BU MAP Unique Repair Strategy

### **BU200 Offline and Online Bringup and Basic Operator Panel Tests**

- BU210 Offline Test Routine Descriptions
- BU230 Test Message Formats
- BU240 Test Message and Error Number Descriptions
- BU250 Possible Causes of BOP Failure — Action Plans
- BU260 Common Action Plan Notes

### **BU300 Intermittent or Random Failure Repair Strategy**

- BU310 Unique Intermittent Repair Strategy
- BU350 Repair Strategy for Random or Hard-to-Analyze Failures

### **BU400 Signal Paths and Detailed Operational Description**

- BU410 Board Signal Paths
- BU420 Processor I/E Unit and BOP Card and Card Connector Logic Signals
- BU450 Processor I/E Unit Detailed Description and Data Flow
- BU460 Processor Storage Card, Detailed Description and Data Flow
- BU470 BOP Adapter Detailed Description and Data Flow
- BU480 8140 Floating-Point Card Description and Data Flow

### **BU500 Adjustment, Removal, Replacement, and Voltage Check Procedures**

- BU510 BOP Adapter Card Removal and Replacement
- BU520 How to Gain Access to 8130/8140 Operator Panel Components
- BU530 Voltage Checks

## **CA200 Offline and Online Tests**

- CA210 Offline Test Routine Descriptions
- CA220 Online Test Routine Descriptions
- CA230 Test Message Types
- CA240 Test Message, Error Number Descriptions, and Possible Causes
- CA250 Action Plans

## **CA300 Intermittent Failure Repair Strategy**

- CA310 General Intermittent Failure Repair Strategy
- CA320 How to Obtain Error Log Information
- CA330 Error Log Formats and Meanings
- CA340 How to Use the Error Log
- CA350 Action Plans to Correct Intermittent Failures

## **CA400 Signal Paths and Detailed Operational Description**

- CA410 Board Net Check Procedures
- CA420 Board-to-I/O Panel Connections
- CA430 External Cable Descriptions
- CA450 Detailed Data Flow
- CA470 Driver Cards
- CA480 Adapter/Driver Card — System Logic

## **CA500 Adjustment, Removal, and Replacement Information**

- CA510 Card Information
- CA520 Board and Cable Layout
- CA530 Standard and Special Voltages
- CA540 Troubleshooting Charts and Diagrams
- CA550 Loop Troubleshooting Diagrams
- CA560 Switches, Jumpers, and Straps
- CA570 IBM External Modem Feature Identification
- CA580 Adjustments
- CA590 Line Monitor Procedure

## **CA600 Cryptographic Devices, Interface and Line Descriptions, and Test Equipment Setup**

- CA620 Cryptographic Devices
- CA630 Interface Descriptions
- CA640 Line Discipline Descriptions
- CA650 Test Equipment Setup

## **CA700 Word Trade Information**

## **CA800 Communications Specify Code (Minor) Changes**

## **DISKETTE STORAGE (DA)**

### **DA100 General Information**

- DA110 Components and Addressing
- DA120 Basic Description and Operation
- DA130 Adapter-Unique Repair Strategy

## **Volume 3 (Binder 3)**

## **COMMUNICATIONS FEATURES (CA)**

### **CA000 Quick Reference Guide**

- CA010 Communications FAC—Hardware Test Summary
- CA020 Communications Test Routine Summary
- CA030 Test Invocation Summary
- CA040 Test Messages References
- CA050 Card Summary
- CA060 8100 Communications Cable Summary
- CA070 Miscellaneous Information

### **CA100 General Information**

- CA110 Configuration
- CA120 Basic Operational Description
- CA130 Unique Communications Repair Strategy
- CA150 Communications FAC—Hardware Test Summary
- CA160 Communications Fault Isolation

**DA200 Offline Tests**

- DA210 Offline Test Routine Descriptions
- DA230 Test Message Formats and Status Information
- DA240 Test Error Messages, Descriptions, and Failure Types
- DA250 Diskette Storage Action Plans

**DA300 Intermittent Failure Repair Strategy**

- DA310 Adapter-Unique Intermittent Repair Strategy
- DA320 Error Log Information Used by the DA MAP
- DA330 Diskette Error Log Formats and Meanings
- DA340 How to Use the Error Log
- DA350 Action Plan to Correct Intermittent Failures

**DA400 Signal Paths and Detailed Operational Description**

- DA410 Diskette Adapter Logic Signal Continuity
- DA420 Adapter to Control Card Checks and Read Head Cable Continuity
- DA430 System Control Facility (SCF) Action Plans
- DA440 Diskette Manual Insertion or Removal Failure Action Plan
- DA450 Diskette Storage Detailed Description and Operation
- DA460 Drive Data Scoping

**DA500 Adjustment, Removal, and Replacement Information, Part 1**

- DA510 General Information
- DA520 Drive Cover Assembly
- DA530 Cover Latch Assembly
- DA540 Drive Collet and Assembly
- DA550 Head/Carriage Assembly
- DA560 Head Load Solenoid and Bail Assembly
- DA570 Drive Belt
- DA580 Drive Motor and Pulley
- DA590 Drive Belt Idler Assembly

**DA600 Adjustment, Removal, and Replacement Information, Part 2**

- DA601/DA602 Stepper Motor
- DA610 Stepper Motor Pulley and Clamp Assembly
- DA620 Stepper Drive Band
- DA630 Stepper Drive Band Idler Assembly
- DA640 Diskette Speed Service Check
- DA650 Light-Emitting Diode (LED) Assembly
- DA660 Phototransistor (PTX) Assembly
- DA670 Diskette Drive Control (DA3) Card Removal and Installation

**DA700 Voltages and Environmental Characteristics****DISK STORAGE (FA)****FA100 General Information**

- FA110 Components and Addressing
- FA120 Basic Operational Description
- FA130 DSD Unique Repair Strategy

**FA200 Offline Tests**

- FA210 Offline Test Routine Descriptions
- FA230 Test Message Formats and Status Information
- FA240 Test Message, Error Number Descriptions, and Actions
- FA250 Action Plan

**FA300 Intermittent Failure Repair Strategy**

- FA310 Adapter-Unique Intermittent Repair Strategy
- FA330 Error Log Formats and Meanings Used for the FA MAP
- FA340 How to Use the Error Log
- FA350 Action Plan to Correct Intermittent Failures

**FA400 Signal Paths and Detailed Operational Description**

- FA410 Card Socket Wiring Charts
- FA420 Adapter to Disk Drive Interface Description
- FA440 Jumpers
- FA450 Detailed Data Flow and Operational Theory

**FA500 Adjustment, Removal, and Replacement Information**

- FA510 Scope Charts
- FA520 Adapter and DSD Cable and Card Continuity
- FA540 Disk Enclosure (DE) Removal and Replacement
- FA550 Card Gate, Board, and VCM Driver Card Removal/Replacement
- FA560 Card Gate Fan Removal/Replacement
- FA570 Drive Motor and Drive Belt
- FA580 Brake Assembly and Coil Removal, Adjustment, and Replacement
- FA590 Actuator Lock Knob and Lock/Operate Switch Adjustment

**POWER (PA)****PA100 General Information**

- PA110 Components
- PA120 Basic Operational Description
- PA130 Power-Unique Repair Strategy

**PA200 Offline Tests**

- PA210 PA MAP Menu Options
- PA250 Action Plans

**PA300 Intermittent Failure Repair Strategy**

- PA310 General Intermittent Failure Repair Strategy

**PA400 Signal Paths and Detailed Operational Description**

- PA405 Safety Grounds
- PA410 60-Hz AC Power (U.S. and Canada)
- PA420 60-Hz AC Power (Other than U.S. and Canada)
- PA430 50-Hz AC Power
- PA440 DC Power
- PA450 Power Logic Interconnections
- PA460 Power Card Assemblies

**PA500 Adjustment, Removal, and Replacement Information**

- PA510 +5V DC Adjustment
- PA520 LED Removal and Replacement Procedure
- PA530 BOP Adapter Card Removal and Replacement Procedure
- PA540 How to Gain Access to BOP Components
- PA550 01G Gate Capacitor and Thermal Replacement Procedure

**PA600 Service Checks**

- PA610 AC Ripple Service Check
- PA620 8130/8140/8101 Indicator Check
- PA630 Capacitor Resistance Check
- PA640 Transformer Winding and Diode Service Checks
- PA650 Fuse and Voltage Distribution
- PA660 Voltage Verification
- PA670 Power Status Indicators and Their Meaning
- PA680 8140 Model BXX DC Parallel Wiring Check

**PA700 Locations**

- PA710 Gate and Other Subassembly Locations
- PA720 Operator Panel Component Locations
- PA730 01T Gate (I/O Panel) Locations
- PA740 01G Gate Power Supply Component Locations
- PA750 Board DC Voltage Distribution
- PA760 Board and Cable Connectors

**SYSTEM CONTROL FACILITY (SC)****SC100 General Information**

- SC110 Components and Addressing
- SC120 SCF Basic Operational Description

**SC200 Offline Tests**

- SC210 Offline Test Routine Descriptions
- SC230 Test Message Formats and Status Registers
- SC240 Test Messages and Descriptions
- SC250 Action Plans

**SC300 Intermittent Failure Repair Strategy**

- SC310 Adapter-Unique Intermittent Repair Strategy
- SC320 Error Log Information Needed for the SCF
- SC330 Error Log Formats and Meanings Used for the SC MAP
- SC340 How to Use the Error Log for Fault Isolation
- SC350 Action Plan to Correct Intermittent Failures

**SC400 Signal Paths and Detailed Operational Description**

- SC410 SCF Point-to-Point Net Listing
- SC420 Card Wiring Charts
- SC430 SCF Cable Connections
- SC440 Switches
- SC450 8130/8140 Detailed Data Flow
- SC460 SCF Detailed Description

**SC500 SCF System Test and Internal I/O Bus Cable Change Procedures**

- SC510 SCF System Test Procedure
- SC520 Procedure to Change SCF Internal I/O Bus Cables

**EXPANDED FUNCTION PANEL (SP)****SP100 General Information**

- SP110 Components and Addressing
- SP120 Basic Operational Description
- SP130 Adapter-Unique Repair Strategy

**SP200 Offline Tests**

- SP210 Offline Test Routine Descriptions
- SP230 Test Message Formats and Status Registers
- SP240 Test Messages and Descriptions
- SP250 Action Plans

**SP300 Intermittent Failure Repair Strategy**

- SP310 Adapter-Unique Intermittent Repair Strategy
- SP350 Action Plan to Correct Intermittent Failures

**SP400 Signal Paths and Detailed Operational Description**

- SP410 Point-to-Point Signal Path
- SP420 Card and Top Card Connector Signals
- SP430 Expanded Panel FRU Component and Connector Diagrams
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**APPENDIX A. HEXADECIMAL-TO-BINARY CONVERSION**

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## Safety

### Safety Notices

#### Danger Statements

These indicate the risk of personal injury if care is not observed.

#### **DANGER**

The unit that contains the diskette drive supplies the ac and dc power to the drive. Line voltage is always present at the diskette power connector with machine power on.

#### **DANGER**

Diskette motor and solenoid cases become hot after continuous use. Wait until the parts cool before servicing.

#### **DANGER**

To prevent personal injury on 60-Hz machines having diskette drive motor cases with two large holes (see DA582), ensure that the holes are located under the bracket.

#### **DANGER**

With the power cord connected to the wall outlet, line voltage and the +5 and +24 control voltages are always present in all:

- 8130s, 8140 Models AXX, and 8101s.
- 8140 Models BXX with the line circuit breaker (CB1) on.

Before removing metal covers or internal power components (except for power control (PC) and logic cards), either (1) disconnect the power cord for all 8130s, 8140 Models AXX, and 8101s, or (2) turn off CB1 for 8140 Models BXX.

#### **DANGER**

DC voltage is still present at the operator panel with the 8130/8140 power switch in the Power Off position.

#### Caution Statements

These indicate the risk of equipment damage if care is not taken.

**Caution:** Turn power off before removing or replacing cards or internal cables.

## Personal Safety

Personal safety cannot be overemphasized. To ensure your safety and that of others, always observe the safety precautions given during your safety training.

### *General Safety Practices*

Observe the general safety practices and learn the procedure for performing artificial respiration. See *CE Safety Practices* card, order no. S229-1264, shown on the following page.

### *Grounding*

Ground current may reach dangerous levels. Never operate the system with the grounding conductor removed.

### *Line-Powered Equipment*

Ground all line-powered test equipment through the third-wire grounding conductor in the power cord of the machine being tested.

### *Machine Warning Labels*

Heed the warning labels placed to warn of hazardous areas of machines.

## Equipment Safety

Observe all Caution notices given in this manual.

## CE SAFETY PRACTICES

All Customer Engineers are expected to take every safety precaution possible and observe the following safety practices while maintaining IBM equipment:

1. You should not work alone under hazardous conditions or around equipment with dangerous voltage. Always advise your manager if you **MUST** work alone.
2. Remove all power AC and DC when removing or assembling major components, working in immediate area of power supplies, performing mechanical inspection of power supplies and installing changes in machine circuitry. Pull the power plug from the receptacle to remove power source.
3. Wall box power switch, when used to disconnect power, should be locked or tagged in off position. "Do not Operate" tags, form 229-1266, should be securely attached to power switch or to outside of power box.
4. When it is absolutely necessary to work on equipment having exposed operating mechanical parts or exposed live electrical circuitry anywhere in the machine, the following precautions must be followed:
  - a. At least one other person familiar with power off controls, emergency power off procedures, and the location of the wall box power switch, must be in the immediate vicinity at all times.
  - b. Rings, wrist watches, chains, bracelets, metal cuff links, shall not be worn.
  - c. Only insulated pliers and screwdrivers shall be used.
  - d. Keep one hand in pocket.
  - e. When using test instruments be certain they are of proper capacity and controls are set correctly. Only insulated probes are used.
  - f. Avoid contacting ground potential (metal floor strips, machine frames, etc. — use suitable rubber mats purchased locally if necessary).
5. Safety Glasses must be worn when:
  - a. Using a hammer to drive pins, riveting, staking, etc.
  - b. Power hand drilling, reaming, grinding, etc.
  - c. Using spring hooks, attaching springs.
  - d. Soldering, wire cutting, removing steel bands.
  - e. Parts cleaning, using solvents, sprays, cleaners, chemicals, etc.
  - f. All other conditions that may be hazardous to your eyes. **REMEMBER, THEY ARE YOUR EYES.**
6. Special safety instructions such as handling Cathode Ray Tubes and extreme high voltages, must be followed as outlined in CEM's and Safety Section of the Maintenance Manuals.
7. Do not use solvents, chemicals, greases or oils that have not been approved by IBM.
8. Avoid using tools or test equipment that have not been approved by IBM.
9. Replace worn or broken tools and test equipment.
10. The maximum load to be lifted is that which in the opinion of you and management does not jeopardize your own health or well-being or that of other employees.
11. All safety devices such as guards, shields, signs, ground wires, etc., shall be restored after maintenance.
12. Each Customer Engineer is responsible to be certain that no action on his part renders product unsafe or exposes hazards to customer personnel.
13. Place removed machine covers in a safe out-of-the-way place where no one can trip over them.
14. All machine covers must be in place before machine is returned to customer.
15. Always place CE tool kit away from walk areas where no one can trip over it (i.e., under desk or table).
16. Avoid touching mechanical moving parts (i.e., when lubricating, checking for play, etc.).
17. When using stroboscope — do not touch ANYTHING — it may be moving.

18. Avoid wearing loose clothing that may be caught in machinery. Shirt sleeves must be left buttoned or rolled above the elbow.
19. Ties must be tucked in shirt or have a tie clasp (preferably nonconductive) approximately 3 inches from end. Tie chains are not recommended.
20. Before powering up or starting equipment, make certain other CEs and customer personnel are not in a hazardous position.
21. Maintain good housekeeping in area of machines while performing and after completing maintenance.
22. Even though preventive measures are taken, accidents do occur. CEs and support personnel should be prepared to follow emergency first aid procedures as outlined below.

### First Aid — General

1. If accidental electrocution occurs:
  - a. Remove power source before touching victim.
  - b. If power cannot be removed, pull victim away from equipment by using non-conductive material such as a broom handle, leather belt, or necktie.
  - c. Immediately begin rescue breathing; see below.
  - d. Begin CPR if necessary and only if trained person is available.
  - e. Call a doctor.  
Have someone summon medical aid.
  - f. Remain in position.  
After victim revives, be ready to resume respiration if necessary.
2. For serious injury:
  - a. Summon medical aid.
  - b. Do not move victim unless absolutely necessary to remove from danger.
  - c. Attempt to stop serious bleeding by using pressure points or a pressure bandage.
  - d. Loosen clothing and keep victim warm.

### Artificial Respiration

#### General Considerations

1. Start Immediately, Seconds Count  
Do not wait or look for help or stop to loosen clothing, warm the victim or apply stimulants.
2. Check Mouth for Obstructions  
Remove foreign objects — Pull tongue forward.

#### Rescue Breathing for Adults — Place Victim on His Back Immediately

1. Clear throat of water, food, or foreign matter.
2. Tilt head back to open air passage.
3. Lift jaw up to keep tongue out of air passage.
4. Pinch nostrils to prevent air leakage when you blow.
5. Blow until you see chest rise.
6. Remove your lips and allow lungs to empty.
7. Listen for snoring and gurglings, signs of throat obstruction.
8. Repeat mouth to mouth breathings 10-20 times a minute. Continue rescue breathing until he breathes for himself, or medical aid arrives.



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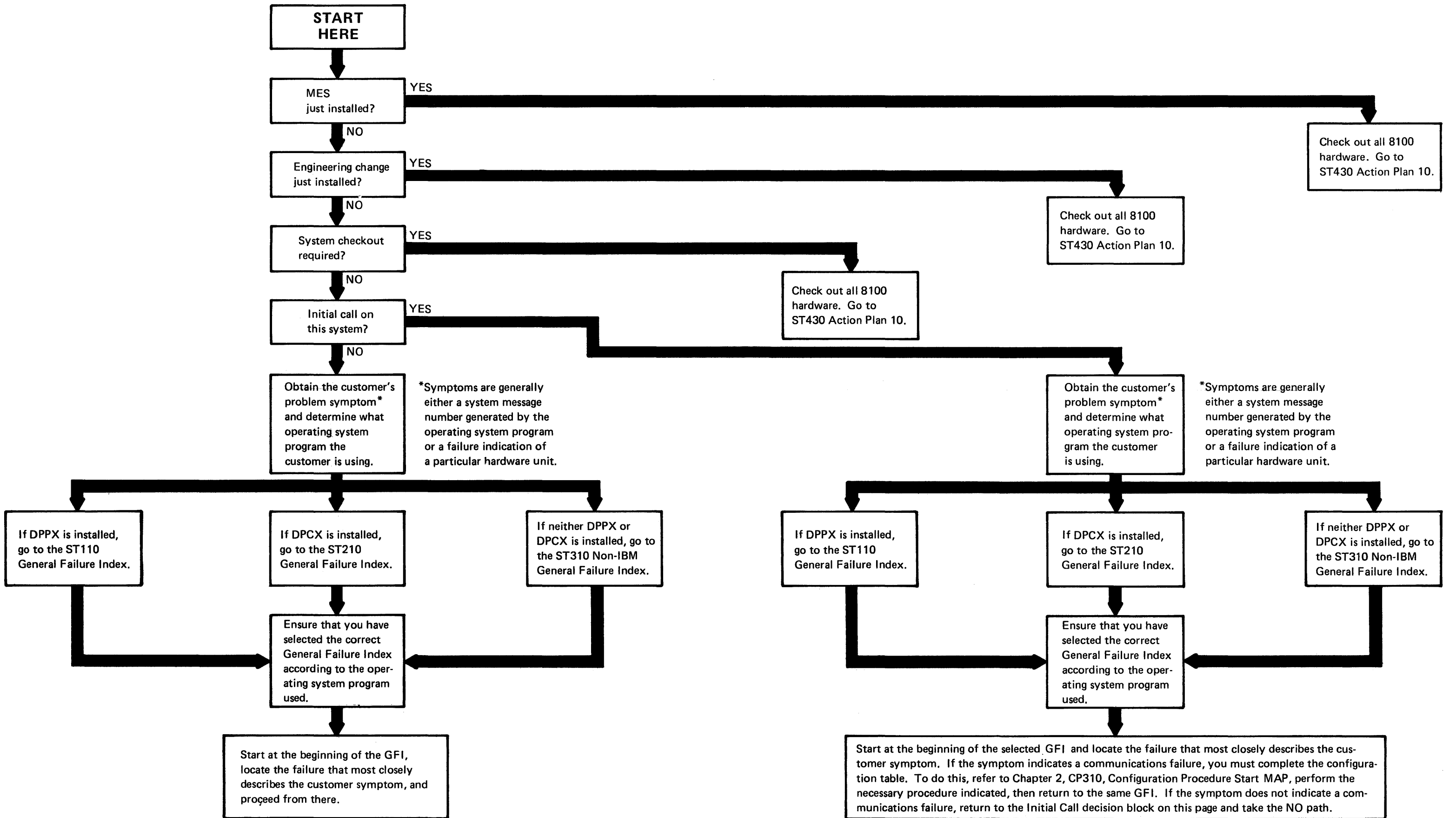


**Chapter 1. Start**  
**[General Failure Indexes (GFIs), Action Plans, and Procedures]**  
**(ST)**

## Start – 8100 Information System Initial Fault Isolation Procedure

This chapter provides three General Failure Indexes (GFIs) that are used to begin all fault isolation procedures for the 8100 Information System. Use one of the following:

- The DPPX General Failure Index, contained in ST110, lists all failures detected by the DPPX operating system, as well as those detected by either the customer or service representative while running under DPPX. These failures can occur either during installation of the program or while performing an IPL, operating online, or executing DPPX standalone test commands.
- The DPCX General Failure Index, contained in ST210, lists all failures detected by the DPCX operating system, as well as those detected by either the customer or service representative while running under DPCX. These failures can occur either during installation of the program or while performing an IPL, operating online, or executing DPPX standalone utilities.
- The non-IBM program product General Failure Index, contained in ST310, lists all failures detected by either the customer or service representative that relate to 8100 hardware, and which can occur either prior to installation of the operating system or while operating using a program other than DPPX or DPCX.



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## Abbreviations

BOP	basic operator panel
BSC	Binary Synchronous Communications
BSTAT	basic status register
CIL	condition/incident log
CSU	customer setup
DPCX	Distributed Processing Control Executive
DPPX	Distributed Processing Programming Executive
EFP	expanded function panel
EN	error number
FAC	Facilities for Attaching Communications
FL	Line Filter
FP	floating-point
FRU	field replaceable unit
GFI	General Failure Index
I/O	input/output
IPL	initial program load
LA	logical address
MAP	maintenance analysis procedure
MD	maintenance device
MI	manual intervention
PA	physical address
PIO	programmed I/O
PN	part number
PSCF	primary system control facility
ROS	read-only storage
SCF	system control facility
SDLC	Synchronous Data Link Communications
SMN	system message number
SS	Start-Stop
SSCF	secondary system control facility
TCM	test control monitor

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## ST100 Distributed Processing Programming Executive (DPPX)

This section contains the DPPX General Failure Index (GFI) and a list and description of DPPX system message numbers. It should be used for initial fault isolation procedures on all 8100 Information Systems that run under the DPPX operating system. The section assumes that you have a general knowledge of 8100 physical address assignments and understand how to use the Maintenance Device (MD). (See Chapter 2.)

### ST110 DPPX General Failure Index (GFI)

This GFI enables the user to establish a common approach and initiate fault isolation procedures on the 8100 Information System when the 8100 uses the DPPX operating system. The GFI contains all failures detected by DPPX while the DPPX program is being installed, IPL'ed, or operating, and also all other conditions that can be either reported by a customer or detected by a service representative during a repair.

**Note:** Start with the first entry in the failure indication column. If that failure did not occur, go to the next entry. Proceed through this chart in order until you find the failure indication that applies, then perform the action specified for that failure.

Failure Indication	Action
8130/8140 won't power on. Power On indicator off and Power/Thermal Check indicator on or off.	Go to ST440 Procedure 03.
While executing IPL, the BOP display remains blank, all zeros, all FFs, dim, or blinking after power-on complete.	Using MD diskette 01; select the BU MAP, and perform offline basic checkout option A.
IPL messages at BOP (IPL light on) including BU tests running from MD CSU, or while IPL'ing DPPX from disk storage. 0XXX 1XXX 2XXX 3XXX  48XX 5XXX	Go to ST410, Initial Program Load and Bringup Test Error Messages.  Go to ST121, DPPX Initial Program Load Messages.
IPL does not appear to occur in the mode selected by the IPL Mode switch setting.	Go to Chapter 5, BU255.
Undefined IPL message. XXXX	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
System operator messages occurring at a terminal during DPPX program operation. HDXXXXXXI HDXXXXXXP	Go to ST126, DPPX System Operator Messages.

Failure Indication	Action
DPPX system abend messages occurring at the BOP. 45XX 46XX 6XXX FXXX	Go to ST124, DPPX 8100 System Abend Messages.
XXBC messages occurring while processing a MAP or running tests offline from the MD or CSU diskette.  00BC to AFBC	Go to ST420, XXBC Test Control Monitor Messages.
These messages occurred while processing a MAP or running tests offline from the MD or CSU diskettes. X895 X896	Using the X8 value from message (SSCF address), go to ST430 Action Plan 14. X = The high-order digit of the SSCF address.
DPPX installation message occurred while installing DPPX. 49XX EXXX	Go to ST123, DPPX Installation Messages.
DPPX processor storage stand-alone dump messages. 49XX DXXX	Go to ST440, Procedure 08, DPPX Stand-alone Processor Storage Dump
DPPX tape standalone dump/restore messages. 49XX 4AXX	Go to ST122 DPPX Tape Standalone Dump/Restore Messages
Diskette drive not turning. Power indicator on.	Using MD diskette 03, select the DA MAP, and use the power failure entry.
BOP failure (digit display, keypad, key-lock, and indicators)	Using MD diskette 01, select the BU MAP, and use the BOP checkout option C for 8140, or basic checkout option A for 8130.
Diskette storage failure PA = 87, 97, A7, B7, C7 = adapter address Test failures = PA1E, PAMI	Using MD diskette 03, select the DA MAP, and perform offline basic checkout option A.
Disk storage failure PA = adapter address = 80, 90, 91, A0, A1, B0, B1 C0, C1 (Models AXX) = 84, 85 (Models BXX) Test failures = PA1E, PAMI	Using MD diskette 03, select the FA MAP, and perform offline basic checkout option A.

Failure Indication	Action
Display/printer attachment feature adapter/driver card failure. PA = adapter address* = 1F*, 2F*, 3F*, 4F*, 5F PT = port address = DA in DPPX message = 00-23 Test failures = PA1E, PAMI = PT2E, PTMI	Using MD diskette 03, select the AD MAP, and perform offline basic checkout option A on the failing ports.
Communications attachment feature failure (adapter, driver cards, local modem) PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX) Test failures = PA1E, PAMI	Using MD diskette 02, select the CA MAP,* and perform offline basic checkout option A.  *For airlines reservation RPO, use MD diskette 70 and select the CZ MAP.
Magnetic tape attachment feature or 8809 tape drive failure occurred when DPPX was not operating. PA = adapter address = 5E*, 73, 93, A3, B3, C3 DA = drive address = 00, 01, 02, 03 Test failures = PA1E, PAMI = DA2E, DAMI	Go to ST440 Procedure 02.
System Control Facility failure PA (PSCF) = 08 SC (SSCF) = 58, 88, 18, 28, 38, 48, 98, A8, B8, C8, 78 Test failures = 081E, 08MI (PSCF) = SC2E, SCMI (SSCF)	Using MD diskette 01, select the SC MAP. <ul style="list-style-type: none"> <li>● For 8140 basic checkout on all SSCFs, use option 1.</li> <li>● If the PA of the SSCF is known, use option 2.</li> <li>● For 8140 test failure 081E, or for 8130 without System Expansion Feature, use option 3.</li> </ul>
Expanded function operator panel failure PA = 080A Test failure = 0A2E, 0AMI	Using MD diskette 01, select the SP MAP and perform offline basic checkout option A.
Failure on multiple devices attached to the 8101 display/printer attachment feature PA = adapter address = 1F*, 2F*, 3F*, 4F*, 5F PT = port address = DA in DPPX message = 00-23 Test failures = PA1E, PAMI = PT2E, PTMI = PT3E, PTMI	Using MD diskette 03, select the AD MAP, and perform offline basic checkout option A on the failing ports.

\* Address is shared with another adapter.

Failure Indication	Action
Failure in a single device attached to the display/printer attachment feature PA = adapter address = 1F*, 2F*, 3F*, 4F*, 5F* PT = port address = DA in DPPX message = 00-23 Test failures = PT2E, PTMI = PT3E, PTMI	Go to Section 4 of the 8100 Attachment Manual for the associated failing device and refer to the troubleshooting guide. If the guide then returns you to the 8101, use MD diskette 03, select the AD MAP, and perform offline basic checkout option A.
8809 tape drive failures occurring while DPPX is operating. PA = adapter address = 5E*, 73, 93, A3, B3, C3 DA = drive address = 00-03 Test failures = PA1E, PAMI = DA2E, DAMI	Go to ST440 Procedure 07.
A single downstream control unit attached to a communications attachment feature is failing. PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX) GA = 3842/3843 Loop Control Unit link address (if present) SA = downstream control unit link address	<ol style="list-style-type: none"> <li>1. Request a checkout of the downstream control unit.</li> <li>2. Using MD diskette 02, select the CA MAP*, and perform offline basic checkout option A including link/loop test fault isolation procedures.</li> </ol> *For airlines reservation RPO, use MD diskette 70 and select the CZ MAP.
A downstream link or loop has totally failed. PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX)	Using MD diskette 02, select the CA MAP*, and perform offline basic checkout option A including link/loop tests and fault isolation procedures.  *For airlines reservation RPO, use MD diskette 70 and select the CZ MAP.
DPXX hangs (no message number, or message cannot be found).	Go to ST430 Action Plan 10.
Symptom not clear, none of the above failure indications apply, or a system checkout is required after a repair, relocation, installation, MES install, or removal.	Go to ST430 Action Plan 10.



**ST120 DPPX System Message Numbers**

*ST121 DPPX Initial Program Load Messages (48XX, 5XXX)*

DPPX generates the following messages for errors that occur during an initial program load sequence. All messages are in the 48XX and 5XXX format, and display at the BOP

Message No.	Description	Action
4800	Hang while executing the DPPX Bootstrap II module.	Go to ST430 Action Plan 31.
4805	Disk failure occurred while reading DPPX initial program from system-resident disk storage.	Go to ST430 Action Plan 12.
4809	A system check occurred while processing the DPPX bootstrap.	Go to ST430 Action Plan 31.
48CC	Hang occurred just prior to passing control to the System Initialization Loader module. The System Initialization Loader module could be defective. Occasionally, a hardware failure could cause a hang.	Go to ST430 Action Plan 31.
48EE 48FF	A system check occurred while processing the DPPX bootstrap.	Go to ST430 Action Plan 31.
5000	Hang while initialization loader is in progress.	Go to ST430 Action Plan 31.
5001	Hang when the initialization loader completes and transfers control to the next IPL phase.	Go to ST430 Action Plan 31.
500A	IPL prompt for operator console definition.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.

Message No.	Description	Action
5040 5050	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
505A	IPL prompt for system parameter list.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
5061	A system check occurred while performing a standalone tape I/O operation.	Go to ST430 Action Plan 31.
506A	An invalid catalog ID was entered at the BOP.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
5070	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
5078	Invalid response to message 505A.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
507B	Initialization loader cannot find a module in the library specified. A hardware problem is not indicated.	Report problem to Network Control for problem determination.
507C	The initialization loader could not find the nucleus load list specified.	
5080 5081	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
5082	A system check occurred while performing a disk storage I/O operation.	Go to ST430 Action Plan 31.
5083	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
5084	Disk storage record not found. Possible system-resident disk storage hardware or surface format problem, or a DPPX program code error.	Go to ST430 Action Plan 12.
5085	A system-resident multisector count error occurred.	Go to ST430 Action Plan 12.
5086	A system-resident disk storage write-protected error occurred.	Go to ST430 Action Plan 12.
5087	Unexpected status occurred from system-resident disk storage.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
5088 5089	A system-resident disk storage adapter error occurred.	
508C	Initialization loader cannot locate the System Parameter List Module in the catalog specified.	
5090	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
5091 5092	A system-resident disk storage ID or data CRC error occurred.	Go to ST430 Action Plan 12.
5093	A system-resident disk storage not ready condition occurred.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
5094	A system-resident disk storage data unsafe condition occurred.	
5095	A system-resident disk storage incorrect speed condition occurred.	
5096	A system-resident disk storage sector was unreadable and could not be recovered.	Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
5097	Disk storage record not found. Possible system-resident disk storage hardware or surface format problem, or a DPPX programming code error.	Go to ST430 Action Plan 12.
5098	Initialization failed while performing disk storage operation. Possible DPPX code error or 8100 hardware failure.	Go to ST430 Action Plan 12.
5099	An unrecognized adapter Return Code occurred from an FDM during a standalone operation.	If the device type could not be determined and the adapter Return Code was not listed in <i>DPPX/Base Messages and Codes, SC27-0407</i> , go to ST430 Action Plan 30.
50B3	The time ID is invalid. DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
50B4	Unexpected interrupt occurred from the PSCF.	Go to ST430 Action Plan 32.
50B5	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
50B6	A system check occurred while performing a PSCF I/O operation.	Go to ST430 Action Plan 32.
50B8 50B9	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
50EE	An undefined system check occurred.	Go to ST430 Action Plan 38.
50FF	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	Go to ST430 Action Plan 32.
5110	Storage Management initialization start hang.	Go to ST430 Action Plan 32.
5118	Failure during Storage Management initialization.	Go to ST430 Action Plan 32.
5130	Hang while setting the system to logical mode on level 7.	Go to ST430 Action Plan 32.
5150	Hang during CPU Management initialization.	Go to ST430 Action Plan 32.

Message No.	Description	Action
5158	Failure during CPU Management initialization.	Go to ST430 Action Plan 32.
51EE	Program exception hang prior to CPU Management initialization.	Go to ST430 Action Plan 32.
51FF	Program exception during CPU Management initialization.	Go to ST430 Action Plan 32.
5210	Hang during Queue Management initialization.	Go to ST430 Action Plan 32.
5218	Failure during Queue Management initialization.	Go to ST430 Action Plan 32.
5220	Hang during Lock Management initialization.	Go to ST430 Action Plan 32.
5228	Failure during Lock Management initialization.	Go to ST430 Action Plan 32.
5230	Hang during Master Environment Buffer initialization.	Go to ST430 Action Plan 32.
5238	Failure during Master Environment Buffer initialization.	Go to ST430 Action Plan 32.
5250	Hang during IOAS initialization.	Go to ST430 Action Plan 31.
5258	Failure during IOAS initialization.	Go to ST430 Action Plan 31.
5270	Hang during Data Management initialization.	Go to ST430 Action Plan 31.
5278	Failure during Data Management initialization.	Go to ST430 Action Plan 31.
5290	Hang during Contents Management initialization.	Go to ST430 Action Plan 31.
5298	Failure during Contents Management initialization.	Go to ST430 Action Plan 31.
52A0	Hang while starting initialization Part 3.	Go to ST430 Action Plan 31.
5310	Hang during CPU Management initialization Part 2.	Go to ST430 Action Plan 31.

Message No.	Description	Action
5318	Failure during CPU Management initialization Part 2.	Go to ST430 Action Plan 31.
5320	Hang while attaching the IOAS transient error recovery thread.	Go to ST430 Action Plan 31.
5328	Failure while attaching the IOAS transient error recovery thread.	Go to ST430 Action Plan 31.
5330	Hang during Environment Management initialization.	Go to ST430 Action Plan 31.
5338	Failure during Environment Management initialization.	Go to ST430 Action Plan 31.
5350	Hang while creating the I/O Service Router environment.	Go to ST430 Action Plan 31.
5351	Failure during a Create Queue operation.	Go to ST430 Action Plan 31.
5352	Failure on DEQ.	Go to ST430 Action Plan 31.
5358	Failure while creating the I/O Service Router environment.	Go to ST430 Action Plan 31.
5360	Hang during creation of Command Facility and Central Message Handler environment.	Go to ST430 Action Plan 31.
5368	Failure during creation of Command Facility and Central Message Handler environment.	Go to ST430 Action Plan 31.
53B0	Hang during Timer Management initialization.	Go to ST430 Action Plan 31.
53B8	Failure during Timer Management initialization.	Go to ST430 Action Plan 31.
53D0	Hang during Error Log Management initialization.	Go to ST430 Action Plan 31.
53D8	Failure while attaching the Error Log Manager thread.	Go to ST430 Action Plan 31.
5410	Hang while executing the mandatory command list.	Go to ST430 Action Plan 31.

Message No.	Description	Action
5418	Failure while executing the mandatory command list.	Go to ST430 Action Plan 31.
5420	Hang during execution of the optional command list.	Go to ST430 Action Plan 31.
5511	DPPX IPL completed with an error, which occurred while attempting to log the IPL record. The system is ready for operator logon.	Hardware failure should be apparent after logon and task activation. Obtain and troubleshoot messages occurring after logon.  If messages do not indicate a hardware failure or logon cannot be performed, report problem to Network Control for further problem determination.
5520	DPPX IPL completed with an error, which occurred while executing the optional command list. The system is ready for operator logon.	
5521	DPPX IPL completed with an error, which occurred while executing the optional command list, or attempting to log the IPL record. The system is ready for operator logon.	
5530	DPPX IPL completed with an error, which occurred while attempting to free system parameter storage. The system is ready for operator logon.	
5531	DPPX IPL completed with an error, which occurred while attempting to log the IPL record and attempting to free system parameter storage. The system is ready for operator logon.	
5540	DPPX IPL completed with an error, which occurred while attempting to free the system parameter storage and while executing the optional command list. The system is ready for operator logon.	

Message No.	Description	Action
5541	<p>DPPX IPL completed with an error, which occurred either while:</p> <ul style="list-style-type: none"><li>● Attempting to log the IPL record.</li><li>● Attempting to free the system parameter storage.</li><li>● Executing the optional command list.</li></ul> <p>The system is ready for operator logon.</p>	<p>Hardware failure should be apparent after logon and task activation. Obtain and troubleshoot messages occurring after logon.</p> <p>If messages do not indicate a hardware failure or logon cannot be performed, report problem to Network Control for further problem determination.</p>
55CC	<p>DPPX IPL completed without error. The system is ready for operator logon.</p>	<p>No hardware failure indicated. If logon cannot be performed, report problem to Network Control for problem determination.</p>

**ST122 DPPX Tape/Diskette Standalone Dump/Restore Messages (49XX, 4AXX, 4BXX)**

When using the DPPX tape/diskette Standalone Dump Restore Utility, the dump function copies all of disk storage to an 8809 tape or to diskettes; the restore function restores the copied data back to disk storage.

Refer to the *DPPX/Base Operations* manual, SC27-0406, for the description and operation of this utility.

DPPX generates the following messages at the BOP while executing the Dump/Restore Utility:

Message No.	Description	Action
4900	DPPX diskette bootstrap initial progress message.	Go to ST430 Action Plan 35.
4902	Diskette storage seek error occurred.	Go to ST430 Action Plan 33.
4903	An uncorrectable diskette media write error occurred.	If failure occurs after inserting new diskette, go to ST430 Action Plan 33.
4904	Diskette storage seek error occurred.	Go to ST430 Action Plan 33.
4905	An unrecoverable diskette storage read error occurred.	Go to ST430 Action Plan 33.
4910	A diskette storage not ready condition occurred.	Using MD diskette 03, select the DA MAP and perform offline checkout option A including the manual intervention test on the failing diskette.
49CC	Hang occurred just before the diskette bootstrap transferred control to the dump/restore code. The dump/restore code could be defective. Occasionally, a hardware failure could cause a hang.	Go to ST430 Action Plan 31.
49EE	The DPPX diskette bootstrap detected a system check.	Go to ST430 Action Plan 38.
49FF	The DPPX diskette bootstrap detected a program exception.	Go to ST430 Action Plan 38.
4A00 4A01 4A02 4A03	Hang indicator when running the Dump/Restore program.	Go to ST430 Action Plan 38.

Message No.	Description	Action
4A0A 4A10 4A11 4A14	Prompt for "From" device.	Refer to <i>DPPX/Base Operations</i> , SC27-0406, for a complete message description and proper response. Problems associated with the response should be reported to Network Control for problem determination.
4A1A	Prompt for "To" device.	
4A23 4A27 4A2A	Prompt for "Dump ID"	
4A3A	Information message. "To" disk is larger than "From" disk.	
4A40	An I/O operation was requested on an invalid device type.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
4A41	A function request block busy condition occurred. Failures normally indicate a programming code error, but occasionally a hardware failure could cause a program error indication.	Go to ST430 Action Plan 38.
4A42	A secondary component address not open condition occurred. Problem could be disk, diskette storage, or tape hardware, or a DPPX program code error.	Go to ST430 Action Plan 37.
4A43	A primary component address not open condition occurred. Problem could be disk, diskette storage, or tape hardware, or a DPPX program code error.	Go to ST430 Action Plan 37.

Message No.	Description	Action
4A44	A program exception occurred during a diskette operation. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	Go to ST430 Action Plan 38.
4A45	Diskette storage record not found. Possible diskette storage hardware, diskette media, or DPPX programming code error.	Go to ST430 Action Plan 33.
4A46 4A47 4A48 4A49	A diskette storage data check occurred.	Go to ST430 Action Plan 33.
4A4A	The last media used during a "Restore to Disk" operation was mounted out of sequence.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
4A50	An incorrect I/O request was issued. A DPPX programming code error normally causes this failure.	Report problem to Network Control for problem determination.
4A51	Diskette drive programming component address not ready. Possible DPPX programming error or diskette storage ready problem.	1. Using MD diskette 03, select the DA MAP and perform offline basic checkout option A including manual intervention routines.  2. Report problem to Network Control for problem determination.

Message No.	Description	Action
4A52	A system check occurred while using diskette storage.	Go to ST430 Action Plan 38.
4A53	A diskette storage overrun/underrun condition occurred.	Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A on the failing diskette.
4A54	A diskette storage adapter timeout occurred.	Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A on the failing diskette.
4A55	A diskette storage seek check occurred.	Go to ST430 Action Plan 33.
4A56 4A57	A diskette storage equipment check occurred.	Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A on the failing diskette.
4A58	A diskette storage I/O machine check occurred.	Go to ST430 Action Plan 33.
4A59 4A5A	Prompt for next media mount.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
4A60	A function definition module (FDM) busy condition occurred.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.
4A61	An attempt was made to open a tape drive that was already open.	
4A62	A primary component address not open condition occurred. Problem could be disk or diskette storage or tape hardware or a DPPX programming code error.	Go to ST430 Action Plan 37.

Message No.	Description	Action
4A63	A program exception occurred during a tape operation. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	Go to ST430 Action Plan 38.
4A64 4A65	A tape operation terminated because of either a possible hardware problem or a DPPX programming code error.	Go to ST430 Action Plan 38.
4A66	A tape overrun/underrun condition occurred.	Using MD diskette 03, select the TA MAP and perform offline basic checkout option A on the failing drive.
4A67	A tape channel I/O machine check occurred.	Using MD diskette 03, select the TA MAP and perform offline basic checkout option A on the failing adapter and drive.
4A68	A tape "position lost" condition occurred.	Using MD diskette 03, select the TA MAP and perform offline basic checkout option A on the failing drive.
4A69	A tape data check occurred.	If tape media has been eliminated as the source of the problem, go to 8809 Maintenance Manual START MAP.
4A6A	Dump ID is different than ID specified.	Refer to <i>DPPX/Base Operations, SC27-0406</i> , for a complete message description and proper response. Problems associated with the response should be reported to Network Control for problem determination.
4A70	DPPX Device Vector Table not found.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.
4A71	A tape loop write to read failure occurred.	Using MD diskette 03, select the TA MAP and perform offline basic checkout option A on the failing drive.

Message No.	Description	Action
4A72	Mounted tape does not have a write-protect ring.	If ring is present, go to 8809 Maintenance Manual START MAP.
4A73	A tape drive not ready condition occurred.	If tape drive cannot be made ready, go to the 8809 Maintenance Manual START MAP.
4A74	A tape drive data unsafe condition occurred.	Go to the 8809 Maintenance Manual START MAP.
4A75	A tape incorrect mode condition occurred.	
4A76	A tape market sensor indication occurred.	
4A77	Diskette drive programming component address not ready. Possible DPPX programming error or diskette storage ready problem.	1. Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A including manual intervention tests.  2. Report problem to Network Control for problem determination.
4A78	A program-initiated I/O machine check occurred during a tape standalone I/O operation.	Using MD diskette 03, select the TA MAP and perform offline basic checkout option A on the failing adapter and drive.
4A7A	Mounted media has incorrect dump ID.	Refer to <i>DPPX/Base Operations, SC27-0406</i> , for a complete message description and proper response. Problems associated with the response should be reported to Network Control for problem determination.
4A80 4A81	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	1. To eliminate hardware as the possible cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
4A82	A system check occurred while performing a disk storage I/O operation.	Go to ST430 Action Plan 38.

Message No.	Description	Action
4A83	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
4A84	Disk storage record not found. Possible disk storage hardware or surface format problem or DPPX programming code error.	Go to ST430 Action Plan 12.
4A85	A disk storage multisector count error occurred.	Go to ST430 Action Plan 12.
4A86	A disk storage write-protected error occurred.	Go to ST430 Action Plan 12.
4A87	Disk storage presented an unexpected status condition.	Using MD diskette 03, select FA MAP and perform offline checkout option A on the failing disk storage. The operator can identify the address being used.
4A88	A disk storage adapter error occurred.	
4A89	A disk storage seek check occurred.	
4A8A	Mounted tape does not have a write-protect ring.	If ring is present, go to the 8809 Maintenance Manual START MAP.
4A90	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
4A91 4A92	A disk storage ID or data CRC error occurred.	Go to ST430 Action Plan 12.

Message No.	Description	Action
4A93	A disk storage not ready condition occurred.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the failing disk storage. The operator can identify the address being used.
4A94	A disk storage data unsafe condition occurred.	
4A95	A disk storage incorrect speed indication occurred.	
4A96	Data from a disk storage sector could not be read or recovered.	Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
4A97	A disk storage defective sector was successfully reassigned but the sector data was lost and cannot be recovered.	Customer must restore the lost data. Report problem to Network Control.
4A98	A disk storage initialization failure occurred. This indicates a probable hardware failure.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the failing disk storage. The operator can identify the address being used.
4A99	An unknown adapter Return Code occurred during a standalone operation.	<ol style="list-style-type: none"> <li>If the failing component can be identified, go to ST110 and perform the action for that component.</li> <li>If the failing component cannot be identified, go to ST430 Action Plan 10 and perform a basic system checkout.</li> </ol>
4A9A 4AAA	Prompt for tape drive address.	Refer to <i>DPPX/Base Operations</i> , SC27-0406, for a complete message description and proper response. Problems associated with the response should be reported to Network Control for problem determination.
4AB3	An invalid Time ID adapter Return Code occurred from the FDM during a standalone SCF I/O operation.	Go to ST430 Action Plan 38.
4AB4	An unexpected interrupt occurred from the PSCF.	Go to ST430 Action Plan 38.

Message No.	Description	Action
4AB5	A Time Of Day Overflow adapter Return Code occurred from the FDM during a standalone SCF I/O operation.	Go to ST430 Action Plan 38.
4AB6	A system check occurred while performing an I/O operation to the PSCF.	Go to ST430 Action Plan 38.
4AB8 4AB9	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
4ACC	Dump/Restore completed successfully.	Refer to <i>DPPX/Base Operations</i> , SC27-0406, for complete message description and proper response.
4AEE	An undefined system check occurred.	Go to ST430 Action Plan 38.
4AF0	Invalid "From" device specified.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for a complete message description and proper response.
4AF1	Invalid "To" device specified.	
4AF2	Invalid "From-To" device combination specified.	
4AF3	Disk to be restored is smaller than dumped disk.	
4AF4	Operator requested termination after incorrect media mounted.	
4AF5	Fixed head characteristic dumped from disk does not match the restored disk.	
4AF8	Tape blocks read do not match block count control record. Probable tape media problem.	If tape media has been eliminated as the source of the problem, go to the 8809 Maintenance Manual START MAP.
4AF9	An unexpected tape mark indication occurred.	
4AFE 4AFF	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
4BEE	A system check occurred.	Go to ST430 Action Plan 38.
4BFF	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"><li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li><li>2. Report the problem to Network Control for problem determination.</li></ol>



ST123 DPPX Installation Messages (49XX, EXXX)

DPPX generates the following messages at the BOP during a DPPX program installation.

For actual DPPX installation procedures, refer to the *DPPX/Base Installation Guide*, SC27-0401.

Message No.	Description	Action
4900	DPPX diskette bootstrap initial progress message.	Go to ST430 Action Plan 35.
4902	Diskette storage seek error occurred.	Go to ST430 Action Plan 33.
4903	An uncorrectable diskette media write error occurred.	If failure occurs after inserting new diskette, go to ST430 Action Plan 33.
4904	Diskette storage seek error occurred.	Go to ST430 Action Plan 33.
4905	An unrecoverable diskette storage read error occurred.	Go to ST430 Action Plan 33.
4910	A diskette storage not ready condition occurred.	Using MD diskette 03, select the DA MAP and perform offline basic checkout option A including the manual intervention tests on the failing diskette.
49CC	A hang occurred just before the diskette bootstrap transferred control to the installation code. The installation code or the diskette could be defective, or there could be a diskette storage hardware problem.	To eliminate hardware as the possible failure cause, go to ST430 Action Plan 33.
49EE	The DPPX diskette bootstrap detected a system check.	Go to ST430 Action Plan 35.
49FF	The DPPX diskette bootstrap detected a program exception.	Go to ST430 Action Plan 35.
E000	A hang occurred during initialization of the system-resident disk storage.	Go to ST430 Action Plan 35
E006	Disk storage initialization is terminating because a valid volume label and VTOC have been found, and operator has requested termination of initialization. DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E008 E009	The master catalog or user catalog is full.	

Message No.	Description	Action
E00A	Installation prompt for processor type and feature code.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E010 E011	User catalog name or data set name cannot be found.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E012 E013	The catalog or data set name to be added already exists.	
E014	A disk sector address was requested that is outside the addressable space of system-resident disk storage.	
E015 E016	The master catalog or user catalog is full.	
E018	The IPL switches on the SC1 card do not contain hex 3 in bits 4 through 7.	Go to ST430 Action Plan 36.
E019	A disk sector address was requested that is outside the addressable space of system-resident disk storage.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E01A	Prompt for installation options.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.

Message No.	Description	Action
E020	A disk sector address was requested that is outside the addressable space of system-resident disk storage.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E023	An unexpected end of directory occurred.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E024	An entry for an input data set or user catalog name cannot be found in the update control record.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E026	An attempt was made to add a data set name to a catalog that already exists.	
E02A	Installation prompt for diskettes other than those used in the U.S. and Canada.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E03A	Prompt for number of master catalog entries.	
E040	An I/O operation was requested on an invalid device type.	
E041	A function request block busy condition occurred.	Go to ST430 Action Plan 35.

Message No.	Description	Action
E042	A secondary component address not open condition occurred. Problem could be disk or diskette storage hardware or a DPPX program code error.	Go to ST430 Action Plan 34.
E043	A primary component address not open condition occurred.	Go to ST430 Action Plan 34.
E044	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	Go to ST430 Action Plan 35.
E045	Diskette storage record not found. Possible diskette storage hardware, diskette media, or DPPX programming code error.	Go to ST430 Action Plan 33.
E046 E047 E048 E049	A diskette storage data check occurred.	Go to ST430 Action Plan 33.
E04A	Response to message E03A was invalid.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be report to Network Control for problem determination.
E050	A command unknown indication occurred from the standalone I/O processor.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be report to Network Control for problem determination.
E051	Diskette drive programming component address not ready. Possible DPPX programming code error or diskette storage ready problem.	<ol style="list-style-type: none"> <li>Using MD diskette 03, select the DA MAP and perform offline basic checkout option A including manual intervention routines.</li> <li>Report problem to Network Control for problem determination.</li> </ol>
E052	A system check occurred while using diskette storage.	Go to ST430 Action Plan 35.

Message No.	Description	Action
E053	A diskette storage overrun/under-run condition occurred.	Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.
E054	A diskette storage adapter time-out occurred.	
E055	A diskette storage seek check occurred.	Go to ST430 Action Plan 33.
E056 E057	A diskette storage equipment check occurred.	Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.
E058	A diskette storage I/O machine check occurred.	Go to ST430 Action Plan 33.
E059	A Control Record Found adapter Return Code occurred from the FDM during a standalone I/O operation.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E05A	Response to message E08A was invalid.	
E060 E061 E062 E063 E064 E065 E066 E067 E068 E069	DPPX program error occurred from the FDM during a standalone tape I/O operation. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description.</li> <li>Go to ST430 Action Plan 38.</li> </ol>
E06A	Prompt for number of directory entries.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.

Message No.	Description	Action
E070	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
E071	A Loop Write to Read Return Code occurred from the FDM during a standalone tape I/O operation.	Go to ST430 Action Plan 38.
E072	An Intervention Required Return Code occurred during a standalone tape operation.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for a complete message description and proper response.
E073 E074 E075 E076	DPPX program error occurred from the FDM during a standalone tape I/O operation. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description.</li> <li>Go to ST430 Action Plan 38.</li> </ol>
E07A	Response to message E06A was invalid.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.
E080 E081	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
E082	A system check occurred while performing a disk storage I/O operation.	Go to ST430 Action Plan 35.

Message No.	Description	Action
E083	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
E084	Disk storage record not found. Possible system-resident disk storage hardware or surface format problem or DPPX programming code error.	Go to ST430 Action Plan 12.
E085	A disk storage multi-sector count error occurred.	Go to ST430 Action Plan 12.
E086	A system-resident disk storage write-protected error occurred.	Go to ST430 Action Plan 12.
E087	Unexpected status occurred from the system-resident disk storage.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This disk is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
E088	A system-resident disk storage adapter error occurred.	
E089	A disk storage failure occurred.	
E08A	Prompt for catalog increments.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E090	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
E091 E092	A system-resident disk storage ID or Data CRC error occurred.	Go to ST430 Action Plan 12.
E093	A system-resident disk storage not ready condition occurred.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
E094	A system-resident disk storage data unsafe condition occurred.	
E095	A system-resident disk storage incorrect speed condition occurred.	
E096	Data from a system-resident disk storage sector could not be read or recovered.	Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
E097	Disk storage record not found. Possible system-resident disk storage hardware or surface format problem or DPPX programming code error.	Go to ST430 Action Plan 12.
E098	A disk storage initialization failure occurred. This indicates a probable hardware failure.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
E099	An unknown adapter Return Code occurred from the FDM during a standalone I/O operation.	<ol style="list-style-type: none"> <li>If the failing component can be identified, go to ST110 and perform the action for that component.</li> <li>If the failing component cannot be identified, go to ST430 Action Plan 10 and perform a basic system check-out.</li> </ol>

Message No.	Description	Action
E09A	A valid volume label and VTOC were found on the system-resident disk storage. Prompt is requesting permission to continue installation.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E0AA	Prompt for next diskette.	
E0AB	Either the HSPINIHIB inhibit bit or the HSPDLINH inhibit bit in the HDHSP catalog profile area was on during a data set add or delete operation.	
E0AC	The directory Damage bit was set during a data set add or delete.	
E0B3	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
E0B4	An unexpected interrupt occurred from the PSCF.	Go to ST430 Action Plan 35.
E0B5	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>
E0B6	A system check occurred while performing an I/O operation to the PSCF.	Go to ST430 Action Plan 35.
E0B8 E0B9	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.</li> <li>Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
E0BA	Mounted diskette out of sequence.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E0CA	Mounted diskette is not an installation diskette.	
E0CC	Installation completed normally.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for complete message description and proper response.
E0DA	Prompt for Service Level Update.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
E0EA	Prompt for system-resident device type and address.	
E0EE	A system check occurred.	Go to ST430 Action Plan 35.
E0FA	No nucleus exists for the parameter specified in the previous prompts.  DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description and customer problem determination procedures.
E0FE	An unknown Return Code occurred. DPPX program error. These failures normally indicate a programming design defect, but a hardware failure could occasionally cause a program error indication.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.  2. Report the problem to Network Control for problem determination.
E0FF	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	Go to ST430 Action Plan 35.

Message No.	Description	Action
E10A	Prompt for partial initialization.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
EF40 EF50 EF70 EF80 EF81	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.  2. Report the problem to Network Control for problem determination.
EF82	A system check occurred while performing a standalone disk I/O operation.	Go to ST430 Action Plan 35.
EF83 EF84 EF85 EF86 EF87	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.  2. Report the problem to Network Control for problem determination.
EF88	An adapter error occurred while performing a standalone disk I/O operation.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This disk is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.

Message No.	Description	Action
EF89 EF90	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system check-out.  2. Report the problem to Network Control for problem determination.
EF91	A CRC check occurred from the FDM during a standalone disk I/O operation. Possible disk media problem.	Go to ST430 Action Plan 12.
EF92	A CRC ID check occurred from the FDM during a standalone disk I/O operation. Possible disk media problem.	Go to ST430 Action Plan 12.
EF93	A File Not Ready occurred from the FDM during a standalone disk I/O operation.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This disk is normally address hex 80 for Models AXX or 84 for 8140 Models BXX. Some installations use another disk storage address as the system-resident disk. Check with the operator if address 80 or 84 is not used.
EF94	A Data Unsafe occurred from the FDM during a standalone disk I/O operation.	
EF95	A Speed Out Of Tolerance occurred from the FDM during a standalone disk I/O operation.	
EF96	An Error Code Successful occurred from the FDM during a standalone disk I/O operation.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the message description. Problems associated with the response should be reported to Network Control for problem determination.
EF97	Disk error recovery invoked during a standalone disk I/O operation. Probable disk media problem.	Go to ST430 Action Plan 12.

Message No.	Description	Action
EF98	An Initialization Failure occurred from the FDM during a stand-alone disk I/O operation.	Go to ST430 Action Plan 12.
EF99	An unknown adapter Return Code occurred during a stand-alone I/O operation.	<ol style="list-style-type: none"> <li>1. If the failing component can be identified, go to ST110 and perform the action plan for that component.</li> <li>2. If the failing component cannot be identified, go to ST430 Action Plan 10 and perform a basic system checkout.</li> </ol>
EFB3	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>
EFB4	An unexpected interrupt occurred from the SCF.	Go to ST430 Action Plan 35.
EFB5	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>
EFB6	A system check occurred while performing an I/O operation to the SCF.	Go to ST430 Action Plan 35.
EFB8 EFB9	DPPX program error. Failures normally indicate a programming code error, but occasionally a hardware problem could cause a program error indication.	<ol style="list-style-type: none"> <li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
EFCC	The alternate sector assignment utility terminated normally.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for complete message description and proper response.
EFEA	Alternate sector assignment utility prompt for disk drive address.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
EFEF	A system check occurred.	Go to ST430 Action Plan 35.
EFF2	Invalid track information was inputted to the alternate sector assignment utility.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
EFF4	The alternate sector assignment utility could not repair the track because no more alternate sectors were available.	The customer can identify the disk storage on which the DPPX utility was operating. Using Chapter 2, CP650, verify the condition of the disk storage surface. Attempt to reclaim sectors by formatting. If the surface cannot be reclaimed, notify Network Control that the disk element must be replaced and that reinstallation of the data sets and possibly DPPX is necessary. Obtain customer authorization before replacement.
EFF5	The alternate sector assignment utility could not find any defects on the track specified.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for complete message description and proper response.

Message No.	Description	Action
EFFA	Alternate sector assignment prompt for track address to be repaired.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description. Problems associated with the response should be reported to Network Control for problem determination.
EFFF	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	<ol style="list-style-type: none"> <li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 35.</li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>

ST124 DPPX System Abend Messages (45XX, 46XX, 47XX, 6XXX, FXXX)

DPPX generates the following messages at the BOP for all 8100 Information Systemabend conditions:

Message No.	Description	Action
45XX 46XX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
4602	Could not obtain storage for Queue Element (QEL) system control block. A hardware device could be presenting an invalid active interrupt.	Go to ST430 Action Plan 32.
47XX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
6001	An I/O adapter interrupted without being activated.	Go to ST430 Action Plan 32.
6002	An I/O interrupt occurred when all SSCF interrupt sublevels were off.	Go to ST430 Action Plan 32.
6003	The adapter that requested an interrupt does not have an interrupt pending.	Go to ST430 Action Plan 32.
6007	Either an unrecoverable system-resident disk storage adapter or a processor storage failure occurred.	1. Using MD diskette 03, select the FA MAP and perform off-line basic checkout option A on the system-resident disk storage. 2. Go to ST430 Action Plan 20 Step 7(2) and perform storage scan Routine 39. 3. Go to ST440 Procedure 08. 4. Request aid.
6010	An unrecoverable system-resident disk storage failure occurred.	Go to ST430 Action Plan 12.

Message No.	Description	Action
60EE	An I/O machine check occurred while the processor I/E unit was either disabled or running on the second-level interrupt handler.	Go to ST430 Action Plan 32.
60FF	A program exception occurred while the processor I/E unit was either disabled or running on the second-level interrupt handler. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
61EE	A system check occurred either in the SCF or while processing a program on the system-resident disk storage.	Go to ST430 Action Plan 31.
61FF	A program exception occurred while processing a program on the system-resident disk storage or in the SCF. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
62FF	A system check occurred in the SCF.	Go to ST430 Action Plan 32.
F1EE	A system check occurred and no log record was available for recording.	Go to ST430 Action Plan 32.
F1FF	A program exception occurred and no log record was available for recording. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.

Message No.	Description	Action
F2EE	A system check occurred and no recovery was permitted.	Go to ST430 Action Plan 32.
F2FF	A program exception occurred and no recovery for the level was permitted. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
F3EE	A system check occurred while processing a previous system check.	Go to ST430 Action Plan 32.
F3FF	A program exception occurred while processing a previous system check or program execution. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
F4EE	A system check occurred and no recovery was permitted.	Go to ST430 Action Plan 32.
F4FF	A program exception occurred and no recovery was permitted. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.  2. Report the problem to Network Control for problem determination.
F5EE	A system check occurred and no storage was available to log the error.	Go to ST430 Action Plan 32.

ST125 Not Used

Message No.	Description	Action
F5FF	A program exception occurred and no storage was available to log the error. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	<ol style="list-style-type: none"><li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform a basic system checkout.</li><li>2. Report the problem to Network Control for problem determination.</li></ol>
F6EE	A system check occurred and no error log queue existed to log the error.	Go to ST430 Action Plan 32.
F6FF	A program exception occurred and no error log queue existed to log the error. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	<ol style="list-style-type: none"><li>1. To eliminate hardware as the possible failure cause, go to ST430 Action Code 10 and perform a basic system checkout.</li><li>2. Report the problem to Network Control for problem determination.</li></ol>
F7EE	An unexpected level zero I/O interrupt occurred.	Go to ST430 Action Plan 32.
F8EE	A system check occurred while the master mask was disabled.	Go to ST430 Action Plan 32.
F8FF	A program exception occurred while the master mask was disabled. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or storage could cause a program exception.	Go to ST430 Action Plan 32.
F9EE	A permanent channel I/O check has occurred.	Go to ST430 Action Plan 10.

ST126 DPPX System Messages (HDXXXXXX, HHXXXXXX, HIXXXXXX)

DPPX generates the following messages during normal operation and testing, and also for error conditions that occur during system operation. Messages using the format HDXXXXXX are I/O Adapter Services (IOAS) messages; HDXXXXXXI and HDXXXXXXP are information and prompt messages, respectively; HHXXXXXX are airlines reservation (RPQ) messages; HIFXXXXX are DSET messages; HIGXXXXX are ELSA messages; HIHXXXXX are link connection verification (LCV) messages. All messages in this section require action by either the customer or a Service Representative.

Message No.	Description	Action
HDBC0008I HDBC0009I HDBC0018I HDBC0019I	DPPX/Base Linkage Editor error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDBC005XI HDBC0060I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDBC0061I HDBC0062I HDBC0063I HDBC0064I	DPPX/Base Linkage Editor error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDBC0074I HDBDXXXXI HDBFXXXXI HDBIXXXXI HDBLXXXXI HDDI0001I through HDDI0005I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDDI0006I* HDDI0007I*	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. Obtain the 8100 system. Loop the bringup tests for 5 minutes from the system-resident disk. See Chapter 2, CP523 How to Run Bringup Tests from the System-Resident Disk.  For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.  2. Report the problem to Network Control for problem determination.
HDDI0008I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI0009I	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDDI0010I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI0011I through HDDI0015I	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDDI0016I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI0017I	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

\*This message causes an entry in the DPPX error log.



Message No.	Description	Action
HDDI00181	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI0019P*	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. Obtain the 8100 system. Loop the bringup tests for 5 minutes from the system-resident disk. See Chapter 2, CP523 How to Run Bringup Tests from the System-Resident Disk.  For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.  2. Report the problem to Network Control for problem determination.
HDDI00201 through HDDI00251	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDDI00261 HDDI00271	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDDI00281 through HDDI00461	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI00471 HDDI00481 HDDI00491	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDDI00501 through HDDI00581	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDDI00591	DPPX/Base debugging component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDDI00601 through HDDI00841 HDEK00XXI HDER00011	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDER00031 HDER00041 HDER00051	DPPX/Base error recovery component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDER00061	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
HDET0030P	DPPX/Base error recovery component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDFAXXXXP	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0001P HDGA0002P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0003X through HDGA0019X HDGA0020I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDGA0023P through HDGA0029P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0030I HDGA0031I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0032P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0033I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0034P through HDGA0037P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDGA0038I HDGA0039I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0041P HDGA0042P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0043I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0044P through HDGA0046P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDGA0047P through HDGA0050P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0051P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0052I through HDGA0054P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0055P HDGA0056P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0057I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDGA0058P through HDGA0062P	DPPX/Base Communication Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0080I HDGA0081I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDGA0082P HDGA0083P	DPPX/Base Communication Services Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDGA0084X through HDGA0110X HDGB0111I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed do them where possible; otherwise, report the problem to Network Control for further action.
HDGN0021I	Manual intervention required at remote device.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for a complete message description and proper response.
HDGN0070P through HDGN0073P	A logical unit became inoperative.	

Message No.	Description	Action
HDHC0005X through HDHC0101X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDHC0103P*	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
HDHC0121I through HDHC0123I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDHM001P	The tape Trailer Label Block Count does not equal the number of blocks read. Problem can be either the tape drive or the tape media.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.

Message No.	Description	Action
HDHM0002A HDHM0003A HDHM0004A HDHO0102P HDHO0116A	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDHR0117P HDHR0118P	A failure condition terminated I/O servicing for an adapter or thread. The message Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDIB0110P*	A failure occurred on the BSC/S-S communications adapter.  Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing communications adapter.
HDIB0111P*	A failure occurred on the BSC communications feature or its attached external modem (if present).  Message PA = adapter address.	
HDICO100P*	The S-S communications adapter received a message longer than the allocated data buffer.  Message PA = adapter address.	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the communications adapters. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.  a. At 80BC, enter PAB At 81BC, enter 1B  b. For any failure, using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing adapter.  If test is successful, inform Network Control that buffer size should be expanded.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDIC0101P*	A machine check occurred on the S-S communications adapter. Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing communications adapter.
HDIC0102P*	A failure occurred on the S-S communications feature or its attached external modem (if present). Message PA = adapter address.	
HDIC0103P*	The S-S communications feature detected that the data link remained at the continuous space level. Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A including S-S link tests on the S-S communications feature.
HDIC0104P*	The BSC/S-S communications feature detected a permanent data transmission failure. Message PA = adapter address.	
HDIG0068P*	Diskette storage record not found or Read CRC error occurred. Message PA = diskette storage address.	Go to ST430 Action Plan 29.
HDIH0112P* HDIH0113P*	A failure occurred on the secondary SDLC communications feature or its attached external modem (if present). Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing communications feature.
HDIH0114P*	The host does not acknowledge messages from the secondary SDLC communications feature. Message PA = adapter address.	<ol style="list-style-type: none"> <li>Using MD diskette 02, select the CA MAP and perform offline checkout option A on the secondary SDLC communications feature.</li> <li>Report problems to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
HDIH0115P	An SNA synchronism problem occurred between the secondary SDLC communications feature and the host primary (SNRM received while secondary in contact mode). Message PA = adapter address.	Report problem to Network Control for problem determination.
HDIM0074P*	While receiving from a data link-attached loop group, the primary SDLC communications adapter detected continuous data or flags. Message PA = adapter address. Message GA = link address of 3842 or 3843 Loop Control Unit.	<ol style="list-style-type: none"> <li>Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> <li>Using MD diskette 02, select the CA MAP, and perform offline checkout option A including link tests on the associated communications feature.</li> <li>Request aid.</li> </ol>
HDIM0075P*	A data link attached loop group does not respond to polls from the SDLC primary communications feature. Message PA = adapter address. Message GA = link address of 3842 or 3843 Loop Control Unit.	
HDIM0076P*	Overruns/underruns have occurred on SDLC primary communication adapter. Message PA = adapter address.	Go to ST430 Action Plan 18.
HDIM0077P	A failure occurred on a primary SDLC communications feature. Failure type is unknown and error recovery was not performed because enough system resources (processor storage) were not made available to the adapter. Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing primary communication feature. Inform Network Control that a potentially serious resource shortage exists and that error recovery cannot be performed by the communications feature.

Message No.	Description	Action
HDIM0078P	An SNA synchronism problem occurred between the primary SDLC communications feature and a downstream station. Message PA = communications adapter address. Message SA = downstream station link address.	Report problem to Network Control for problem determination.
HDIM0079P*	Receive buffer overruns are occurring on the primary SDLC communications adapter. Buffer is too small for the message being received. Message PA = adapter address.	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the communications adapters. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures. <ol style="list-style-type: none"> <li>At 80BC, enter PAB. At 81BC, enter 1B.</li> <li>For any failure, using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing communications adapter. If test is successful, the receive buffer should be expanded. Report problem to Network Control for problem resolution.</li> </ol>
HDIM0080P*	A failure was detected in the loop wiring directly attached to a primary SDLC communications feature. Message PA = communications adapter address.	<ol style="list-style-type: none"> <li>Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> <li>Using MD diskette 02, select the CA MAP, and perform offline checkout option A including link tests on the associated communications feature.</li> <li>Request aid.</li> </ol>

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDIM0081P	An invalid function request was issued to the program module that controls the primary SDLC communication adapter. A hardware problem is not indicated.  Message PA = adapter address.	Report problem to Network Control for problem determination.
HDIM0082P	Primary SDLC communications performance information message.  Message PA = communications adapter address.  Message SA = link station address with which counters are associated.  Message GA = 3842/3843 Loop Control Unit link address, if present.  Frames Processed = total number of good and bad frames processed for the indicated station.  Retries = total number of bad frames processed for the indicated station.	<ol style="list-style-type: none"> <li>1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> <li>2. Using MD diskette 02, select the CA MAP, and perform offline checkout option A including link tests on the associated communications feature.</li> <li>3. Request aid.</li> </ol>
HDIM0083P*	The adapter is filling the primary SDLC communications adapter data buffer faster than the support program can process the data.  Message PA = adapter address.	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the communications adapters. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.  a. At 80BC, enter PAB At 81BC, enter 1B.  b. For any failure, using MD diskette 02, select the CA MAP and perform DPPX checkout option B or offline checkout option A on the failing communications adapter. If test is successful, inform Network Control that the buffer size should be re-defined.

Message No.	Description	Action
HDIM0084P*	A failure occurred on either the primary SDLC communications feature or the attached external modem (if present).  Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing communications feature.
HDIM0085P	A station attached to a primary communications feature does not respond to polls.  Message PA = communications adapter address.  Message SA = station link address.	<ol style="list-style-type: none"> <li>1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> </ol>
HDIM0086P*	All stations on a loop directly attached to a primary SDLC communications feature do not respond to polls.  Message PA = adapter address.	<ol style="list-style-type: none"> <li>2. Using MD diskette 02, select the CA MAP, and perform offline checkout option A including link tests on the associated communications feature.</li> </ol>
HDIM0087P*	While receiving from a standalone station, the primary SDLC communications adapter detected either continuous flags or data.  Message PA = adapter address.  Message SA = station link address.	<ol style="list-style-type: none"> <li>3. Request aid</li> </ol>
HDIM0088P*	While receiving from a directly attached loop, the primary SDLC communications adapter detected either continuous flags or data.  Message PA = adapter address.	

Message No.	Description	Action
HDIM0089P*	A failure occurred on either the primary SDLC communications feature or its attached external modem (if present). Data set ready was not active.  Message PA = adapter address.	Using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing adapter.
HDIM0090P*	A failure occurred on the primary SDLC directly attached loop communications feature.  Message PA = adapter address.	
HDIM0092P*	A station attached to a primary communications feature is sending invalid or incorrect responses.  Message PA = communications adapter address.  Message SA = failing station link address.  Message GA = 3842/3843 Loop Control Unit link address, if present.	<ol style="list-style-type: none"> <li>1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> <li>2. Using MD diskette 02, select the CA MAP*, and perform link tests on the associated communications feature.</li> <li>3. Request aid.</li> </ol> <p>*For airlines reservation RPQ, use MD diskette 70 and select the CZ MAP.</p>
HDIM0093P*	A station attached to a primary communication feature did not correctly acknowledge a write message. Retries exhausted.  Message PA = communications adapter address.  Message SA = failing station link address.  Message GA = 3842/3843 Loop Control Unit Link address, if present.	<ol style="list-style-type: none"> <li>1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i>.  Perform the problem determination procedures only if they were not done.</li> <li>2. Using MD diskette 02, select the CA MAP*, and perform offline checkout option A on the associated communications feature.</li> <li>3. Request aid.</li> </ol> <p>*For airlines reservation RPQ, use MD diskette 70 and select the CZ MAP.</p>

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDIM0094P*	Beacons were received from a data link attached loop group connected to a primary SDLC communications feature.  Message PA = communications adapter address.  Message SA = failing station link address.  Message GA = 3842/3843 Loop Control Unit Link Address, if present.  Message DT = device type	1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i> .  Perform the problem determination procedures only if they were not done.  2. Using MD diskette 02, select the CA MAP, and perform offline checkout option A on the associated communication feature.  3. Request aid
HDIM0095P*	Beacons were received from a directly attached loop connected to a primary SDLC communications feature.  Message PA = communications adapter address.  Message SA = failing station loop address.  Message DT = device type	1. Verify that the customer performed the problem determination procedures as specified in <i>DPPX/Base Operations, SC27-0406</i> .  Perform the problem determination procedures only if they were not done.  2. Using MD diskette 02, select the CA MAP*, and perform offline checkout option A on the associated communication feature.  3. Request aid.
HDIM0096P*	A station attached to a primary communications feature did not correctly acknowledge a write message.  Message PA = communications adapter address.  Message SA = failing station link address.  Message GA = 3842/3843 Loop Control Unit link address, if present.  Message DT = device type.	*For airlines reservation RPO use MD diskette 70 and select the CZ MAP.
HDIM0097P*	The primary SDLC communications feature received a message from an unidentified station.  Message PA = communications adapter address.  Message SA = link address of unidentifiable station.  Message GA = link address of group.  Message DT = device type.	Report problems to Network Control for problem determination.

Message No.	Description	Action
HDIM0098P*	A station is not attached to the expected data link loop group.  Message PA = communications adapter address.  Message SA = link address of incorrect station.  Message GA = 3842 or 3843 link address that station is expected to be on.  Message Group Address Polled = 3842 or 3843 loop group link address to which station is attached.  Message DT = device type.	Report problems to Network Control for problem determination.
HDIP0030P*	A defective sector was detected on disk storage.  Message Text = disk storage address and failing sectors.	Go to Chapter 2, CP656 How to Identify a Defective Sector Using DPPX Message HDIP0030P. Refer also to Utility Operation in CP654.
HDIR0006P*	A system check or program exception occurred on the indicated adapter.	Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Use the proper MD diskettes, select the required MAP and perform offline checkout option A on the failing adapter.
HDIT0052P*	An apparent 8809 tape media problem occurred.  Message PA = tape adapter address.  Message DA = tape drive address.  Message Error Codes: 8C33 = PEID check 8C38 = data security erase failure 8C39 = read data check 8C3A = write data check	Go to ST440 Procedure 07.

Message No.	Description	Action
HDIT0053P*	A tape adapter overrun occurred.  Message PA = tape adapter address  Message DA = tape drive address	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the communications adapters. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.  a. At 80BC, enter PADAB. At 81BC, enter 1B.
HDIT0055P*	Read operation was attempted on a tape not written at 1600 BPI (PE).  Message PA = tape adapter address.  Message DA = tape drive address.	b. For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A on the failing adapter/drive.  If test is successful, inform Network Control that tape is suspect and problem determination procedures should be performed.
HDIT0056P*	A beginning or end-of-tape sensor failure occurred on the 8809 drive.  Message PA = tape adapter address.  Message DA = tape drive address.	Go to the 8809 Maintenance Manual START MAP.
HDIT0057P*	A write or erase current check occurred on the 8809 tape drive.  Message PA = tape adapter address.  Message DA = tape drive address.	Mount a scratch tape on the failing tape drive then go to ST440 Procedure 07.
HDIU0010I HDIU0011I HDIU0012I HDIU0013I HDIU0015I HDIU0016I HDIU0017I	DPPX Information Messages.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for complete message description and proper response.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDIV0001P*	<p>A failure was detected on the device indicated by the message.</p> <p>Messages:  PA = adapter address  DA = device address  DT = adapter device type  = A = display/printer adapter  = F = SSCF</p>	<p>If DT = A, go to Section 4 of the 8100 attachment manual for the associated failing display/printer and refer to the Troubleshooting Guide. The message DA is the port number of the device. If the Troubleshooting Guide returns you to the 8100, using MD diskette 03, select the AD MAP, and perform offline check-out option A on the display/printer attachment feature and the failing port.</p> <p>If DT = F, obtain the system. Using MD diskette 01, select the SC MAP option 2 to test one SSCF. The message DA is the SSCF address X8. If SSCF address is 00, use SSCF address 88.</p>
HDIV0003A*	<p>The BSC/S-S communications feature detected a read failure. The terminal operator may re-enter the message up to four times. After four retries, the link is deactivated and a terminating message occurs.</p>	<p>If problem persists, identify terminating message HDIC0100, HDIC0101, HDIC0102, HDIC0103, or HDIC0104 and troubleshoot the terminating message.</p>
HDIV0051P*	<p>An adapter or adapter/device failure occurred.</p> <p>Messages:  PA = adapter address  DA = address of attached device where applicable  DT = device type of failing adapter*  Error Code = Failure Type*</p> <p>*For a description of device types and error codes, see ST128 DPPX SMN Device Type and Error Code Description.</p>	<p>Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the required MAP and perform offline check-out option A on the failing adapter.</p>

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDIV0054P*	<p>An adapter/device not ready condition occurred.</p> <p>Message PA = adapter address.</p> <p>Message DA = address of attached device where applicable.</p>	<p>Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the required MAP and perform offline check-out option A on the failing adapter.</p>
HDIV0058P*	<p>An adapter/device failure occurred.</p> <p>Messages:  PA = adapter address  DA = address of attached device where applicable  DT = device type of failing adapter*  Error Code = Failure type*</p> <p>*For a description of device types and error codes, see ST128 DPPX SMN Device Type and Error Code Description.</p>	

Message No.	Description	Action
HDIV0059P	<p>A DPPX program sequence error occurred while operating with a particular adapter/device.</p> <p>Message PA = adapter address.</p> <p>Message DA = address of attached device where applicable</p>	<p>Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the Free-Lance Utility, and run the adapter tests. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.</p> <p>a. For device type A (display/printer attachment) and T (tape adapter):</p> <p>At 80BC, enter PADAB  At 81BC, enter 1B.</p> <p>For all other device types;</p> <p>At 80BC, enter PAB  At 81BC, enter 1B.</p> <p>b. For any failure, using the proper MD diskette, select the required MAP and perform offline checkout option A on the failing adapter.</p> <p>c. Report problem to Network Control for program problem determination.</p>

Message No.	Description	Action
HDIV0061P*	An adapter/device overrun or underrun occurred.  Messages: PA = adapter address. DA = address of attached device, where applicable. With no device present, DA = 00. DT = device type of failing adapter.	Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD diskette Reference, identify the failing adapter. Using the proper MD diskette, select the Free-Lance Utility, and run the adapter tests. Refer to CP462 and CP600 for Free-Lance procedures.  a. For device type A (display/printer attachment) and T (tape adapter): At 80BC, enter PADAB At 81BC, enter 1B. For all other device types: At 80BC, enter PAB. At 81BC, enter 1B.  b. For any failure, using the proper MD diskette, select the required MAP, and perform offline checkout option A on the failing adapter.  c. If test is successful, inform Network Control that buffer size allocation appears insufficient and should be expanded.
HDIV0062P*	Attach device not ready.  Message PA = adapter address.  Message DA = attach device address.	Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the required MAP and perform offline checkout option A on the failing adapter and attached device.

Message No.	Description	Action
HDIV0063P*	An adapter or adapter/device failure occurred.  Messages: PA = adapter address. DA = address of attached device where applicable. If no device is present, DA = 00. DT = device type of failing adapter.* Error Code = failure type.*  *For a description of device types and error codes, see ST128, DPPX SMN Device Type and Error Code Description.	Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the required MAP and perform offline checkout option A on the failing adapter.
HDIV0065P*	A DPPX program sequence error occurred while operating with a particular adapter/device.  Message PA = adapter address.  Message DA = address of attached device, where applicable. With no device present, DA = 00.	1. Using the adapter address from the message and Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference, identify the failing adapter. Using the proper MD diskette, select the Free-Lance Utility and run the adapter tests. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.  At 80BC, enter PAB. At 81BC, enter 1B.  For any failure, using the proper MD diskette, select the required MAP and perform offline checkout option A on the failing adapter.  2. Report problem to Network Control for program problem determination.

Message No.	Description	Action
HDIY0105P*	The ASR/TTY communications adapter received a message longer than the allocated data buffer.  Message PA = adapter address.	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the communications adapters. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.  a. At 80BC, enter PAB. At 81BC, enter 1B.  b. For any failure, using MD diskette 02, select the CA MAP and perform offline checkout option A on the failing adapter.  If test is successful, inform Network Control that data buffer size appears insufficient and should be expanded.
HDIY0106P*	A machine check occurred on the ASR/TTY communications adapter.  Message PA = adapter address.	Using MD diskette 02, select the CA MAP, and perform offline checkout option A on the associated communications feature.
HDIY0107P*	A failure occurred either on the ASR/TTY communications feature or its attached external modem (if present).  Message PA = adapter address.	
HDIY0108P*	The ASR/TTY communications feature detected that the data link remained at a continuous space level.  Message PA = adapter address.	Using MD diskette 02, select the CA MAP, and perform offline checkout option A including link tests on the ASR/TTY communications feature.
HDIY0109P*	The ASR/TTY communications feature detected a permanent data transmission failure.  Message PA = adapter address.	

\*This message causes an entry in the DPPX error log.



Message No.	Description	Action
HDJA0003P HDJA0005I HDJA0007P HDJA0008I HDJA0009P HDJA0010I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDJE0001P HDJE0002P	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
HDKC0001I HDKC0006I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKC0010I	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDKC0029I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKC0034P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDKC0035P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKF0002P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDKF0008P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKF0009P HDKF0013P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDKF0014P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKF0017P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDKF0019I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKF0020P HDKF0021P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDKF0022P through HDKF0033P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKF0036P HDKF0037P HDKF0038P HDKS0003P through HDKS0016P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDKS0023P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDKS0031P HDKS0032P	DPPX/Base Host Data Transfer component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDLF0001X through HDLF0051X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDLF0052X	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.

Message No.	Description	Action
HDLF0053X through HDLF0057X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDLF0058X	DPPX Code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
HDLF0059P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDLF0060P	DPPX code error or hardware I/O error. This message results from another message.	<ol style="list-style-type: none"> <li>1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.</li> <li>2. If no hardware failures are indicated, report the problem to Network Control for problem determination.</li> </ol>
HDLF0061P through HDLF0064P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
HDLF0065X	DPPX code error or hardware I/O error. This message results from another message.	<ol style="list-style-type: none"> <li>1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.</li> <li>2. If no hardware failures are indicated, report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
HDLF0066X through HDLF0099X HDNC0008X through HDNC0013X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
HDNM0001P	DPPX/Base Printer Sharing component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDNM0002X through HDNM0007X HDNM0030X through HDNM0033X HDNP0004P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
HDNP0005P	DPPX/Base Printer Sharing component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDNP0014P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
HDNP0015P HDNP0016P	DPPX/Base Printer Sharing component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDNP0017P HDNP0018P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the message description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
HDNP0019P HDNP0020P	DPPX/Base Printer Sharing component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDNP0021P HDNP0022P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDNP0023I HDNP0024P	An error occurred while attempting to send the Encoded Data signal to the 3642 Encoder/Printer.	Go to Chapter 2, CP720 and run DSET to the 3642 using the Verify command. For 36XX terminal failures, see 36XX Chapter 6 and reference 8100 communications techniques.
HDNP0025X through HDNP0044X	DPPX/Base Printer Sharing component error.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDNP0050X	DPPX/Base Printer Sharing RJE component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDNP0051X HDNP0052X	DPPX/Base Printer Sharing RJE component error.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDNP0053P	DPPX Command List component error. the Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDOC0001P HDOC0002P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0003P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0004P HDOC0005A	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present. 2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
HDOC0006I HDOC0007I	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0008P through HDOC0012P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDOC0013P HDOC0014P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0015P through HDOC0018P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0019P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0020P HDOC0021A	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures. Verify that the customer performed the problem determination procedures. If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0022P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDOC0023I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0024I	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0025I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0026P through HDOC0031P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDOC0032I HDOC0033P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDOC0034P HDOC0035P	DPPX Command List component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDOC0036P HDOC0037P HDOI0036P HDOI0037P HDP A0006I through HDP A0011I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDPC0020P through HDPC0022P	DPPX Host Transaction Facility component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDPE0001I through HDPE0019I  HDPF0016I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDPG0012P	DPPX Host Transaction Facility component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDPI0023I HDPI0024I  HDQDXXXXI	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQE0060P HDQE0061P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDQE0062P HDQE0063P HDQE0064P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQE0065P HDQE0066P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDQE0067P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQE0068P HDQE0069P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDQE0070P through HDQE0076P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQE0077P through HDQE0092I	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDQE0094P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQE0095P through HDQE0103P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDQI0037P through HDQI0053P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQI0054P HDQI0055P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDQI0056P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQI0057P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDQI0059I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDQP0XXX HDQU0035A HDQU0036A	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDQU0072I	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDRC0020I HDRC0021P HDRC0022P HDRC0023P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	
HDRC0024P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRC0025P HDRC0026P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDRC0027P HDRC0028I HDRC0029I HDRF0001X through HDRF0004X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRF0007P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDRF0008I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRF0013P*	A BOP I/O failure occurred.	Obtain the 8100. Using MD diskette 01, select the BU MAP and perform offline basic check-out option A.

Message No.	Description	Action
HDRG0031I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRG0032P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDRG0033I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRG0034P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDRG0035P	DPPX is indicating that the Expanded Function Panel is not present. If panel is present, perform action.	Obtain the 8100. Using MD diskette 01, select the SP MAP, and perform offline basic check-out option A.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDRG0036P*	A system check or program exception occurred while transferring information with the Expanded Function Panel.	Obtain the 8100.  1. Using MD diskette 01, select the SP MAP and perform offline basic checkout option A.  2. Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
HDRG0037P	DPPX/Base Supervisor Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDRG0038I HDRG0039I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDRG0040P*	A system check or program exception occurred while transferring information with the Expanded Function Panel.	Obtain the 8100.  1. Using MD diskette 01, select the SP MAP and perform offline basic checkout option A.  2. Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

Message No.	Description	Action
HDUA0XXXX HDUC0191X through HDUC0205X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUC0206P through HDUC0209P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDUC0210X through HDUC0237X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUC0238P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDUD0153P HDUD0154I HDUD0157I through HDUD0222I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUE0001P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDUE0003X through HDUE0007X HDUE0009P HDUE0013I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.
HDUS0016I through HDUS0079I	DPPX/Base General Services component error; not an 8130, 8140, or 8101 hardware failure indication.	Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUS0080P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

\*This message causes an entry in the DPPX error log.



Message No.	Description	Action
HDUS0082P	DPPX/Base General Services component error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUS0083P through HDUS0086P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDUS0088P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUS0089P HDUS0091P HDUS0093P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDUS0267I HDUS0273I  HDUX0124X through HDUX0127X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDUX0128P	DPPX/Base General Services component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDUX0129X through HDUX0168A  HDWE0265X through HDWE0276X  HDWF0094X HDWF0095X HDWF0096X HDWF0098X through HDWF0126X HDWF0130X through HDWF0147X HDWF0149X through HDWF0151X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDWF0152P	DPPX/Base Formatted Dump component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDWF0153X through HDWF0179X HDWF0181X through HDWF0254X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWF0255P through HDWF0259P	DPPX/Base Formatted Dump component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDWT0001I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0002P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDWT0003P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0004P through HDWT0006P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDWT0007P through HDWT0009P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0010P through HDWT0011P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDWT0012P through HDWT0013I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0014P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDWT0015I through HDWT0017P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0018P* through HDWT0019P*	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
HDWT0020P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDWT0021I through HDWT0022P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0023P through HDWT0024P	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDWT0025P through HDWT0026P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDWT0027P through HDWT0029I	DPPX/Base System Trace Component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDXD0001P through HDXD0003P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDXD0004P through HDXD0013P	DPPX/Base Indexed Access method component error. The Return Code is presented in subsequent message HDOA0001, and identifies the failure type.	Troubleshoot the message containing the Return Code.
HDXD0014P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDXD0015P	DPPX/Base Indexed Access method component error. The Return Code is presented in subsequent message HDOA0001, and identifies the failure type.	Troubleshoot the message containing the Return Code.

Message No.	Description	Action
HDYQ0004X through HDYQ0006X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYQ0007P	DPPX/Base DASD Queue Manager component error. The Return Code is presented in subsequent message HDYQXXXXP, and identifies the failure type.	Troubleshoot the HDYQXXXXP message containing the Return Code.
HDYQ0008P HDYQ0009P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDYR0031P HDYR0032I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYR0033P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDYR0034I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYR0035P HDYR0036P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDYR0037P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYR0038P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDYR0039P HDYR0040P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYR0041P HDYR0042P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDYR0043I HDYR0044I HDYR0046I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDYR0047P through HDYR0054I HDYR0055P through HDYR0059P	DPPX/Base DASD Queue Manager component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HDZA0024X through HDZA0036X HDZB0044P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZB0045P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.
HDZB0046P through HDZB0054P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZB0055P	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
HDZB0056I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
HDZB0057P	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
HDZB0058P HDZB0059P HDZB0060P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed do them where possible; otherwise, report the problem to Network Control for further action.
HDZB0061P HDZB0062P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code is present in a subsequent message and identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.
HDZB0063P through HDZB0067P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZB0068P through HDZB0072P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code is present in a subsequent message and identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.

Message No.	Description	Action
HDZC0001I HDZC0002I HDZC0103I HDZC0104I HDZW0109I HDZ40039P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZ40040P HDZ40041P HDZ40090P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code is present in a subsequent message and identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.
HDZ50042X through HDZ60021X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZ60022P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code is present in a subsequent message and identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HDZ60105X through HDZ90073X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDZ90074P HDZ90075P	DPPX/Base Packaging, Installation, and Customization component error. The Return Code is present in a subsequent message and identifies the failure type.	Troubleshoot the message containing the Return Code that identifies the failure type.
HDZ90076X through HDZ90082X	DPPX/Base Packaging, Installation, and Customization component error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDZ90083P HDZ90088I HDZ90089I HDZ90094X through HDZ90107X	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HD0A0001I	The Command Facility presents this message, which contains a Return Code, when a non-zero code occurs and no other message was pending.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

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Message No.	Description	Action
HD0A0002I HD0A0003I	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HHA00000P*	A failure occurred in the airlines reservation communications feature RPO. Probable adapter error.  Message PA = adapter address.	Ensure that the customer has isolated the failure using the Verify command as described in the <i>8100 DPPX ALC RPO User Information Manual, GA33-3092</i> .  Using MD diskette 70, select the CZ MAP and perform offline basic checkout option A on the failing adapter.
HHA00001P*	A failure occurred in the airlines reservation communications feature RPO. Probable modem interface error.  Message PA = adapter address.	Ensure that the customer has isolated the failure using the Verify command as described in the <i>8100 DPPX ALC RPO User Information Manual, GA33-3092</i> .  Using MD diskette 70, select the CZ MAP and perform offline basic checkout option A on the failing adapter and attached modem interface.
HHA00002P*	Overrun/underrun failure occurred on the airlines reservation communications adapter RPO.	Go to ST430 Action Plan 39.
HHA00003P	Receive buffer overrun error. The airlines reservation adapter RPO is receiving data faster than the support program can provide new buffer pools.  Message PA = adapter address	Ensure that the customer has isolated the failure using the Verify command as described in <i>8100 DPPX ALC RPO User Information Manual, GA33-3092</i> .  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

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Message No.	Description	Action
HIDP0002P through HIDP0008P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HDIP0009P*	A program exception occurred while executing the Distributed Host Command Facility. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HDIP0010P	DPPX operational message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.
HIFX0001P	DPPX/Base Command Facility message; not an 8130, 8140 or 8101 hardware failure indication.	Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0002P through HIFX0005P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HIFX0006I	DPPX/Base Command Facility message. Verify command has started.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.
HIFX0007P	DPPX/Base Command Facility message. Record received out of sequence when using Compare option with Verify command.	Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0008I	DPPX/Base Command Facility error. Test on device failed using Verify command. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HIFX0009P*	A DPPX/Base Command Facility program exception occurred.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0010X through HIFX0012I	DPPX/Base Command Facility error; not an 8130, 8140, or 8101 hardware failure indication. The Return Code identifies the failure type.	1. Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  2. Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HIFX0013P HIFX0014A	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0015I through HIFX0018I	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HIFX0019I through HIFX0042I	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0046P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

\*This message causes an entry in the DPPX error log.

Message No.	Description	Action
HIFX0047I through HIFX0049I	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIFX0050I	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HIFX0051I through HIFX0053I  HIGB0001P HIGB0002X through HIGB0010X	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIGB0013P through HIGB0023P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HIGB0024X through HIGB0027X	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIGB0028X through HIGB0031X	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HIGB0032P HIGB0033I	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
HIHE0008P through HIHE0012P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.

Message No.	Description	Action
HIHE0013P*	A program exception occurred during link connection verification.	1. Verify that the customer performed the problem determination procedures specified in <i>DPPX/Base Operations, SC27-0406</i> .  2. Report the problem to Network Control.
HIHE0014P	DPPX/Base Command Facility error. The Return Code identifies the failure type.	Go to ST127 DPPX Message Return Codes and perform the action specified for the Return Code.
HIHP0001I through HIHP0007I	DPPX/Base Command Facility message; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the message description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

\*This message causes an entry in the DPPX error log.

ST127 DPPX Message Return Codes

Note: For messages not listed, change the fifth digit (always 8) to a zero and use that number as the Return Code.

Message No.	Description	Action
00XXXXXX through 01070840	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
0109020C 010A020C	An error occurred while refreshing the fixed head portion of system-resident disk storage.	This Return Code results from an HDIXXXXXX message. Obtain and troubleshoot this message.
010E0110	Disk storage data bit error correction occurred. A marginal sector could be present.	This is a normal error recovery message, and does not require action at this time. An HDIXXXXXX error occurs if a sector becomes unrecoverable. If this occurs, obtain and troubleshoot the HDIXXXXXX message.
010E020C	The movable heads of a disk storage other than the system-resident device became inoperative.	This Return Code results from an HDIXXXXXX message. Obtain and troubleshoot this message.
010E0840	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
010E084D 010E084E	A disk storage data or Control CRC error occurred.	This Return Code results from message HDIP0030. Obtain and troubleshoot this message.
01200102	A tape adapter failure occurred.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.
01200808	A tape adapter failure occurred during initialization.	
01230820	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
0124020C	A tape adapter failure occurred.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.
01260148	Tape drive not ready.	This Return Code results from message HDIV0054. Obtain and troubleshoot this message.
01280102 through 0128037F	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
01280820	Tape drive not ready.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.
01280843	A tape drive failure occurred.	
01280847	A tape adapter overrun occurred during a read operation.	
01280851	A tape media problem occurred.	This Return Code results from message HDIT0052. Obtain and troubleshoot this message.
01280852	A tape drive write or erase current check occurred.	This Return Code results from message HDIT0057. Obtain and troubleshoot this message.
01280853 01280854	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
01280855	A tape adapter failure occurred.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.
01280860	Mounted tape is written in a mode incompatible with the drive.	This Return Code results from message HDIT0055. Obtain and troubleshoot this message.
01280861	Tape is file-protected. A ring has not been inserted.	If ring is actually inserted, go to the 8809 Maintenance Manual START MAP and check out the failing tape drive.
0128087F	An indeterminate tape failure occurred.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.



Message No.	Description	Action
01280C09 through 01280C13	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
01280E04	A tape adapter machine check occurred.	This Return Code results from either an HDIVXXXXX or an HDITXXXXX message. Obtain and troubleshoot this message.
01400820 through 01410825	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
01410845	Diskette storage program detected an invalid request parameter. A diskette storage hardware failure can occasionally cause this error.	<p>Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the diskette storage. Refer to Chapter 2, CP462 and CP600 for Free-Lance procedures.</p> <ol style="list-style-type: none"> <li>At 80BC, enter PAB. At 81BC, enter 1B.</li> <li>For any failure, using MD diskette 02, select the DA MAP and perform offline checkout option A.</li> <li>If test is successful, inform Network Control that the hardware checks correctly and that further problem determination is required.</li> </ol>
01410847	A diskette storage overrun or underrun condition occurred.	This Return Code results from message HDIV0061. Obtain and troubleshoot this message.
01410848	A diskette storage not-ready condition occurred while operating.	If problem persists, using MD diskette 03, select the DA MAP and perform offline checkout option A on the failing diskette storage.
01410849	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
0141084A	A diskette storage adapter time-out occurred.	This Return Code results from either an HDIVXXXXX or an HDIGXXXXX message. Obtain and troubleshoot this message.
0141084B	A diskette storage seek check occurred.	
0141084C	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
0141084D 0141084E	A diskette storage data or control CRC error occurred.	This Return Code results from either an HDIVXXXXX or an HDIGXXXXX message. Obtain and troubleshoot this message.
01410855	A diskette storage equipment check occurred.	
01410CXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
01410E04 01410E31	A diskette storage machine check occurred.	This Return Code results from either an HDIVXXXXX or an HDIGXXXXX message. Obtain and troubleshoot this message.
01410E32	A diskette storage adapter parity check occurred.	
01420148 01420848	A diskette storage not-ready condition occurred while operating.	If problem persists, using MD diskette 03, select the DA MAP and perform DPPX checkout option B or offline checkout option A on the failing diskette storage.
0143XXXX through 01640101	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
01650857	A device attached to the display/printer adapter indicated either a transmission check, device check not-ready condition, equipment check, or print hang condition.	<ul style="list-style-type: none"> <li>This Return Code results from message HDIVXXXXX. Obtain this message, identify the failing device address, and use the related 8100 MIM information to check out the failing device.</li> </ul>
01650862	A printer attached to the display/printer adapter is either out of paper or has the cover open.	<ul style="list-style-type: none"> <li>If the problem cannot be identified, troubleshoot the HDIVXXXXX message.</li> </ul>

Message No.	Description	Action
01680201	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
01680847	A display and printer adapter overrun/underrun condition occurred.	This Return Code results from an HDIVXXXXX message. Obtain and troubleshoot this message.
01680850	A display and printer adapter machine check occurred.	
0168087F	A display or printer device indicated a parity error or device not available condition.	
0169XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
016D0808	A display printer adapter error occurred during initialization.	This Return Code results from message HDIVXXXXX. Obtain and troubleshoot this message.

Message No.	Description	Action
01800202 through 0181020C	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
01840841	The S-S communications feature detected a permanent I/O write error.	This Return Code results from an HDICXXXX message. Obtain and troubleshoot this message.
01840843	The S-S communications feature detected a permanent device failure.	
01880300 through 01A1020C	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
01A40841	The ASR/TTY communications feature detected a permanent I/O write error.	This Return Code results from an HDIYXXXX message. Obtain and troubleshoot this message.
01A40843	The ASR/TTY communications feature detected a permanent device failure.	

Message No.	Description	Action
01A80300 through 02510840  03000205 through 0308022A	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
03080821 03080822 03080824	An SCF hardware failure occurred during SCF initialization.	Go to ST430 Action Plan 32.
03080861 03100201 through 03160314	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
031E0E6E	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
03200201 through 0340020B	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
0340020C	Device inoperative.	The Return Code results from message HDIVXXXX. Obtain and troubleshoot this message.
0340020D through 04028801	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
04048C00	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. Obtain the 8100 system. Loop the BU tests for 5 minutes from the system-resident disk. Refer to Chapter 2, CP523 How to Run Bringup Tests from the System-Resident Disk.  For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.  2. Report the problem to Network Control for problem determination.
04048C01	A system check occurred.	Go to ST430 Action Plan 30.
0405XXXX through 0410XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
04248E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
04510806 through 045F0807	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
04608F09	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
0462XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes</i> , SC27-0407, for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
0465XXXX 0466XXXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
0468XXXX through 046A0803	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
046A0804	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
046A0805	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
046A0806 046A0807	DPPX code error or hardware I/O error. The message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
046A0808 through 04B10401	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
04B68C01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
04B70004 through 05400201	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
05560100 05618C00 05690100	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
05690201 05690202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
05698F01 056A0100	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
056A0201 056A0202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
056A8F01	A system check or program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
05B2XXXX through 0D07XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
0D090C03	DPPX code error or hardware I/O error. This message results from another message.	1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.  2. If no hardware failures are indicated, report the problem to Network Control for problem determination.
0D0B0101 through 0D0E0208 0D0E020B	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
0D100102 0D100801	Tape data set reached the end of file. Normally, this is not an error. If Return Code occurs unexpectedly, it can be a programming or a tape hardware problem. Perform action if Return Code is unexpected.	Using MD diskette 02, select the Free-Lance Utility, and run the offline tests on the tape drive. Refer to Chapter 2, CP462 and CP600 for free-lance procedures.  1. At 80BC, enter PADAB; at 81BC, enter 1B, where PA = tape adapter address and DA = drive address.  ● For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A.  ● If test is successful, inform Network Control that the hardware checks out correctly and that further problem determination is required.
0D100802	During tape data set processing, the expected trailer label was not found. Problem can be DPPX, improperly formatted tape, or occasionally, the tape hardware.	
0D100867	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
0D12080A	The tape data set label is invalid. Problem can be DPPX, improperly formatted tape, or occasionally, tape hardware.	Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the tape drive. Refer to Chapter 2, CP462 and CP600, for free-lance procedures.  1. At 80BC, enter PADAB; at 81BC, enter 1B, where PA = tape adapter address and DA = drive address.  ● For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A.  ● If test is successful, inform Network Control that the hardware checks out correctly and that further problem determination is required.
0D12080B	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
OD12080C	The tape data set label is invalid. Problem can be DPPX, improperly formatted tape, or occasionally, tape hardware.	<p>Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the tape drive. Refer to Chapter 2, CP462 and CP600, for free-lance procedures.</p> <ol style="list-style-type: none"> <li>At 80BC, enter PADAB; at 81BC, enter 1B, where PA = tape adapter address and DA = drive address.</li> </ol> <ul style="list-style-type: none"> <li>For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A.</li> <li>If test is successful, inform Network Control that the hardware checks out correctly and that further problem determination is required.</li> </ul>
OD12080D OD12081C OD12081D	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
OD12081E	The tape data set label is invalid. Problem can be DPPX, improperly formatted tape, or occasionally, tape hardware.	<p>Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the tape drive. Refer to Chapter 2, CP462 and CP600, for free-lance procedures.</p> <ol style="list-style-type: none"> <li>At 80BC, enter PADAB; at 81BC, enter 1B, where PA = tape adapter address and DA = drive address.</li> </ol> <ul style="list-style-type: none"> <li>For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A.</li> <li>If test is successful, inform Network Control that the hardware checks out correctly and that further problem determination is required.</li> </ul>
OD120827	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
OD150102	Tape end of file was indicated before total number of volumes specified was reached. Problem can be DPPX, improperly formatted tape, or occasionally, tape hardware.	<p>Using MD diskette 02, select the Free-Lance Utility and run the offline tests on the tape drive. Refer to Chapter 2, CP462 and CP600, for free-lance procedures.</p> <ol style="list-style-type: none"> <li>At 80BC, enter PADAB; at 81BC, enter 1B, where PA = tape adapter address and DA = drive address.</li> </ol> <ul style="list-style-type: none"> <li>For any failure, using MD diskette 03, select the TA MAP and perform offline checkout option A.</li> <li>If test is successful, inform Network Control that the hardware checks out correctly and that further problem determination is required.</li> </ul>
OE00XXXX through OF56020C	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i>, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
OF570122	DPPX code error or hardware I/O error. This message results from another message.	<ol style="list-style-type: none"> <li>1. Check the message log for other messages. The HDIXXXXXX format indicates a hardware I/O failure. Troubleshoot these messages if present.</li> <li>2. If no hardware failures are indicated, report the problem to Network Control for problem determination.</li> </ol>
OF59XXXX through 12210C40	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
12210E6C	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	<ol style="list-style-type: none"> <li>1. Obtain the 8100 system. Loop the BU tests for 5 minutes from the system-resident disk. Refer to Chapter 2, CP523, How to Run Bringup Tests from the System-Resident Disk. <ul style="list-style-type: none"> <li>For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.</li> </ul> </li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>

Message No.	Description	Action
1222XXXX through 1228XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
12300E6D 12380E6D	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	<ol style="list-style-type: none"> <li>1. Obtain the 8100 system. Loop the BU tests for 5 minutes from the system-resident disk. Refer to Chapter 2, CP523, How to Run Bringup Tests from the System-Resident Disk. <ul style="list-style-type: none"> <li>For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.</li> </ul> </li> <li>2. Report the problem to Network Control for problem determination.</li> </ol>
1240XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
13000C00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.

Message No.	Description	Action
13000C01 through 13810816	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
13810E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
13820206 through 13820286	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>
13820E00	A system check or program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1383XXXX 1384XXXX 13850202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	<p>Refer to <i>DPPX/Base Messages and Codes</i>, SC27-0407, for the Return Code description and customer problem determination procedures.</p> <p>Verify that the customer performed the problem determination procedures.</p> <p>If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.</p>

Message No.	Description	Action
13850E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1386XXX through 13880202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
13880E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
138A0101 through 138B0816	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
138C0E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
138D021A through 138D0223	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
138D0E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
138F8801 through 13910205	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
13910E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
139202XX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
13920E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1394XXXX through 139BXXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.



Message No.	Description	Action
139CXXXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
139DXXXX through 14008C09	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
14008FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14010XXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
14018FXX through 14038FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14048C01	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
14048FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14100XXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
14118FXX 14128FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14140101	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
14148C01 14148C11 14170101 14178F02 14178F03	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14190102 14190803 14198C0A	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
14198F03 141A8FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14300201 through 14400205	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
14408F01 14408F02 14408F03	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14410103 14410201 14410202 14500802 14508801 14508802 14508803	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
14508FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14518C0A	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
14518FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
14700201 14700202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
14708FXX	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
17XXXXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
1B000E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B01080X	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
1B010E01 1B040E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B0501XX 1B050201	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
1B050E01 1B070E01 1B090E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B10XXXX 1B120101 1B130101	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
1B130E01 1B150203	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B150204 1B150205 1B150404	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
1B150E01 1B190E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B200201 1B200202 1B200203 1B25XXXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
1B290E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1B300100 through 1C010104	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
1C030E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1C040202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
1C040E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1C050202 1C060202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
1C060E01 1C080E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
1C500101 through 1C600401  1C8XXXXX 1CEXXXXX 23XXXXXX through 25100C04	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
25100E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
25200205 through 25230206 28000000 through 28FF0E02	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
28FF0E03	A program exception occurred. Failures normally indicate a programming code error, but occasionally a hardware failure in the processor instruction/execution unit or processor storage could cause a program exception.	1. Obtain the 8100 system. Loop the BU tests for 5 minutes from the system-resident disk. Refer to Chapter 2, CP523 How to Run Bringup Tests from the System-Resident Disk.  For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.  2. Report the problem to Network Control for problem determination.
28FF0E04 through 28FF0E0F 2A000101 through 2A0A0C01	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2A000E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2A01XXXX through 2A070C02	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2A070E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2A080CXX	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2A080E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2A0A0801 through 2A0A0C01 2B010804	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B010E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B020801	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2B030E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B040101 2B040202	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B040E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B050801	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2B050E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B060802	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B060E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B070201 2B070301	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2B070E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B080102 through 2B080808	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B080E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B090102 through 2B09080A	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2B090E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B0A0809	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B0A0E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B0B0204	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
2B0B0E01	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B0D0100	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
2B0D020E	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
2B0E0801 through 2B500800 through 2B800204 through 2BA30201 through 2BA80C01 through 2CXXXXXX through 2FXXXXXX through 3000XXXX through 30180204	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
30198E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
3020XXXX through 39090256	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
390F8E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
3920XXXX through 39210818	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action
39238E00	A system check or a program exception occurred. The problem could be either a programming code error or a hardware failure.	Go to ST430 Action Plan 30.
3940XXXX through 40000103 40000202 40000204 through 40000209 40000305 40000406 40000408 40000803 through 4000080E 40020C02 40050C01 40090800 through 400C0822 401XXXXX 40210212	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
437XXXXX through 43BXXXXX	DPPX airlines reservation system (RPQ) operational error; not an 8130, 8140, or 8101 hardware failure indication.	Verify that the customer has isolated the failure using the Verify command as described in the <i>8100 DPPX ALC RPQ User Information Manual, GA33-3092</i> .  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

ST128 DPPX SMN Device Type and Error Code Description

Device type and error codes are presented in the text portion of particular HDIXXXXXX operator messages. Described below are the adapters and/or devices associated with each device type code:

Device Type

Code	Adapter/Device
A	Display/Printer Adapter
B	BSC Communications Adapter
C	S-S Communications Adapter
F	System Control Facility
G	Diskette Storage Adapter/Drive
H	Secondary SDLC Communications Adapter
M	Primary SDLC Communications Adapter
P	Disk Storage Adapter/Drive
T	Tape Adapter/Drive
Y	ASR/TTY Communications Adapter
R1	Primary Airlines Reservation Adapter (RPQ)

The following chart describes the error condition indicated for the error and device type codes presented in the text portion of particular HDIXXXXXX operator messages:

Error Code	Device Type Code	Description
XA23	G	Ready to Not Ready – The diskette adapter went from a ready to a not ready status.
XA30	G	Not Ready – The diskette storage is not ready.
XC02	P,T	FRB Busy – DPPX programming sequence problem. A function request block was issued while another was still being used.
	F	MD Interface Check – Incorrect parity was detected during a read operation, the MD enable line dropped, or an extra interrupt occurred during an MD operation.
XC03	T	Tape Drive Busy – The application executing on the tape drive timed out while waiting for completion. Possible causes are the tape drive being inoperative or the application trying to access a tape drive that is processing a prior request.
XC04	P,F	System Check – A system check occurred during I/O operations with the identified device.
XC10	P	Program Exception – An indeterminate program exception occurred while using Disk Storage.
XC11	P	Invalid FRB – An invalid function request block was issued to disk storage. Problem could be either a disk storage or programming failure.

Error Code	Device Type Code	Description
XC19	G,P	Record Not Found – The disk or diskette record could not be located. Problem could be media, hardware, or programming.
XC1A	P	Multi-Sector Count Error – The application attempted to read or write past disk storage sector 3F. Problem could be either programming or hardware.
XC1B	P	Write Protected Sector – The application attempted to write on a disk storage protected field. Probable application problem.
XC20	G,T	Equipment Check – An indeterminate adapter/device hardware failure occurred on the specified device type.
XC21	P	Adapter Parity Error – A disk storage control bus parity error occurred.
	T	Equipment Check – The tape adapter enable bit failed to set or reset properly.
XC22	T	Equipment Check – A tape drive velocity check occurred. Possible power amplifier cable seating problem.
XC29	T	Overrun – An overrun condition occurred on the specified device type.



Error Code	Device Type Code	Description
XC2A	G	Time Out – Diskette storage failure. An attempt to read or write did not occur correctly within 26 revolutions.
	P	Time Out – Disk storage failure. An attempt to read or write did not occur correctly within two revolutions.
XC2B	G,P	Seek Check – A disk or diskette seek failure occurred.
	T	Position Lost – A tape drive lost position control. Possible tape drive failure.
XC31	G	Parity Error – A parity error occurred on the path between the processor I/E unit and the diskette storage adapter.
XC32	G	Parity Error – The diskette adapter detected an internal diskette storage parity error.
XC33	G,P	CRC Error – A CRC error occurred while attempting to read data from either disk or diskette storage.
	T	PEID Check – An attempt to write a PEID burst on the front end of the tape failed. Possible media problem or tape drive problem.
XC38	T	DSE Check – A tape data security erase operation failed. Possible media problem or tape drive problem.
XC39	G	CRC Error – A CRC error occurred while attempting to read a diskette storage control record. Possible media or diskette storage problem.
	P	CRC Error – A CRC error occurred while attempting to read disk storage data. Possible surface or disk storage problem.
	T	Read Data Check – Data checks occurred while reading a tape. Possible tape media or tape drive problem.
XC3A	P	CRC Error – A CRC error occurred while attempting to read a disk storage sector ID. Possible surface or disk storage problem.
	T	Write Data Check – A data check occurred while attempting to write data to tape. Possible tape media or tape drive problem.
XC3B	P	CRC Error – A CRC error occurred while attempting to read a disk storage alternate sector ID. Possible surface or disk storage problem.

Error Code	Device Type Code	Description
XC3B	T	Loop WR to RD Failure – The tape drive read-back circuits failed.
XC62	G,T,P	Not Ready – The disk, diskette, or tape is indicating a not-ready condition.
XC63	P	Data Unsafe – A disk storage failure occurred.
XC68	P	Speed Check – The disk speed is out of tolerance.
	T	Incorrect Mode – A read operation was attempted on a tape that is not written at 1600 BPI. (PE)
XC69	T	Marker Sensor – A BOT/EOT LED, tape present LED, or reel size LED tape failure occurred.
XC75	G,T	Channel I/O Check – A system check occurred while performing a channel I/O operation on the specified device type.
XC76	G,T	I/O Check – A system check occurred while executing an I/O instruction to the specified device type.
XCE3	T	Data Unsafe – A write or erase current check occurred on the tape drive. The erase head is active. The tape movement should be stopped. Remove the tape manually without moving the tape past the head.
XCF6	G,T	I/O Check – A system check occurred while executing an I/O instruction to the specified device type.

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## ST200 Distributed Processing Control Executive (DPCX)

This section contains the DPCX General Failure Index (GFI) and a list and description of DPCX system message numbers. It should be used for initial fault isolation procedures on all 8100 Information Systems that run under the DPCX operating system. The section assumes that you have a general knowledge of 8100 physical address assignments and understand how to use the Maintenance Device (MD). (See Chapter 2.)

### ST210 DPCX General Failure Index (GFI)

This GFI enables the user to establish a common approach and initiate fault isolation procedures on the 8100 Information System when the 8100 uses the DPCX operating system. The GFI contains all failures detected by DPCX while the DPCX program is being installed, IPL'ed or operating, and also all other conditions that can be either reported by a customer or detected by a service representative during a repair.

**Note:** Start with the first entry in the failure indication column. If that failure did not occur, go to the next entry. Proceed through this chart in order until you find the failure indication that applies, then perform the action specified for that failure.

Failure Indication	Action
8130/8140/8101 won't power on. Power On indicator off and Power/Thermal Check indicator on or off.	Go to ST440 Procedure 03.
While executing IPL, the BOP display remains blank, all zeros, all FFs, dim or blinking after power-on complete.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
IPL messages at BOP (IPL light on) including BU tests running from MD, CSU, or while IPL'ing DPCX from disk storage. 0XXX 1XXX 2XXX 3XXX 4XXX	Go to ST410, Initial Program Load and Bringup Test Error Messages.  Go to ST221, DPCX Initial Program Load Messages.
IPL does not appear to occur in the mode selected by the IPL Mode switch setting.	Go to Chapter 5, BU255.
Undefined IPL message XXXX	Using MD diskette 01, select the BU MAP, and perform offline basic checkout option A.
Control operator messages occurring at a terminal during DPCX program operation. 6XXX 7XXX 8XXX 9XXX AXXX	Go to ST222, DPCX Control Operator Messages.

Failure Indication	Action
DPCX system Abend messages occurring at the BOP. FXXX	Go to ST226, DPCX 8100 System Abend Messages.
XXBC messages occurring while processing a MAP, running tests offline from the MD or CSU diskette, or running DPCX online tests. 00BC to AFBC BXBC	Go to ST420, XXBC Test Control Monitor Messages. Go to ST223, DPCX-Unique Test Control Monitor Messages.
These messages occurred while processing a MAP or running tests offline from the MD or CSU diskettes. X895 X896	Using the X8 value from message (SSCF address), go to ST430 Action Plan 14. X = The high order digit of the SSCF address.
DPCX installation messages incurred while installing DPCX. E0XX E1XX E999 EEXX	Go to ST225, DPCX Installation Messages.
DPCX processor storage standalone dump messages. DXXX	Go to ST440, Procedure 05, DPCX Processor Storage Standalone Dump Messages.
DPCX tape standalone dump/restore messages. D2XX E000 E2XX XXEE	Go to ST224, DPCX Tape Standalone Dump/Restore Messages.
Diskette drive not turning. Power indicator on.	Using MD diskette 03, select the DA MAP and use the power failure entry.
Basic operator panel failure (digit display, keypad, keylock, and indicators).	Using MD diskette 01, select the BU MAP and use the BOP checkout option C for 8140 or basic checkout option A for 8130.
Diskette storage failure. LA = PA = adapter address = 87 Test failures = 871E, 87MI	Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.
Disk storage failure. LA = PA = adapter address = 80, 90, 91, A0, A1, B0, B1, C0, C1 (Models AXX) = 84, 85 (Models BXX) Test failures = PA1E, PAMI	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A.

Failure Indication	Action
Display/printer attachment feature adapter driver card failure. PA = adapter address = 1F*, 2F*, 3F*, 4F*, 5F* PT = port address = 00-23 Test failures = PA1E, PAMI = PT2E, PTMI	Using MD diskette 03, select the AD MAP and perform offline basic checkout option A on the failing ports.
Communications attachment feature failure (adapter, driver cards, local modem). PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX) Test failures = PA1E, PAMI	Go to ST440 Procedure 06.
Magnetic tape attachment feature or 8809 tape drive failure occurred when DPCX was not operating. PA = adapter address = 5E*, 73, 93, A3, B3, C3 DA = drive address = 00, 01, 02, 03 Test failures = PA1E, PAMI = DA2E, DAMI	Go to ST440 Procedure 02.
System Control Facility failure. PA (PSCF) = 08 SC (SSCF) = 58, 88, 18, 28, 38, 48, 98, A8, B8, C8, 78 Test failures = 081E, 08MI (PSCF) = SC2E, SCMI (SSCF)	Using MD diskette 01, select the SC MAP <ul style="list-style-type: none"> <li>● For 8140 basic checkout on all SSCFs, use option 1.</li> <li>● If the PA of the SSCF is known, use option 2.</li> <li>● For 8140 test failure 081E, or for 8130 without System Expansion Feature, use option 3.</li> </ul>
Failure on multiple devices attached to the display/printer attachment feature. LA = X4, X5, X6, X9, XA, XB where X = 1, 2, 3, 4, 5 PA = adapter address = 1F*, 2F*, 3F*, 4F*, 5F* PT = port address = 00-23 See Chapter 2, CP224, DPCX Address Conversion Reference.  Test failures = PA1E, PAMI = PT2E, PTMI = PT3E, PTMI	Using MD diskette 03, select the AD MAP and perform offline basic checkout option A on the failing ports.

\*Address is shared with another adapter.

Failure Indication	Action
Failure in single device attached to the 8101 display/printer attachment feature. LA = X4, X5, X6, X9, XA, XB where X = 1, 2, 3, 4, 5 PT = port address = 00-23  See Chapter 2, CP224, DPCX Address Conversion Reference.  Test failures = PT2E, PTMI where PT = 00-23	Go to Section 4 of the 8100 Attachment Manual for the associated failing device and refer to the troubleshooting guide. If the guide returns you to the 8101, use MD diskette 03, select the AD MAP, and perform offline basic checkout option A.
8809 tape drive failures occurring while DPCX is operating. LA = 04, 05, 06, 07 PA = adapter address = 5E*, 73, 93, A3, B3, C3 DA = drive address = 00-03  See Chapter 2, CP224, DPCX Address Conversion Reference.  Test failures = PA1E, PAMI = DA2E, DAMI	Go to ST440 Procedure 01.
A single downstream control unit attached to a communications attachment feature is failing. LA = control unit link address = PAXY XY = Control unit address = 11-16, 21-26, 31-36, 41-46, 51-56, 61-66 PCA = PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX) Test failure = PA2E	<ol style="list-style-type: none"> <li>1. Request a checkout of the downstream control unit.</li> <li>2. Go to ST440 Procedure 06.</li> </ol>

\*Address is shared with another adapter.

Failure Indication	Action
<p>A downstream link or loop has totally failed.</p> <p>PCA = PA = adapter address</p> <p>= 81-86, 10-1F*, 20-2F*, 30-3F*, 40-4F* (Models AXX)</p> <p>= 80-83, 50-5E*, 5F* (Models BXX)</p>	<p>Go to ST440 Procedure 06.</p>
<p>DPCX hangs (no message number, or message can not be found).</p>	<p>Go to ST430 Action Plan 10.</p>
<p>Symptom not clear, none of the above failure indications applies, or a system check-out is required after a repair, relocation, installation, MES install, or removal.</p>	<p>Go to ST430 Action Plan 10.</p>

\*Address is shared with another adapter.

ST220 DPCX System Message Numbers

ST221 DPCX Initial Program Load Messages (4XXX)

DPCX generates the following messages during an initial program load sequence. All messages are in the 4XXX format and display at the BOP.

Message No.	Description	Action
4000	Hang while executing DPCX bootstrap.	Go to ST430 Action Plan 23.
4022	Disk failure while reading disk loader and initial data from system-resident disk storage.	Go to ST430 Action Plan 12.
4040 4041 4042 4043	Unexpected interrupt while executing DPCX bootstrap.	Go to ST430 Action Plan 23.
408X	PSCF or SSCF failure while executing DPCX bootstrap. X = 0 = PSCF error X = 1 to F = SSCF error and failing address	Go to ST430 Action Plan 24.
4100	Hang during initial processor storage setup.	Go to ST430 Action Plan 23.
4140 4141 4142 4143	Unexpected interrupt while executing processor storage setup.	Go to ST430 Action Plan 23.
418X	PSCF or SSCF failure while executing initial translation table setup and transfer to logical mode IPL segment. X = 0 = PSCF error X = 1 to F = SSCF error and failing address	Go to ST430 Action Plan 24.
4300	Hang during the final part of processor storage setup.	Go to ST430 Action Plan 23.
4322	Disk failure while reading data set control blocks.	Go to ST430 Action Plan 12.
4340 4341 4342 4343	Unexpected interrupt while executing processor storage setup.	Go to ST430 Action Plan 23.

Message No.	Description	Action
438X	PSCF or SSCF failure while executing initial segment of logical mode IPL. X = 0 = PSCF error X = 1 to F = SSCF error and failing address	Go to ST430 Action Plan 24.
4392	DPCX IPL code has detected that DPCS was not completely installed.	Request that DPCX be reinstalled.
43AA	DPCX prompt for a normal or customization IPL.	Refer to <i>DPCX Messages</i> , SY27-0523.
43AB	DPCX prompt to select the initial logon terminal type.	
43AC	DPCX prompt to identify the communications station address of the terminal used for logon.	
43AD	DPCX prompt. Incorrect station address.	
43AE	DPCX prompt. Incorrect device type.	
43AF	DPCX prompt. Invalid reply to 43AB.	
4400	Hang while reading first data set from disk.	Go to ST430 Action Plan 23.
4422	Disk failure while reading first data set from disk.	Go to ST430 Action Plan 12.
4430	IPL attempted to load more processor storage than actually exists in the system.	DPCX reconfiguration required. Report problem to Network Control for problem determination.
4431 4432	DPCX program error. These failures normally indicate a programming design defect, but a hardware failure could occasionally cause a program error indication.	To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform basic system checkout.

Message No.	Description	Action
4433	DPCX prompt. SYSINIT found multiple bit map errors.	Refer to <i>DPCX Messages</i> , SY27-0523.
4440 4441 4442 4443	Unexpected interrupt while reading first data set from disk.	Go to ST430 Action Plan 23.
448X	PSCF or SSCF failure while reading first data set from disk. X = 0 = PSCF error X = 1 to F = SSCF error and failing address.	Go to ST430 Action Plan 24.
45XX	System check or program exception occurred. Refer to Chapter 2, Figure CP840-2 for the XX byte meaning.	Go to ST430 Action Plan 20.
4700	Hang while loading data set control blocks from disk.	Go to ST430 Action Plan 23.
4722	Disk failure while reading data set control blocks.	Go to ST430 Action Plan 12.
4740 4741 4742 4743	Unexpected interrupt while reading data set control blocks from disk.	Go to ST430 Action Plan 23.
478X	PSCF or SSCF failure while reading data set control blocks from disk. X = 0 = PSCF error X = 1 to F = SSCF error and failing address	Go to ST430 Action Plan 24.
4800	Hang while initializing condition/incident buffer.	Go to ST430 Action Plan 23.
4840 4841 4842 4843	Unexpected interrupt while initializing condition/incident buffer.	Go to ST430 Action Plan 23.

Message No.	Description	Action
488X	PSCF or SSCF failure during IPL when initializing the processor storage CIL buffer. X = 0 = PSCF error X = 1 to F = SSCF error and failing address	Go to ST430 Action Plan 24.
4900	Hang during final initialization.	Go to ST430 Action Plan 23.
4901	System-resident disk address in configuration does not compare to system-resident disk IPL'ed.	DPCX reconfiguration required. Report problem to Network Control for problem determination.
4902	Disk read error.	Go to ST430 Action Plan 12.
4903	PTF update in progress.	None
4904*	SYSINIT detected an unrecoverable disk I/O error.	Go to ST430 Action Plan 12.
4905	Probable feature or installation problem.	Report problem to Network Control for problem determination.
4922	An unexpected disk storage error occurred during the final phases of initialization while not using the disk storage.	Go to ST430 Action Plan 12.
4931	When setting the online bit for the station address entered in response to the 43AC prompt. DPCX detected that the device status block (DSB) for the specified station address does not exist.	When the 43AC prompt appears enter a valid station address.
4940 4941 4942 4943	An unexpected interrupt occurred during the final phase of IPL.	Go to ST430 Action Plan 23.
498X	A PSCF or SSCF failure occurred during the final initialization phase. X = 0 = PSCF error X = 1 to F = SSCF error and failing address.	Go to ST430 Action Plan 24.

\*This message causes an entry in the Condition/Incident Log.

Message No.	Description	Action
4A00	Hang while starting final DPCX initialization phase.	Go to ST430 Action Plan 23.
4A04	Progress indicator. SYSINIT feature initialization started.	If message displays at BOP for greater than 1 minute, go to ST430 Action Plan 23.
4A08	Progress indicator. Feature initialization complete.	
4A10	Hang while initializing the primary communications adapter.	Go to ST430 Action Plan 26.
4D40	An I/O machine check occurred while initializing the 8100 adapters.	<ol style="list-style-type: none"> <li>With message 4D40 displayed, press Enter Function. Message ZZAA occurs where ZZ is the physical address (PA) of the failing adapter. Go to ST430 Action Plan 19.</li> <li>If message ZZAA does not occur, go to ST430 Action Plan 20.</li> </ol>
4DXX	A system check occurred during 8100 adapter initialization.	Go to ST430 Action Plan 20.
4E00	One or more processor-attached devices could not be enabled.	<ol style="list-style-type: none"> <li>Ensure that the customer performed the problem determination procedures.</li> <li>If the device attaches to a display/printer port, determine if only one port fails, or all ports fail. <ol style="list-style-type: none"> <li>If only one port fails, select Device Tests under SYSTCM. Refer to Chapter 2, CP600 Common Test Procedures and Messages.</li> <li>If all ports fail, using MD diskette 03, select the AD MAP and perform offline basic checkout option A.</li> </ol> </li> </ol>

Message No.	Description	Action
4E01	DPCX program error. These failures normally indicate a programming design defect, but a hardware failure could occasionally cause a program error indication.	To eliminate hardware as the possible failure cause, go to ST430 Action Plan 10 and perform basic system checkout.
4E02 4E03	Disk read failure.	Go to ST430 Action Plan 12.

ST222 Control Operator Messages (6XXX-AXXX)

The following messages occur after operator logon at the control operator's terminal.

**Note:** An asterisk after the message number indicates the message causes an entry in the Condition/Incident log.

Message No.	Description	Action
6009* 6010*	I/O error occurred on a device or terminal.	Get LA from displayed message and go to ST430 Action Plan 22.
6011*	Host link failure. LA in message = failing LU of SNA task.	1. Determine the host communication feature physical address (PA) by using the SYSLDEV Utility (898). Refer to Chapter 2, CP851 for procedure.  2. Go to ST440 Procedure 06.
6012	An SNA protocol error has occurred on a downstream data link. Message LA = the downstream CU link address. This does not indicate an 8100 hardware or data link problem.	Report problem to Network Control for problem determination.
6014*	An 8775 copy request was started, but not completed because of an I/O error.	Report problem to Network Control for problem determination.
*6020-6025 *6030-6035 *6040-6044 *6050-6052	Disk storage read failure causing a single taskabend. LA in operator's message indicates the unit that was using the disk storage when the failure occurred.  <b>Note:</b> If 8100 contains multiple disk storage drives, failure could have been on any disk.	Go to ST430 Action Plan 15.
6053*	Disk storage failure on DPCX system-resident disk.	1. Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address 80 for Models AXX or 84 for 8140 Models BXX. Ask the customer if not known.  2. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.

Message No.	Description	Action
6054 6055 6056* 6057* 6058*	Disk storage read failure causing a single taskabend. LA in operator's message indicates the unit that was using the disk storage when the failure occurred.  <b>Note:</b> If 8100 contains multiple disk storage drives, failure could have been on any disk.	Go to ST430 Action Plan 15.
6059* 605A* 6060*	Disk storage failure on DPCX system-resident disk.	1. Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address 80 for Models AXX or 84 for 8140 Models BXX. Ask the customer if not known.  2. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
6080*	The tests for the host communications feature have detected a failure. Messages 6082, 6083, 6084 follow and further define the failure.	1. Determine host adapter physical address (PA) by using SYSLDEV Utility (898). Refer to Chapter 2, CP851 for procedure.  2. Go to ST440 Procedure 06.
6081	Secondary host link I/O failure.	
6082 6083 6084	The tests for the host communication feature have detected a failure in the communications adapter.	

Message No.	Description	Action
60A0* 60A1 60A2	An equipment error occurred when attempting a print operation. The failing printer LA = nnnn.	<ul style="list-style-type: none"> <li>If the printer attaches to a display/printer port, determine if only one port fails, or all ports fail.</li> </ul> <ol style="list-style-type: none"> <li>If only one port fails, select Device Tests under SYSTCM. Refer to Chapter 2, CP600 Common Test Procedures and Messages.</li> <li>If all ports fail, using MD diskette 03, select the AD MAP and perform offline basic checkout option A.</li> </ol> <ul style="list-style-type: none"> <li>If the printer attaches to a loop, report problem to Network Control for problem determination.</li> </ul>
60E0*	Diskette read/write error occurred.	<ol style="list-style-type: none"> <li>Ensure that a known good diskette is available. The CSU diskette can be used as a scratch diskette.</li> <li>Go to ST430 Action Plan 16.</li> </ol>
60E1	Diskette drive failure occurred.	
60E2	Diskette not ready condition occurred.	
60E3*	Diskette read error occurred.	
60E4	Diskette error occurred during SYSINIT.	
60E5	Diskette error occurred during batch transmission.	
6100* 6103* 6104* 6105* 6107* 6108* 6109* 610A* 610B* 610C* 610D* 610E* 610F*	Disk storage read failure causing a single taskabend. LA in operator's message indicates the unit that was using the disk storage when the failure occurred.  <b>Note:</b> If 8100 contains multiple disk storage drives, failure could have been on any disk.	<ul style="list-style-type: none"> <li>For messages 6100, 6105, 610A:</li> </ul> <ol style="list-style-type: none"> <li>Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address 80 for Models AXX or 84 for 8140 Models BXX. Ask the customer if not known.</li> <li>Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.</li> </ol> <ul style="list-style-type: none"> <li>For all other messages, go to ST430 Action Plan 15.</li> </ul>

\*This message causes an entry in the Condition/Incident Log.



Message No.	Description	Action
6110*	Timer cannot be enabled.	Obtain the system. Using MD diskette 01, select the SC MAP and perform offline basic checkout option A using PAPA = 0888.
6116	Disk storage read failure causing a single task abend. LA in operator's message indicates the unit that was using the disk storage when the failure occurred.  <i>Note: If 8100 contains multiple disk storage drives, failure could have been on any disk.</i>	Go to ST430 Action Plan 15.
6117	Disk I/O failure while attempting to write trace records.	1. Using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk. This is normally address 80 for Models AXX or 84 for 8140 Models BXX. Ask the customer if not known.  2. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
6118	Program failure detected by a system trace.	Report problem to Network Control for problem determination.
6119	Disk failure during dump.	Go to ST430 Action Plan 15.
611A*	A disk read error occurred during a Delete Data Set operation. Because of this error, some data set sectors were not deleted and cannot be returned to use.  <i>Note: If 8100 contains multiple disk storage drives, failure could have been on any disk.</i>	Report problem to Network Control for problem determination.  If the sectors cannot be returned through DPCX recovery procedures for this message, go to ST430 Action Plan 15.
611C*	Disk I/O error occurred while reading DXAM extent directory.	1. Run the SYSDVAR Utility (917) to free data storage.  2. Go to ST430 Action Plan 15.

Message No.	Description	Action
611D*	The extent control information (bit map) could not be read during DXAM extent processing.	1. Run the SYSDVAR Utility (917) to rebuild the bit maps.  2. Go to ST430 Action Plan 15.
6120*	Terminal enable failed while using SYSTEM.	Determine from operator which terminal was being enabled at time of failure, then go to ST210 and use PA01 entry.
6121	Tape unit failure. Message LA is logical tape drive address.	Go to ST440 Procedure 01.
6122* 6123* 6124* 6128 6129* 612A* 612B* 612C* 612E*	Tape I/O failure. Message LA = tape drive logical address.	Go to ST440 Procedure 01.
61A0*	An unrecoverable data link or loop communication feature failure has occurred, or no downstream control unit responded to a poll. Communication adapter tests have been started. Messages 61C6, 61E1, 61E2, 61E3, or A1A0 identify the next action. Message PCA = the PA of the communications adapter.	1. If the adapter tests have started, either message 61C6, 61E1, 61E2, 61E3, or A1A0 should display. Follow the action plan for that message.  2. If this is the only message displayed, the adapter tests have not started. If testing a loop, you must first set the time-of-day counter. Use the SYSDATE Utility (901)  3. Go to ST440 Procedure 06.
61A1*	A data link or loop communications feature has detected a receive message with no ending flag, or continuous flags from a downstream control unit. Message PCA = the PA of the communications feature. Message LA = the link address of the last control unit polled.	1. Request a checkout of the last control unit polled.  2. Go to ST440 Procedure 06.

Message No.	Description	Action
61A6	A downstream control unit attached to the data link or loop communications feature did not respond to a poll, (timeout condition). Message PCA = the PA of the communications adapter. Message LA = the link address of the control unit not responding.	1. Request a checkout of the last control unit polled.  2. Go to ST440 Procedure 06.
61B1	An unrecoverable downstream link or loop failure has occurred. Possible causes are either receiving a sequence error, a command reject, or the data was lost. Message PCA = the PA of the communications adapter. Message LA = the link address of the failing control unit.	
61B5	Message limit exceeded for downstream communications link or loop.	Go to Chapter 5, CA250, Action Plan 18.
61B7	A downstream control unit did not acknowledge the data transmitted. 15 attempts were made. The PCA = the PA of the communications feature. LA = the link address of the control unit that did not acknowledge.	1. Request a checkout of the downstream control unit.  2. Go to ST440 Procedure 06.
61BC	Received a downstream loop or link response from a control unit not contained in the DPCX configuration table.	Report problem to Network Control for problem determination.
61BD	Loop-attached unit has an address that is assigned to the wrong communications adapter. Message PCA = PA of communications adapter. Message LA = the link address of the incorrect unit.	
61BE	Two downstream control units attached to a communications adapter are responding to the link address. Message LA = the duplicated address.	

\*This message causes an entry in the Condition/Incident Log.

Message No.	Description	Action
61C0	A failure was detected while trying to activate a primary SDLC communications link or loop. Message PCA = the PA of the communications adapter.	Go to ST440 Procedure 06.
61C1 61C2	A downstream control unit attached to a primary SDLC communications adapter could not be activated. Message LA = XX00, where: XX = logical control unit address 00 = device address (always zero)	1. Request a checkout of the last control unit polled. 2. Go to ST440 Procedure 06.
61C6	The tests for the primary communications feature have detected a communications adapter failure. The Message PCA = the PA of the failing communications adapter.	Go to ST440 Procedure 06.
61E0	A machine check occurred while running the communications tests. Message PCA = PA of communications adapter under test when failure occurred.	1. Obtain the system. Using MD diskette 02, select the CA MAP and perform offline basic checkout on the adapter being tested. 2. Go to ST430 Action Plan 02.
61E1	The tests for the communications feature have detected an error in either the loop driver/receiver card, loop cable, or loop relays. Message PCA = the PA of the communications adapter associated with the failing loop hardware.	Go to ST440 Procedure 06.
61E2	The tests for the communications feature have detected an error in the directly attached loop wire. Message PCA = the PA of the communications adapter that drives the failing loop.	Go to ST440 Procedure 06.

Message No.	Description	Action
61E3	The tests for the communications feature have detected a control unit failure while testing the loop. Tests on the loop wire ran successfully. The failing control unit was not attached to the loop and in monitor mode. PCA in message = PA of the loop communications adapter. LA in message = address of failing control unit.	1. Request a checkout of the last control unit polled. 2. Go to ST440 Procedure 06.
6600 6601 6602 6603	An SNA protocol error occurred on a downstream data link. Message LA = downstream control unit link address. This message does not indicate an 8100 hardware or a link problem.	Report problem to Network Control for problem determination.
6605	An RJE Control disk read error occurred.	Go to ST430 Action Plan 15.
7000*	Up to 1432 sectors (one bit map) of unused disk space has been lost.	No action at this time. A disk resource problem can occur (message 71XX), depending on how disk storage space was used. Notify the customer that a full data base reinstallation and disk replacement will be necessary if disk area becomes full.
7001*	Warning message. The alternate sectors for a particular head (surface) have all been used. DPCX continues to assign alternates on other heads of the disk storage unit.  Normally, enough alternate sectors exist on other heads to support alternate assignments for a disk storage unit.	To determine the number of alternate sectors remaining, refer to Chapter 2, CP650, for procedure.
7002 7003	Transaction group full. Print group full.	Report problem to Network Control for problem determination.
7030 7034	Insufficient disk storage space available to start new function.	Go to ST430 Action Plan 17.

Message No.	Description	Action	
7036	Cannot start host session from a 3276.	Report problem to Network Control for problem determination.	
7037	LU in LU/LA table is not a 3278.		
7072	Indicated DLA cannot be activated because the system configuration was ordered with fewer than six active tasks.		
7080	Unable to start batch session.		
7081	Processor storage not available.	Go to ST430 Action Plan 17.	
7111 7112 7113 7114 7115 7116 7117 7118 7119	Insufficient disk storage space available to start new function.		
7150	Warning message. Reaching end of additional disk space.		If response becomes degraded, report problem to Network Control for problem determination.
7600	Cannot enable RJE. Processor storage not available.		Report problem to Network Control for problem determination.
7601 7602	Insufficient disk storage space available to start new function.		
7760	An attempt was made to run SYSTCM routine 76 before setting the time and date.		Select the SYSDATE Utility (901) and set time and date.
8000 8001 8002	8100 has detected an invalid operation in a DPCX program or function.		Report problem to Network Control for problem determination.
9000	Line printer requires operator intervention. Printer LA = nnnn.		1. Verify that the customer performed the problem determination procedures. 2. Report problem to Network Control for problem determination.
9001	Printer unavailable.		
9002	Printer belt has incorrect character size.		

\*This message causes an entry in the Condition/Incident Log.

Message No.	Description	Action
9003	Line printer requires operator intervention. Printer LA = nnnn.	1. Verify that the customer performed the problem determination procedures.  2. Report problem to Network Control for problem determination.
9004	Printer density invalid.	
9005 9006 9007	Line printer requires operator intervention. Printer LA = nnnn.	
9010	A logical error has occurred in the DPCX Bit Map Chaining pointer. An 8100 hardware error is not indicated.	Report problem to Network Control for problem determination.
9011*	One or more programs cannot be loaded into processor storage. Problem can be caused by: PGMID invalid, PGMID duplicated, insufficient storage, program does not exist, or a disk storage error.	Report problem to Network Control for problem determination. If problem cannot be corrected using DPCX recovery procedure, to ST430 Action Plan 15.
9012	An attempt was made to configure a disk storage drive with fixed heads into DPCX as a non-system-resident disk. Only the system-resident disk can have fixed heads.	Report problem to Network Control for problem determination.
9013*	System configuration failed to create an operating system. A possible DPCX code error or disk I/O error occurred.	Report Problem to Network Control for problem determination. If problem cannot be corrected using DPCX recovery procedure, go to ST430 Action Plan 15.
9014 9015	DPCX prompt message for System Journal PSN.	See the <i>DPCX Messages</i> manual, SC27-0503 for recovery action.
901F	An attempt was made to activate a tape drive that is not physically present.	Report problem to Network Control for problem determination.
9020 9021	Using the SYSTERM Utility, an attempt was made to disable a terminal that was in use. The disable request is not processed.	
9040 9041 9042 9044	An invalid record has been detected in the transaction data set.	

\*This message causes an entry in the Condition/Incident Log.

Message No.	Description	Action
9070 9071 9072	No save record for option.	Report problem to Network Control for problem determination.
9080 9081 9082 9083 9087 9088 9089 908A	An attempt was made to disable a terminal that was being enabled. The disable request will not be processed.	
908B	A nonhardware error occurred during a type 2 batch session.	
908C	Invalid session parameters received from host. Batch not started.	
908D	Invalid FPID in preceding host message to operator.	
908E	Invalid format or content in dump record.	
908F	Invalid format or content in transmit record.	
9090	Invalid format or content in message to host.	
9091	Unable to start type 2 batch session.	
9093	Host SNA protocol error.	
9094 9095	Premature end of batch session. Not caused by hardware.	Report problem to Network Control for problem determination.
9096	No sequence numbers received from host. All sessions must be restarted.	
9097	Transmit termination flag set.	
909A	Premature end of batch session. Not caused by hardware.	

Message No.	Description	Action
90E0 90E1 90E2 90E3 90E4	Diskette operational prompt message. No 8100 diskette hardware failure indicated.	None
90E5	Transmission of packed data unsuccessful.	If problem was caused by 8100 hardware, a hardware message preceded this message. Troubleshoot the hardware message first.
90E6 90E7 90E8	Diskette operational prompt message. No 8100 hardware error indicated.	
90EB	Diskette drive unavailable for RJE.	Report problem to Network Control for problem determination.
90EC	Transmit mode invalid.	
90ED	Retransmit mode invalid.	
90F0 90F1 9100	DPCX code error.	
9121	Tape statistical data (TSD) history counter overflow.	Control operator should list (print) TSD history file.
9122	TSD history file nearly full.	
9123	TSD history file full.	
9124	TSD storage counter overflow.	
912D	Tape volume label not found. Tape hardware problem not indicated.	Report problem to Network Control for problem determination.
912E	A tape header label not found. Tape hardware problem not indicated.	
912F	Tape cannot be opened.	
9130	Tape block count mismatch. Tape hardware problem not indicated.	

Message No.	Description	Action
9131	Tape unit fails to become ready. Operator can identify the failing tape unit.	Go to ST440 Procedures 01.
9132	Tape unit powered off or not online. Operator can identify the failing tape unit.	
9133	Tape block length error.	Report problem to Network Control for problem determination.
9134	Number of tape records read does not match the number indicated in trailer label.	Go to ST440 Procedure 01.
91A1	A primary communications adapter had either an overrun or underrun condition.  Message PCA = adapter PA.	Go to ST430 Action Plan 18.
9600	System printer has end of forms, covers open, print unit open, or a paper motion condition. Message LA = logical printer address.	8100 printers are all maintained by their own maintenance manual. Refer to it.
9601	RJE logon unsuccessful. Message condition code defines problem. Codes A, B, D, and E are protocol failure conditions. Code C is caused by the system-resident device.	For condition code C, go to ST430 Action Plan 15. For condition codes A, B, D, and E, report problem to Network Control for problem determination.
9602	RJE printer prompt message.	None
9603	RJE found all LUs either in use or logged off.	Report problem to Network Control for problem determination.
9604	Transmit rejected by host. (RJE operator prompt.)	
9605	Host stopped LU. (RJE operator prompt.)	
9606	Host terminated LU. (RJE operator prompt.)	
9607	Disk error. PA unknown.	Go to ST430 Action Plan 15.
9608	System printer has end of forms, covers open, print unit open, or a paper motion condition. Message LA = logical printer address.	Report problem to Network Control for problem determination.

\*This message causes an entry in the Condition/Incident Log.

Message No.	Description	Action
9609	Diskette mount prompt.	None
960A	Intervention required on unit attached to display/printer adapter. Message LA = display or printer logical address.	8100 printers are all maintained by their own maintenance manual. Refer to it.
960B	FCB not found.	Report problem to Network Control for problem determination.
960C	Attach printer prompt.	None
960D	Volume full-mount diskette prompt.	None
960E	End of volume-mount diskette prompt.	None
960F	Mount new diskette prompt.	None
9610	Recovery made on spool file.	None
9611	RJE has been started by host.	None
9612	Recovery has been made on RJE spool file that was being transmitted when the system failed.	None
9613	Send count exceeded.	None
9C00 9C01 9C08 9C09 9C0F	System trace prompt messages.	Refer to <i>DPCX Operations</i> for SYSTRACE operation.
A000	Condition/Incident log full. Log will automatically wrap around (log record will be overwritten).	Report problem to Network Control for problem determination.
A001	Scan of the Condition/Incident log is complete.	
A002	Unsuccessful logon. ID is invalid or in use.	
A003	8100 printer operation is complete.	None

Message No.	Description	Action
A004	Task/test has been cleared on terminal/device.	A new task/test can now be started to the cleared terminal or device. If LA = 00, the task forced was a subtask. If LA not 00, LA = logical address of device forced.
A005	Printer in use or unavailable.	Report problem to Network Control for problem determination.
A006*	System printer has end of forms, covers open, print unit open, or a paper motion condition. Message LA = logical printer address.	8100 printers are all maintained by their own maintenance manual. Refer to it.
A007	Insufficient storage for fast dump. Normal dump used.	None
A008	Number of transactions packed is NNNN.	None
A00A	A SYSPRINT task has been canceled.	None
A00B	Successful completion of task.	None
A00C	SYSDRCF terminated by RJE.	None
A050	HCF/DPCX session terminated.	None
A051	HCF/DPCX session rejected. Invalid terminal sub-type.	Report problem to Network Control for problem determination.
A052	HCF/DPCX session rejected. Resources not available.	None
A053	HCF/DPCX session rejected. Bind mismatch.	Report problem to Network Control for problem determination.
A080	Host processing terminated.	None
A081	Host link enabled.	None
A082	Host in use; not available for test.	None
A083	Secondary communications adapter test completed with devices connected.	None

Message No.	Description	Action
A084	Transmission of packed data unsuccessful.	None
A085	Packed record not transmitted.	None
A086	SYSCLNUP operation complete.	None
A087	Host activation of controller is rejected. ID invalid.	None
A088	Host deactivation received.	None
A089	Restart in progress.	None
A08A	Normal disconnect received.	None
A08B	Normal end of type 2 batch session.	None
A08C	Host activation of controller successful.	None
A08D	Type 2 batch session started.	None
A08E	Type 2 batch session ended.	None
A090	Diskette transmission terminated.	None
A091	Tests running.	None
A092	Diskette data transmission complete. (Normal end.)	None
A093	Host link reenable in progress.	None
A094	Host link reenable complete.	None
A180	The host restarted unexpectedly and is in the process of reconnecting the 8100.	None
A181	Host link activated.	None
A182	Host sessions terminated.	None
A183	8100 is terminating.	None

Message No.	Description	Action
A1A0	DPCX invoked downstream SDLC communications tests automatically because of an unrecoverable link problem. Tests were successful. Message PCA = PA of communications adapter.	1. Go to ST440 Procedure 06. 2. Request aid.
A1A1	DPCX invoked downstream SDLC communications tests automatically because of an unrecoverable link/loop problem. Tests were successful but retries occurred.	
A1A3 A1A4	Communications trace prompt messages.	See <i>DPCX Operations</i> for system trace operation.

ST223 DPCX-Unique Test Control Monitor Messages

The following error messages occur at the invoking device (BOP or terminal) and are unique to the DPCX test control monitor. All other DPCX TCM messages from 00BC to AFBC are common to the XXBC format meanings, and are described in ST420 "XXBC Test Control Monitor Messages."

Message No.	Description	Action
B0BC	BOP in use when DPCX online test was invoked from a terminal.	Log off the BOP from the system.  1. Press Clear Display.  2. Enter D and press Enter Function.
B1BC	DPCX does not have enough available storage to load the online test.	1. Request the customer to free some tasks and make additional storage available.  2. Attempt to repair the problem offline when the system is available.
B2BC	A DPCX I/O control block is not available for the device to be tested. Problem could be caused by insufficient processor storage, or the device is no longer in the configuration table.	1. Request the customer to free some tasks and make additional storage available.  2. Report problem to Network Control and attempt to repair the problem offline when the system is available.
B3BC	Device to be tested is not online.	1. Request the operator to place the device online using the DPCX SYSTEM Utility (903).  2. Attempt to repair the problem online when the system is available.
B4BC	Device not found.	1. Have customer check that device is powered on and physically connected properly.  2. Select the SYSLDEV utility and check device status.  3. Report problem to Network Control for problem determination.

Message No.	Description	Action
BFBC	TCM detected a programming design error.	1. Report problem to Network Control for problem determination.  2. Attempt to repair the problem when the system is available.

ST224 DPCX Tape Standalone Dump/Restore Messages (DXXX, E000, E2XX, XXEE)

DPCX generates the following messages at the BOP while executing the Dump/Restore utility. The dump function loads all, or a portion of, disk storage to an 8809. The restore function loads data from the 8809 to disk storage. Refer to the DPCX Operations Guide for the description and operation of this utility.

Note: These messages do not cause an entry in the Condition/Incident Log.

Message No.	Description	Action
D001	Dump/restore progress or prompt message.	See the <i>DPCX Messages</i> manual, SC27-0523 for message meaning.
D2AX D2B0 D2B1	Dump/restore progress or prompt message. A hang at any of these messages normally indicates a programming code error. A hardware failure can occasionally cause a programming error indication.	1. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 2. Report problem to Network Control for problem determination.
D2B2	8809 tape unit not ready.	If tape cannot be made ready, go to ST440 Procedure 02.
D2B3	8809 not at load point.	If tape cannot be positioned correctly, go to ST440 Procedure 02.
D2B4 D2B5 D2B6 D2B7 D2C0 D2C1 D2C3	Dump/restore progress or prompt message. A hang at any of these messages normally indicates a programming code error. A hardware failure can occasionally cause a programming error indication.	1. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 2. Report problem to Network Control for problem determination.
D2CE	Utility program error. This failure normally indicates a programming design defect. A hardware failure can occasionally cause a programming error indication.	
D2CF	A processor instruction/execution unit system check occurred.	Go to ST430 Action Plan 20.
E000	A hang occurred while loading the utility from diskette to processor storage.	Go to ST430 Action Plan 27.

Message No.	Description	Action
E2AX E2B0 E2B1	Dump/restore progress or prompt message. A hang at any of these messages normally indicates a programming code error. A hardware failure can occasionally cause a programming error indication.	1. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 2. Report problem to Network Control for problem determination.
E2B2	8809 not ready.	If tape cannot be made ready, go to ST440 Procedure 02.
E2B3	8809 not at load point.	If tape cannot be positioned correctly, go to ST440 Procedure 02.
E2B6 E2B7 E2BE E2BF E2C0 E2C1	Dump/restore progress or prompt message. A hang at any of these messages normally indicates a programming code error. A hardware failure can occasionally cause a programming error indication.	1. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 2. Report problem to Network Control for problem determination.
E2C2	Restore terminated. No disk alternate sector assignment available. Disk PA unknown.	Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.
E2C3	Restore cannot be performed because 8100/DPCX system configuration is invalid.	Report problem to Network Control for problem determination.
E2CE	Utility program error. This failure normally indicates a programming design defect. A hardware failure can occasionally cause a programming error indication.	1. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 2. Report problem to Network Control for problem determination.

Message No.	Description	Action
E2CF	A processor instruction/execution unit system check occurred.	Go to ST430 Action Plan 20.
E2FF	Dump/restore progress or prompt message (occurs only in conjunction with E2A6). A hang at this message normally indicates a programming code error. A hardware failure can occasionally cause a programming error indication.	1. Ensure that customer has performed the response as described in the <i>DPCX Messages</i> manual, SC27-0523. 2. To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10. 3. Report problem to Network Control for problem determination.
XXEE	An I/O error occurred on either disk storage or tape.  XX = LA of the failing tape drive (04, 05, 06, 07), or the PA of the failing disk storage (80, 84, 85, 90, 91, A0, A1, B0, B1, C0).	<ul style="list-style-type: none"> <li>• For LAs 04, 05, 06, and 07, go to ST430 Action Plan 28.</li> <li>• For PAs 80, 84, 85, 90, 91, A0, A1, B0, B1, C0, perform the following:                             <ol style="list-style-type: none"> <li>1. Using MD diskette 03, select the Free-Lance Utility. Refer to Chapter 2, CP620. Run the test on the failing disk.                                     <ol style="list-style-type: none"> <li>a. At 80BC, enter PAB; at 81BC enter 1B.</li> <li>b. For any failure with the format PA1E or PAMI, using MD diskette 03, select the FA MAP, and perform off line basic checkout option A.</li> </ol> </li> <li>2. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects.</li> </ol> </li> </ul>

*ST225 DPCX Installation Messages (E0XX, E1XX, E999, EEXX)*

DPCX generates the following messages at the BOP while performing either a full-operating system program installation or when installing a service change to DPCX. For actual DPCX installation procedures, refer to *DPCX Installation* manual, SC27-0484.

Message No.	Description	Action
E0XX E100	Installation progress or prompt message. A hang at any of these messages normally indicates a programming code error or a diskette assembly defect. A hardware failure can occasionally cause a programming error indication.	<ol style="list-style-type: none"> <li>To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.</li> <li>Report problem to Network Control for problem determination.</li> </ol>
E333 E334	Diskette progress or prompt message.	Refer to <i>DPCX Installation</i> , SC27-0484.
E999	Installation complete.	None
EE14	The processor detected a logic error while writing the bit maps during initial installation.	<ol style="list-style-type: none"> <li>To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.</li> <li>Report problem to Network Control for problem determination.</li> </ol>
EE15	A service level update was attempted without first clearing the transmit data set.	Refer to <i>DPCX Installation</i> , SC27-0484.
EE25	The diskette that is being read is not a valid installation diskette. This message does not indicate a hardware problem.	<ol style="list-style-type: none"> <li>To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.</li> </ol>
EE31	DPCX detected a programming error or a diskette assembly defect. A hardware failure can occasionally cause a programming error indication.	<ol style="list-style-type: none"> <li>Report problem to Network Control for problem determination.</li> </ol>
EE35	An engineering change has been requested, but DPCX does not exist on the disk.	Report problem to Network Control for problem determination.

Message No.	Description	Action
EE36	The current base level does not support installation of this feature.	<ol style="list-style-type: none"> <li>Verify that the customer performed the procedures described in <i>DPCX Installation</i>, SC27-0484.</li> </ol>
EE37	The feature being installed already exists.	<ol style="list-style-type: none"> <li>Report problem to Network Control for problem determination.</li> </ol>
EE38	A required data set 1 member could not be found during feature installation.	<ol style="list-style-type: none"> <li>Report problem to Network Control for problem determination.</li> </ol>
EE61	An I/O interrupt occurred from a non-existent device.	Go to ST430 Action Plan 20.
EE62	An unrecoverable I/O error occurred. With this message displayed, press Enter. PAXX then displays and indicates the physical address of the failing hardware.	<ol style="list-style-type: none"> <li>For PAs 80, 90, 91, A0, A1, B0, B1, C0, C1 (Models AXX) or 84, 85 (8140 Models BXX) go to ST430 Action Plan 12.</li> <li>For PA 87, go to ST430 Action Plan 27.</li> <li>For PA X8, go to ST430 Action Plan 14.</li> <li>If PA is none of the above, go to ST430 Action Plan 10.</li> </ol>
EE63	An unexpected level zero interrupt occurred.	Go to ST430 Action Plan 20.
EE64	An unrecognizable I/O error occurred. With this message displayed, press Enter twice. The PA then displays (EE64, XXXX, PAXX), and indicates the physical address of the failing hardware.	<ol style="list-style-type: none"> <li>For PAs 80, 90, 91, A0, A1, B0, B1, C0, C1 (Models AXX) or 84, 85 (8140 Models BXX) go to ST430 Action Plan 12.</li> <li>For PA 87, go to ST430 Action Plan 27.</li> <li>For PA X8, go to ST430 Action Plan 14.</li> <li>If PA is none of the above, go to ST430 Action Plan 10.</li> </ol>

Message No.	Description	Action
EE71	An I/O machine check occurred. With message EE62 displayed, press Enter. PAXX then displays, indicating the PA of the failing adapter.	Go to ST430 Action Plan 19.
EE72	A processor instruction/execution unit system check occurred.	Go to ST430 Action Plan 20.
EEC3	A service level update from Release 1 modification 0 was attempted without first clearing the transmit data set.	Report problem to Network Control for problem determination.
EEXX	Feature installation or removal error.	<ol style="list-style-type: none"> <li>Verify that the customer performed the procedures described in <i>DPCX Installation</i>, SC27-0484.</li> <li>Report problem to Network Control for problem determination.</li> </ol>



ST226 DPCX System Abend Messages (FXXX)

DPCX generates the following messages at the BOP for all 8100 Information System abend conditions.

Message No.	Description	Action
F000	A system check occurred during adapter initialization.	Go to ST430 Action Plan 20.
F0XX*	The DPCX interrupt handler detected an error while reading adapter status. XX = PA of adapter being addressed at the time of failure.	Go to ST430 Action Plan 19.
F1nn*	A processor instruction/execution unit system check occurred. Refer to Chapter 2, Figure CP840-2 for the nn byte meaning.	Go to ST430 Action Plan 20.
F220 F222 F223 F224 F225 F252 F253 F260 through F268 F26A F26B F26C F270 through F277	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform a general system checkout. Go to ST430 Action Plan 10.
F278*	Disk storage failure during attempt to assign alternate sector. Disk address unknown.	Go to ST430 Action Plan 15.

Message No.	Description	Action
F279 F27A F27B F27C F27D F27E F27F F280* F281 F284 F28A F28B F28C F28D	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.
F28E* F28F*	Disk storage failure. Disk address unknown.	Go to ST430 Action Plan 15.
F2A6 F2A7	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.
F3XX*	Ten I/O adapter machine checks occurred. XX = PA of the last adapter that caused the check.	Go to ST430 Action Plan 10.
F420	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.
F4XX*	Disk storage failure. XX = PA of the failing disk storage.	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A.
F570 F571 F630 F631 F632	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.

Message No.	Description	Action
F633 F634	The SCF detected that an 8101 or an 8809-1B was powered down.	If power-down was not planned, use MD diskette 01 and select the PA MAP.
F80X* F81X* F920*	DPCX program error. These failures normally indicate a programming design defect. A hardware failure can occasionally cause a program error condition.	To eliminate hardware as the problem source, perform general system checkout. Go to ST430 Action Plan 10.
FF10	A program exception interrupt occurred.	Go to ST430 Action Plan 20.
FFnn	A processor instruction/execution unit system check occurred. Refer to Chapter 2, Figure CP840-2 for the nn byte meaning.	Go to ST430 Action Plan 20.
FFFF	System shutdown in progress. Normally this number is indicated for a brief period just prior to power off.	If display remains at FFFF, use MD diskette 01, select the BU MAP, and use BOP checkout option C for an 8140 or basic checkout option A for an 8130.

\*This message causes an entry in the Condition/Incident Log.

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**ST300 Non-IBM Program Product**

**ST310 General Failure Index (GFI)**

This GFI enables the user to establish a common approach and initiate fault isolation procedures on the 8100 Information System. You should use this section when a problem has been detected either:

- when the 8100 does not use an IBM licensed program, or
- during initial system installation using customer setup procedures.

**Note:** Start with the first entry in the Failure Indication column. If that failure did not occur, go to the next entry. Proceed through this chart in order until you find the failure indication that applies; then perform the action specified for that failure.

Failure Indication	Action
8130/8140/8101 won't power on. Power On indicator off and Power/Thermal Check indicator on or off.	Go to ST440 Procedure 03.
While executing IPL, the BOP display remains blank, all zeros, all FFs, dim or blinking after power-on complete.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
IPL messages at BOP (IPL light on) including BU tests running from MD, CSU, or while IPL'ing from disk storage. 0XXX 1XXX 2XXX 3XXX	Go to ST410, Initial Program Load and Bringup Test Error Messages.
IPL does not appear to occur in the mode selected by the IPL Mode switch setting.	Go to Chapter 5, BU255.
Undefined IPL message. XXXX	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
XXBC messages occurred while either running offline tests using MAPs and the MD, or while using the CSU diskette. 00BC to AFBC	Go to ST420, XXBC Test Control Monitor Messages.
Power indicator on and diskette drive not turning.	Using MD diskette 03, select the DA MAP and use the power failure entry.
These messages occurred while processing a MAP or running tests offline from the MD or CSU diskettes: X895 X896	Using the X8 value from message (SSCF address), go to ST430 Action Plan 14. X = The high-order digit of the SSCF address.

Failure Indication	Action
BOP failure (digit display, keypad, key-lock, and indicators).	Using MD diskette 01, select the BU MAP and use BOP checkout option C for an 8140 or basic checkout option A for an 8130.
Diskette storage failure. LA = PA = adapter address = 87 Test failures = PA1E, PAMI	Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.
Disk storage failure. LA = PA = adapter address = 80, 90, 91, A0, A1, B0, B1, C0, C1 (Models AXX) = 84, 85 (Models BXX) Test failures = PA1E, PAMI	Using MD diskette 03, select the FA MAP and perform offline basic checkout option A.
Display/printer attachment feature adapter drive card failure. PA = adapter address = 1F*, 2F*, 3F*, 4F*, 5F* PT = port address = 00-23 Test failures = PA1E, PAMI PT2E, PTMI	Using MD diskette 03, select the AD MAP and perform offline basic checkout option A on the qualifying ports.
Expanded function operator panel failure. PA = 080A Test failure = 0A2E, 0AMI	Using MD diskette 01, select the SP MAP and perform offline basic checkout option A.

Failure Indication	Action
Communications attachment feature failure (adapter, driver cards, local modem). PA = adapter address = 81-86, 10-1F*, 20-2F*, 30-3F* 40-4F* (Models AXX) = 80-83, 50-5E*, 5F* (Models BXX) Test failures = PA1E, PAMI	Using MD diskette 02, select the CA MAP and perform offline basic checkout option A.
Magnetic tape attachment feature or 8809 tape drive failure. PA = adapter address = 5E*, 73, 93, A3, B3, C3 DA = drive address = 00, 01, 02, 03 Test failures = PA1E, PAMI = DA2E, DAMI	1. Using MD diskette 03, select the TA MAP and perform offline basic checkout option A.  2. Go to ST440 Procedure 02.
System Control Facility failure. PA (PSCF) = 08 SC (SSCF) = 58, 88, 18, 28, 38, 48, 98, A8, B8, C8, 78 Test failures = 081E, 08MI (PSCF) = SC2E, SCMI (SSCF)	Using MD diskette 01, select the SC MAP. ● For 8140 basic checkout on all SSCFs, use option 1. ● If the PA of the SSCF is known, use option 2. ● For 8140 test failure 081E, or for 8130 without System Expansion Feature, use option 3.
Failure on multiple displays and printers attached to the display/printer attachment feature.	Using MD diskette 03, select the AD MAP and perform offline basic checkout option A.

\*Address is shared with another adapter.

Failure Indication	Action
Failure on a single display or printer attached to the display/printer attachment feature.	Go to Section 4 of the 8100 attachment manual for the associated failing display/printer and refer to the troubleshooting guide. If the guide returns you to the 8101, then, using MD diskette 03, select the AD MAP and perform offline basic checkout option A on the failing port.
Symptom not clear; none of the above failure indications applies, or a system checkout is required after a repair, relocation, installation, MES install or removal.	Go to ST430 Action Plan 10.

## ST400 Common Messages, Action Plans, and Procedures

You should use this section when instructed by the General Failure Indexes contained in either ST110, ST210, or ST310. It contains all common IPL and associated bringup test messages, all common XXBC messages generated by the online and offline test control monitors, and also all action plans and procedures for failure indications.

### ST410 Initial Program Load and Bringup Test Error Messages

The following messages result from performing an IPL while using either DPPX, DPCX, or the CSU diskette and the maintenance device. Any message displayed for longer than one minute indicates a failure.

Message No.	Description	Action
00XX 0100 0101 0120	An instruction/execution unit failure occurred while performing an IPL.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0122	A primary mode auto-restart IPL was attempted with parameter bit 1 not active.	Set PSCF IPL parameter switch bit 1 on. Refer to Chapter 5, SC440.
0123	A primary mode IPL was attempted with parameter bit 0 active.	<ul style="list-style-type: none"> <li>● Set PSCF IPL parameter switch bit 0 off. Refer to Chapter 5, SC440.</li> <li>● Using maintenance device diskette 01, select the BU MAP and perform offline basic checkout option A.</li> </ul>
013C 014C 01EX	An instruction/execution unit failure occurred while performing an IPL.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0200	Prompt for IPL parameter during a manual mode IPL.	Enter the IPL parameter. Refer to Chapter 2, CP510, IPL Parameters. If any response problems occur, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0201	Prompt for IPL option entry during a manual mode IPL.	Enter the IPL options. Refer to Chapter 2, CP510 IPL Parameters.
0223	An invalid value from 8 to F was entered as the first digit of the IPL parameter.	<ol style="list-style-type: none"> <li>1. Retry the operation using the correct IPL parameter.</li> <li>2. Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.</li> </ol>

Message No.	Description	Action
023C 024C	An instruction/execution unit, SCF, or BOP failure occurred while performing an IPL.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0281	The first two digits entered for the 0201 prompt message are invalid.	1. Retry the operation using a correct value.
0282	The second two digits entered for the 0201 prompt message are invalid.	2. Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
02EX	An instruction/execution unit failure occurred while performing an IPL.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
03XX	Either an instruction/execution unit or a storage failure occurred while testing primary registers or the first 64K of processor storage, or while initializing the remainder of register storage or processor storage.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

Message No.	Description	Action
04XX	Either an SCF or instruction/execution unit failure occurred while attempting to address the IPL device through the SCF	Go to ST430 Action Plan 13.
0600	Load started from diskette storage.	Go to ST430 Action Plan 05.
0632	Diskette storage not ready. 20-second wait started.	If diskette storage does not become ready, go to ST430 Action Plan 05.
0633 0634 0635	Diskette storage not ready. Diskette storage seek error. Diskette storage read error.	Go to ST430 Action Plan 05.
063C 06EX	Either the instruction/execution unit, BOP, or the diskette failed during a diskette load operation.	Go to ST430 Action Plan 05.
0700	Load started from disk storage.	Go to ST430 Action Plan 06.
0734	Disk storage error occurred while loading the bootstrap program from the system-resident disk.	Go to ST430 Plan 06.

Message No.	Description	Action
073C 07EX	Either the instruction/execution unit, BOP, or disk failed during a disk load operation.	Go to ST430 Action Plan 06.
0E00	ROS is preparing to transfer control to the loaded disk or diskette bootstrap program.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0E21 0E31 0EEX	An instruction/execution unit failure occurred.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0EFF	ROS is transferring control to either the loaded disk or diskette bootstrap program.	<ul style="list-style-type: none"> <li>For an IPL from diskette, go to ST430 Action Plan 7.</li> <li>For an IPL from disk, go to ST430 Action Plan 8 if using DPPX or DPCX, or to ST430 Action Plan 11 if not.</li> </ul>
0F00	Basic operator panel failure.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0F01	ROS waiting for MD enable signal.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0F02	ROS program is either prepared to load or is loading from the MD (enable line active).	1. Retry the IPL load operation.
0F03 0F04	ROS program is loading from the MD (MD requested load).	2. Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
0F38	Either a BOP or MD parity check occurred while loading.	3. For intermittent failures, go to ST430 Action Plan 01.
0F39	Either a BOP or MD status error occurred.	
0F3C 0FEX	Either an instruction/execution unit or BOP failure occurred.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
1000	Either the DPPX or DPCX disk storage bootstrap program has received control.	Go to ST430 Action Plan 06.
1001	The DPPX or DPCX disk storage bootstrap program is preparing to transfer control to the bring-up tests.	Go to ST430 Action Plan 08.

Message No.	Description	Action
1002	A disk storage failure occurred while loading the bringup tests from disk.	Go to ST430 Action Plan 12.
10CX 10EX	Either an instruction/execution unit or storage failure occurred.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
10FF	The DPPX or DPCX disk storage bootstrap program is preparing to transfer control to the DPPX or DPCX system loader.	Go to ST430 Action Plan 08.
1100	Bringup tests have received control from the disk storage bootstrap program.	Go to ST430 Action Plan 06.
1137	Disk storage failure occurred.	Go to ST430 Action Plan 12.
1139	BOP failure occurred.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
1XXX 2XXX 31XX 34XX 35XX 36XX 37XX 3AXX	An error occurred while running the extended bringup tests to either storage, ECC, the instruction/execution unit, or floating-point.	Using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
3F00	Bringup tests completed successfully.	<ol style="list-style-type: none"> <li>If using the MD and running the Free-Lance Utility, enter an F at the MD to load the TCM.</li> <li>To rerun the bringup tests, enter 2F and press Enter Function at the BOP.</li> </ol>
3F03	The TCM is loading from either the MD or the CSU diskette under control of the bringup test loader.	None

Message No.	Description	Action
3FFF	<p>The bringup tests are preparing to transfer control to either the:</p> <ul style="list-style-type: none"> <li>DPPX or DPCX system loader from the system-resident IPL device.</li> <li>TCM from the CSU diskette.</li> <li>TCM from the MD.</li> </ul>	<ol style="list-style-type: none"> <li>Go to ST430 Action Plan 08.</li> <li>Diskette was incorrectly manufactured. Obtain a new diskette.</li> </ol>

**ST420 XXBC Test Control Monitor Messages**

The following messages can be generated by any of the test control monitors (TCMs).  
Messages can appear at either the MD, BOP, or the invoking terminal.

Message No.	Description	Action
00BC	Presented by offline and DPPX online TCM at BOP. Indicates TCM is active in the 8100.	None
01BC	Offline ROS request to load extended bringup tests.	None
02BC	Extended bringup tests started. Observe the BOP for test status.	None
03BC	Extended bringup tests completed successfully.	None
10BC	Offline ROS request to load the offline TCM.	None
11BC	TCM request to load configuration tables.	None
12BC	TCM request to load a particular test.  <i>Note: Some tests can take up to 90 seconds to load.</i>	None
13BC	Tests completed for this diskette, but some were bypassed because configuration table 1 did not specify them.	Insert another MD diskette to continue testing, or, if complete, enter F to terminate testing.
31BC 32BC 33BC 34BC 35BC 36BC 37BC 38BC 39BC	Physical address (PAs) for invoke message cannot be located in configuration table.	<ol style="list-style-type: none"> <li>1. Retry the invoke operation using the correct PA.</li> <li>2. Correct the configuration table. <ul style="list-style-type: none"> <li>• If the invoke message was entered in offline mode go to Chapter 2, CP310 Configuration Procedure Start MAP.</li> <li>• If the invoke message was entered while operating under DPPX, the system configuration tables are in error.</li> </ul> </li> </ol>

Message No.	Description	Action
40BC	Incorrect reply to PAXE message (must be B or F).	<ol style="list-style-type: none"> <li>1. If operation was under MD MAP control, press FWD to retry.</li> <li>2. If operation was being executed in free-lance mode, enter F to free TCM and reenter invoke messages.</li> </ol>
41BC	No RR value specified with an L entry value = 2.	
42BC	S entry value invalid (must be 0, 1, or 2).	
43BC	L entry value invalid (must be 0, 1, or 2).	
44BC	A routine was entered with a Run All invoke request.	
45BC	The loaded diskette does not contain the requested test.	<ul style="list-style-type: none"> <li>• If using free-lance mode offline with the MD: <ol style="list-style-type: none"> <li>1. Insert the MD diskette that contains the test requested and reenter the invoke message.</li> <li>2. Check the MD configuration entry for the PAs entered into the MAP. The unit type could also be at fault. Use the Configuration Utility and refer to Chapter 2, CP310.</li> </ol> </li> <li>• If using an MD MAP: <ol style="list-style-type: none"> <li>1. Check the MD configuration table entry for the PAs entered into the MAP. The unit type could also be at fault.</li> <li>2. MD diskette might have been manufactured incorrectly. Report the problem and obtain another MD diskette. Configure the diskette with the copy and retry the MAP.</li> </ol> </li> </ul>

Message No.	Description	Action
46BC	An unprompted message other than F or FF was inputted.	<ol style="list-style-type: none"> <li>1. If operation was under MD MAP control, press FWD to retry.</li> <li>2. If operation was being executed in free-lance mode, enter F to free TCM and reenter invoke messages.</li> </ol>
47BC	S entry value invalid when Run All tests option specified (must be 0 or 1).	Enter F to free the TCM and reenter the invoke message.
48BC	L entry value invalid when Run All tests option specified (must be 0 or 1).	
49BC	Invalid entry specified after a manual intervention prompt message.	Refer to the MAP reference material to determine allowable responses and retry the operation.
4ABC	A routine was not specified for a test having only selectable routines.	Refer to the MAP reference material to determine the valid test options and retry the operation.
4BBC	An invalid routine was requested. Either the device address in the invocation message or the level 02 configuration table entry is missing.	
4CBC	An invalid ending character was specified in the invoke message. Only A, B, or C are valid.	Retry the operation.
4DBC	Routine selected cannot be run from invoking device.	Refer to the MAP reference material for test description and operation.
4FBC	No routines were run for 'S' field selected. Either the device address in the invocation message or the level 02 configuration table entry is missing.	If operation was being executed using the free-lance option, enter F to free TCM. Re-enter the invoke message using the SLRR format.
80BC	TCM prompt for the address portion of an invoke message.	Enter the address portion of the invoke message.

Message No.	Description	Action
81BC	TCM prompt for the test option of an invoke message (SLRRB), and indicates that the address portion was received correctly.	Enter the option portion of the invoke message.
90BC	TCM has detected an MD or BOP hardware failure while writing to the MD.	Go to ST430 Action Plan 01.
91BC	TCM has detected an MD or BOP hardware failure while reading from the MD.	Go to ST430 Action Plan 01.
92BC	Unexpected system check while running offline tests.	<ol style="list-style-type: none"> <li>1. If message occurred while using free-lance option, determine address of the adapter under test when failure occurred. Individual test selection could be necessary. Refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to relate address to MAP, then select the MAP and perform basic checkout.</li> <li>2. If message occurred while performing offline tests using the MAP and MD, go to ST430 Action Plan 2.</li> </ol>
93BC	A diskette storage problem occurred while using the CSU diskette.	<ol style="list-style-type: none"> <li>1. Try another CSU diskette.</li> <li>2. Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.</li> </ol>

Message No.	Description	Action
97BC	An unexpected machine check occurred while polling the adapter.	<ol style="list-style-type: none"> <li>1. If message occurred while using free-lance option, determine address of the adapter under test when failure occurred. Individual test selection could be necessary. Refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to relate address to MAP, then select the MAP and perform basic checkout.</li> <li>2. If message occurred while performing offline tests using the MAP and MD, go to ST430 Action Plan 2.</li> </ol>
9ABC	TCM detected a PSCF failure during initialization.	Go to ST430 Action Plan 03.
9EBC	Test macro definition is not correct. Diskette manufactured improperly.	<ol style="list-style-type: none"> <li>1. Obtain another test diskette, configure with the Copy Utility, and retry the operation. Report the problem.</li> <li>2. Request aid.</li> </ol>
9FBC	Test loaded was not the one specified, or the diskette was manufactured improperly.	
A0BC A1BC A2BC A3BC A4BC A5BC A6BC A7BC	An unexpected interrupt occurred from the interrupt level specified by the second digit of the message.	<ul style="list-style-type: none"> <li>● If message occurred while using free-lance option, determine the address of the adapter under test when the failure occurred. Individual test selection could be necessary. Go to ST 430 Action Plan 04.</li> <li>● If message occurred while performing offline tests using the MAP and MD, go to ST430 Action Plan 04.</li> </ul>

Message No.	Description	Action
A8BC to AABC ABBC ACBC ADBC AEBC AFBC	An invalid TCM/test programming operation has occurred. The diskette was improperly manufactured.	<ol style="list-style-type: none"> <li>1. Obtain another test diskette, configure with the Copy Utility, and retry the operation. Report the problem.</li> <li>2. Request aid.</li> </ol>
BXBC	DPCX-unique test control monitor message.	Go to ST223.



## ST430 Action Plans

**Caution: Turn power off before exchanging any cards or cables.**

Action plans are step-by-step procedures used to isolate system errors. They are grouped according to the error indication, such as a test error message or a specific system operational failure, and determine which MD MAP should be used to perform fault isolation. An action plan also describes the troubleshooting procedures you should use when the cause of failure cannot be isolated to an area tested by an individual MAP.

An action plan, for example, may direct you to a particular MAP for certain procedures. If these procedures detect an error, you should not continue with the next GFI step, but instead, should perform the indicated repair action. Each problem should be repaired in order as directed by the action plan. The MD then prompts you to perform MAP repair verification testing.

If the verification test determines that the repair action fixed the problem, return the system to the customer. If the repair action did not fix the problem, return to the GFI and continue with the step following the one that directed you to the MAP.

If any repair action involving card swapping or card exchange did not fix the problem, return all original cards to their initial positions before continuing.

### Action Plan 01. Basic Operator Panel or MD Load Problem

1. Retry the operation.
2. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.  
  
A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
3. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages go to Chapter 5, BU206.
4. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.

- c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
    - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
    - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
    - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
5. Check BOP adapter card and cable seating. The card is located on the 01B gate.
  6. Obtain another MD.
  7. Exchange both the BOP adapter card located on the 01B gate, and the PSCF (SC1) card located in 01A-A2G2 for an 8130 and in 01A-A1A2 for 8140, Models AXX or 01A-A1D2 for 8140 Models BXX.
  8. Request aid.

### Action Plan 02. Indeterminate System Check or Unexpected Interrupt

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.  
  
A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD Diskette 01, select the BU MAP and perform offline basic checkout option A.
2. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages go to Chapter 5, BU206.
3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.
  - c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
    - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
    - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."

- (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
4. Verify the seating of all cards, cables, top card connectors on 8130/8140 processor board 01A-A1.
  5. Using your meter, measure the standard voltages on 8130/8140 board 01A-A1:

Volts	Range	Board Test Point	J Connector Test Point (PA760)
+5V dc	+4.5 to +5.5V dc	D03	4
+8.5V dc	+7.7 to +9.3V dc	B11	3
-5V dc	-4.5 to -5.5V dc	B06	2
Ground		D08	1

If voltages are missing or out of tolerance, use MD diskette 01 and select the 8130/8140 PA MAP menu option 03 or 04.

6. Request aid.

**Action Plan 03. PSCF Initialize Failure**

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and loop the SC tests on the PSCF for 5 minutes as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. At 80BC, enter 08B; at 81BC, enter 01B.
  - c. For any failure, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY".

4. Request aid.

**Action Plan 04. Unexpected Interrupt While Running Tests**

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.
  - c. For any failure, identify the failing address P8 or 0A from the messages P8XE, P8MI, or 0A2E.
    - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY".
    - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF".
    - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.

4. Go to ST440 Procedure 04.

5. Request aid.

**Action Plan 05. Diskette Storage IPL Bootstrap Failure**

1. Ensure that the diskette is loaded correctly with the diskette drive cover closed and retry the IPL operation.
2. Use another diskette and retry the IPL.

3. Ensure that you are using the correct IPL address parameters (see Note below) for the diskette drive used for IPL, as follows:

Digit 1 must be either 0 or 1.

Digit 2 must be 1

Digits 3 and 4 specify the diskette address and locations:

87 = 8130/8140  
 97 = First 8101  
 A7 = Second 8101  
 B7 = Third 8101  
 C7 = Fourth 8101

**Note:** The address label on the 8101 operator panel identifies the diskette high-order address.

4. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523, How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

5. Using MD diskette 01, select the Free-Lance Utility. Run the SC tests on the SCF associated with the diskette storage that you attempted to IPL. Use one of the following replies to the 80BC and 81BC prompt messages:

80BC	81BC	
08B	0B	= 8130s without System Expansion Feature
0888B	1B	= 8130s with System Expansion Feature and all 8140s
0898B	1B	= First 8101 SSCF
08A8B	1B	= Second 8101 SSCF
08B8B	1B	= Third 8101 SSCF
08C8B	1B	= Fourth 8101 SSCF

For any failure, using MD diskette 01, select the SC MAP.

- a. For 8130s without the System Expansion Feature (no SSCF), select option 3 "TO TEST PSCF ONLY".
  - b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF".
6. Using MD diskette 03, select the DA MAP and perform offline basic checkout option A.
  7. Using MD diskette 03, select the DA MAP and specify the surface analysis option to check the failing diskette.
  8. Go to ST430 Action Plan 10.

### Action Plan 06. System-Resident Disk Storage IPL Bootstrap Failure

1. Retry the IPL operation.

2. Perform one of the following:

- For a manual mode IPL, ensure that the parameters are correct as follows:

Digit 1 must be either 0, 1, 2 or 3

Digit 2 must be 3

Digits 3 and 4 specify the disk address and location:

80	=	8130/8140 Models AXX
84, 85	=	8140 Models BXX
90, 91	=	First 8101
A0, A1	=	Second 8101
B0, B1	=	Third 8101
C0, C1	=	Fourth 8101

- For a primary mode IPL, ensure that the PSCF IPL parameter switches are set correctly by displaying the switch values as follows:

- a. With the keylock switch set to Enable or not installed and the IPL mode switch set to Manual, press Reset/IPL.
- b. At prompt message 0200, press Clear Display followed by Enter Data.
- c. At prompt message 0201, enter 0001 and press Enter Function.

The BOP should display 4380 for Models AXX and 4384 for 8140 Models BXX as the IPL switch value. If not correct, go to Chapter 5, SC440, and change the switch setting(s).

3. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

4. Using MD diskette 01, select the Free-Lance Utility. Run the SC tests on the SCF associated with the disk storage that you attempted to IPL. Use one of the following replies to the 80BC and 81BC prompt messages:

80BC	81BC	
08B	0B	= 8130s without System Expansion Feature
0888B	1B	= 8130s with System Expansion Feature and all 8140s
0898B	1B	= First 8101 SSCF
08A8B	1B	= Second 8101 SSCF
08B8B	1B	= Third 8101 SSCF
08C8B	1B	= Fourth 8101 SSCF

For any failure, using MD diskette 01, select the SC MAP.

- a. For 8130s without the System Expansion Feature (no SSCF), select option 3 "TO TEST PSCF ONLY".
- b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF"

5. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests on the failing disk.
  - a. At 80BC, enter PAB; at 81BC, enter 1B. Where: PA is the address of the failing disk.
  - b. For any failure in the PA1E or PAMI format, using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the failing disk.
6. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects and check out all tracks on all disk surfaces.
7. Possible displaced sector or alternate assigned sector on track 0, 1, head 1 of the system-resident disk storage.
 

Check the part number of the ROS Card in the following positions: (see BU 451)

8130 Models AXX Up to 512K	01A-A1D2
8130 Models AXX 1 Meg	01A-A1F2
8140 Models A31-A34	01A-A1P2
8140 Models A41-A44	01A-A1R2
8140 Models A51-A54	01A-A1N2
8140 Models A61-A74	01A-A2K2
8140 Models BXX	01A-A1U2

  - For 8130s, if PN is 5686826, replace with ROS card having higher part number.
  - For 8140s, if PN is 5649898, replace with ROS card having higher part number.
8. Request aid. The operating system might require re-installation.

**Action Plan 07. Defective or Missing Diskette Bootstrap**

The bootstrap program loaded without any hardware failures. When ROS transferred control to the bootstrap, the bootstrap program did not execute.

1. Ensure that IPL capability exists on the loaded diskette. These diskettes are: DPPX and DPCX installation and CSU diskettes, dump diskettes, and standalone utility diskettes. If the loaded diskette is one of these, retry the IPL operation with another valid diskette.
2. Using MD diskette 03, select the DA MAP and perform offline basic checkout option A on the failing diskette.
3. Obtain a new IPL diskette.
4. Request aid.

**Action Plan 08. Defective or Missing DPCX or DPPX Disk Bootstrap or System Loader**

These loaders were placed on the system-resident disk during either the DPPX or DPCX operating system installation, and should be the only bootstrap loader resident on any 8100 disk drive.

The system-resident disk is normally address 80 for Models AXX or 84 for 8140 Models BXX, and resides in the 8130/8140. The operating systems, however, have the capability of assigning any other disk storage drive as the system-resident disk. If you do not know which disk drive the customer is or will be using as the system-resident disk, ask the system operator.

1. Ensure that the IPL was to a disk that contains the bootstrap loader.
2. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests on the failing disk.
  - a. At 80BC, enter PAB, at 81BC, enter 1B. Where: PA is the address of the failing disk.
  - b. For any failure in the PA1E or PAMI format, using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the failing disk.
3. Request the customer to reload the bootstrap and system loader programs. This requires reinstallation of the operating system.
4. Request aid.

**Action Plan 09. Not Used**

**Action Plan 10. General Offline System Checkout**

Use this action plan when:

- The DPPX or DPCX operating systems do not clearly define a failure.
  - Tests on the apparent failing area did not detect a failure.
  - The customer cannot adequately describe a failing symptom.
  - Requiring verification of correct system operation after a repair action, MES installation, or unit relocation.
1. Using MD diskette 01, select the Free-lance Utility, and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.
 

Successful completion of the bringup tests results in a 3F00 message at the BOP and 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
  2. Using MD diskette 01, select the Free-Lance Utility and run the SCF and (if installed) 8140 expanded function panel (EFP) tests as follows:
    - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
    - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
      - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter B.
      - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 1B.
    - c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
      - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
      - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
      - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.

3. Check the remaining 8100 hardware by using the Run All option. You can use either of two checkout modes:
    - S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
    - S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
      - (1) Power on all 8101s.
      - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
      - (3) Power on the device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper, and if a 129 (RPQ MK6956), insert cards.
      - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address and make it ready.
      - (5) Power on all external modems attached to the communications features.
- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A, and at 81BC enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
  - b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.
  - c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. These tests contained on MD diskette 03 now load and run automatically.
  - d. The PAXE or PAMI message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

#### **Action Plan 11. Defective or Missing Disk Bootstrap with DPPX or DPCX Not Installed**

The bootstrap program loaded without any hardware failures. When ROS transferred control to the bootstrap, the bootstrap program did not execute.

1. Ensure that the IPL was to a disk that contains the bootstrap loader.

The system-resident disk is normally address 80 for Models AXX or 84 for 8140 Models BXX, and resides in the 8130/8140. The operating systems, however, have the capability of assigning any other disk storage drive as the system-resident disk. If you do not know which disk drive the customer is or will be using as the system-resident disk, ask the system operator.

2. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests on the failing disk.
  - a. At 80BC, enter PAB, at 81BC, enter 1B. Where: PA is the address of the failing disk.
  - b. For any failure in the PA1E or PAMI format, using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the failing disk.
3. Request the customer to reload the bootstrap and system loader program. This requires reinstallation of the operating system.
4. Request aid.

#### **Action Plan 12. DPPX or DPCX System-Resident Disk Failure During IPL, Dump or Installation**

The system-resident disk storage is normally address 80 for Models AXX or 84 for 8140 Models BXX, and resides in the 8130/8140. The operating systems, however, have the capability of assigning any other disk storage drive as the system-resident disk. If you do not know which disk drive the customer is or will be using as the system-resident disk, ask the system operator.

1. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests on the system-resident disk.
  - a. At 80BC, enter PAB; at 81BC, enter 1B.
  - b. For any failure in the PA1E or PAMI format, using MD diskette 03, select the FA MAP and perform offline basic checkout option A on the system-resident disk.
2. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects and check out all tracks on the system-resident disk.
3. Request aid. The operating system might require reinstallation.

#### **Action Plan 13. IPL ROS SSCF Initialization Failure**

1. If the IPL device resides in an 8101, ensure that the 8101 is powered on.
2. Perform one of the following:
  - For a manual mode IPL, ensure that the parameters are correct as follows:

##### Disk Parameters

Digit 1 must be either 0, 1, or 3.

Digit 2 must be 3.

Digits 3 and 4 specify the disk address and location:

80	=	8130/8140 Models AXX
84, 85	=	8140 Models BXX
90, 91	=	First 8101
A0, A1	=	Second 8101
B0, B1	=	Third 8101
C0, C1	=	Fourth 8101

Diskette Parameters

Digit 1 must be either 0 or 1.

Digit 2 must be 1.

Digits 3 and 4 specify the following diskette location:

- 87 = 8130/8140
- 97 = First 8101
- A7 = Second 8101
- B7 = Third 8101
- C7 = Fourth 8101

- For a primary mode IPL, ensure that the PSCF IPL parameter switches are set correctly by displaying the switch values as follows:
  - a. With the keylock switch set to Enable or not installed and the IPL mode switch set to Manual, press Reset/IPL.
  - b. At prompt message 0200, press Clear Display followed by Enter Data.
  - c. At prompt message 0201, enter 0001 and press Enter Function.  
 The BOP should display 4380 for Models AXX or 4384 for 8140 Models BXX as the IPL switch value. If not correct, go to Chapter 5, SC440 and change the switch setting(s).

3. Using MD diskette 01, select the Free-Lance Utility and run the BU tests once. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

4. Using MD diskette 01, select the Free-Lance Utility. Run the SC tests on the SCF associated with the disk or diskette storage that you attempted to IPL. Use one of the following replies to the 80BC and 81BC prompt messages:

80BC	81BC	
08B	0B	= 8130s without System Expansion Feature
0888B	1B	= 8130s with System Expansion Feature and all 8140s
0898B	1B	= First 8101 SSCF
08A8B	1B	= Second 8101 SSCF
08B8B	1B	= Third 8101 SSCF
08C8B	1B	= Fourth 8101 SSCF

For any failure, using MD diskette 01, select the SC MAP.

- a. For 8130s without the System Expansion Feature (no SSCF), select option 3 "TO TEST PSCF ONLY".
- b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF".

5. Go to ST430 Action Plan 10.

**Action Plan 14. PSCF or SSCF Failure**

An SSCF failure occurred on address P8 during SCF initialization. Possible causes are:

- A failure of the PSCF/SSCF path or the bus between the SSCF and the attached adapter. Go to step 1.

- A test request was issued to an 8101 that was not powered up.
  - If operating under MAP control, restart the MAP by pressing the PF key and selecting option 2, CP RESTART.
  - If using the Free-Lance Utility, Enter F and reenter the invoke message.

1. Using MD diskette 01, select the SC MAP.
  - a. For 8130s without the System Expansion Feature (no SSCF) select option 3 "TO TEST PSCF ONLY" using address 08.
  - b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF" using the 08P8 value, where P = the high-order digit of the SSCF address.
2. For 8130s with the System Expansion Feature and for all 8140s, using MD diskette 01, select SC MAP option 1 "TO TEST EVERY SSCF".
3. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility. Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
4. Request aid.

**Action Plan 15. DPCX Disk Storage Failure, PA Unknown**

1. Identify the physical address (PA) of each installed disk storage for an 8101, examine the model number and address group designations located on each 8101 operator panel. All disk storage address are P0, P1, or P5, where P is the address group.

8130/8140 Model AXX	PA =	80
8140 Model BX1	PA =	84
8140 Model BX2	PA =	84-85 (2 Disks)
8101 Models A11, A13, A23	PA =	90, A0, B0, C0
8101 Model A25	PA =	90-91, A0-A1, B0-B1, C0-C1 (2 Disks)

**Note:** 8101 Model A10 does not have a disk storage.

2. Using MD diskette 03, select the Free-Lance Utility and run tests on all installed disk storage drives.
  - a. At 80BC enter PAB; at 81BC, enter 1B. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - b. For any failure, using MD diskette 03, select the FA MAP and perform offline basic checkout option A.
3. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects and check out all tracks on the system-resident disk.
4. Request aid.

### Action Plan 16. DPCX Diskette Storage Failure

**Note:** DPCX only supports diskette address 87, located in the 8130/8140.

1. Obtain the system from the customer. Use MD diskette 03, select the DA MAP, and perform offline basic checkout on address 87.

**Note:** A CSU or MD diskette can be used as a scratch diskette. This step does not alter the diskette data used for testing.

2. At the DA MAP menu, specify the surface analysis option to check the failing diskette.
3. At the DA MAP menu, specify the head alignment option to check the failing diskette drive.
4. Request aid.

### Action Plan 17. DPCX Disk Storage Full

You are using this action plan because of a message that the disk storage area was full. This can occur because (1) the customer used all allowable disk storage space, or (2) a sector containing a DPCX bit Map became unreadable, causing the loss of up to 1432 sectors of unused disk storage space.

1. Contact Network Control to define the problem.
2. Attempt to verify that a problem could have occurred because of a 7000 message.
  - a. Every 7000 message causes a type 4 condition 17 entry in the condition/incident log. Search the log for these records. Refer to the Chapter 2 SYSLERR Utility section (CP830).
  - b. If these records exist, disk surface failures can contribute to the disk full message. Determine how many unused sectors were lost and inform the customer. To do this, multiply the number of type 4 condition 17 records by 1432.

To recover this space, all disk storages must be reformatted, and DPCX and all customer data must be reinstalled.
- c. IF THE CUSTOMER AGREES that this reinstallation should be done, refer to Chapter 2, CP650 and use Routine 02 of the Disk Storage Surface Status and Format Utility to format all surfaces on all tracks.

### Action Plan 18. Primary SDLC Communications Adapter Overrun/Underrun

If this problem occurs frequently, perform the following:

1. Using MD diskette 02, select the Free-Lance Utility, and run tests to all communications adapters. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. At 80BC, enter A; at 81BC, enter B. This tests all communications adapters configured for the system. Failures are indicated by the PAXE or PAMI formats, and the 13BC message indicates test completion.

- b. For any failure, using MD diskette 02, select the CA MAP and perform offline basic checkout option A on the failing PA.

2. Using MD diskette 01, select the Free-Lance Utility and test the SCF associated with the failing communications adapter.
  - a. For an 8130 without the System Expansion Feature (no SSCF), at 80BC enter 08B; at 81BC enter 0B.
  - b. For an 8130 with the System Expansion Feature and for all 8140s and 8101s, at 80BC, enter 08P8B; at 81BC, enter 1B, where P equals the failing communications adapter SSCF address.
3. For any failure, using MD diskette 01, select the SC MAP.
  - a. For 8130s without the System Expansion Feature (no SSCF) select option 3 "TO TEST PSCF ONLY".
  - b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF"
4. Inform Network Control that the communications features operate properly, and that system activity should be rescheduled to distribute communications features usage.

### Action Plan 19. Machine Check Detected By Operating System on a Single Adapter PA

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.
3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.

- c. For any failure, identify the failing address P8 or OA from the message P8XE, P8MI, or OA2E.
  - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address OA (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
- 4. Refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference and identify the MD diskette that corresponds to the failing PA in the system message.
- 5. Using the Free-Lance Utility, loop the test on the failing adapter for 5 minutes.
  - a. At 80BC, enter PAB; at 81BC, enter 1B.
  - b. If message 45BC occurs, insert the MD diskette identified above, and specify the same 80BC and 81BC responses as in the previous step.
  - c. For PAXE or PAMI message format failures, select the corresponding MAP from the MD diskette already loaded, and perform offline basic checkout option A.
- 6. Verify the seating of all cards, cables, and top card connectors on processor board 01A-A1.
- 7. Verify the seating of all cards and cables on the adapter board(s). Refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to identify the unit containing the adapter, and refer to Chapter 3 for adapter card and board locations.
- 8. Using your meter, measure the standard voltages on 8130/8140 board 01A-A1:

Volts	Range	Board Test Point	J Connector Test Point (PA760)
+5V dc	+4.5 to +5.5V dc	D03	4
+8.5V dc	+7.7 to +9.3V dc	B11	3
-5V dc	-4.5 to -5.5V dc	B06	2
Ground		D08	1

If voltages are missing or out of tolerance, use MD diskette 01, and select the 8130/8140 PA MAP menu option 03 or 04.

- 9. Check the fans on the 8130/8140 logic gate 01A for proper operation. If fans are not operating, use MD diskette 01 and select the 8130/8140 PA MAP menu option 07.
- 10. At the next system failure:
  - a. Clear the BOP display, then press the BOP Processor Test pushbutton. A BOP display value other than 0 indicates an instruction/execution unit failure. If not 0 go to Chapter 5, BU249.
  - b. Check for an intermittent processor storage failure using one of the following procedures which identifies the storage location containing the data in error.

**Note:** Do not reset the error condition unless instructed.

- (1) Go to Chapter 1, ST440 Procedure 05 and use the DPCX Standalone Dump Diskette to take a storage dump.
- (2) Scan processor storage using BU test Routine 39 as follows:
  - (a) Insert MD diskette 01 into the 8130/8140 diskette storage drive.
  - (b) Set the IPL switch to Manual and the keylock switch (if installed) to Enable and press the Reset/IPL pushbutton.
  - (c) At BOP message 0200, enter 0187 and press Enter Data.
  - (d) At BOP message 0201, enter 8039 and press Enter Function.

Storage scan now begins. Any 39XX message that remains at the BOP for more than 1 minute indicates a storage failure, while a 3F00 message indicates successful completion. For any 39XX message, go to Chapter 5, BU207.
- (3) Scan the Condition/Incident Log for Type-4 records with a system condition of 04 by using the SYSLERR Utility (978). Refer to Chapter 2, CP830 and also to Figure CP840-4.
  - (a) If only one Type-4 record exists, have the customer IPL the system.
 

**Caution: If the DPCX system-resident disk storage PA = 80 or 84, use primary mode IPL only. Any other mode can destroy the CIL records. If not PA 80 or 84, you can IPL in manual mode by entering 03PA at the BOP, where PA = the system resident disk storage address.**
  - (b) If at least two Type-4 records exist, the error occurred more than once. Use the last two log record fields and Chapter 1, Figure ST440-37, to determine the defective FRU.
  - (c) At the next system failure, again scan the log for Type-4 records; there should be at least two. Use the last two log record fields and Figure ST440-37 to determine the defective FRU.

11. Request aid.

**Action Plan 20. Processor Instruction/Execution Unit System Check While Running Under DPCX**

- 1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.
 

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.



2. Perform the Storage Data Retention Test by using the following procedure:

- a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
- b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:

- a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
- b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
  - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
  - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.
- c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
  - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.

4. Check the remaining 8100 hardware by using the Run-All Option. You can use either of two checkout modes:

- S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
  - S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
    - (1) Power on all 8101s.
    - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
    - (3) Power on the device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper, and if a 129 (RPQ MK6956), insert cards.
    - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address, and make it ready.
    - (5) Power on all external modems attached to the communications features.
- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A, and at 81BC, enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
  - b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.

- c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. The tests contained on MD diskette 03 now load and run automatically.
- d. The PAXE or PAMI Message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run-All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

5. Using your meter, measure the standard voltages on the 8130/8140 board 01A-A1:

Volts	Range	Board Test Point	J Connector Test Point (PA760)
+5V dc	+4.5 to +5.5V dc	D03	4
+8.5V dc	+7.7 to +9.3V dc	B11	3
-5V dc	-4.5 to -5.5V dc	B06	2
Ground		D08	1

If voltages are missing or out of tolerance, use MD diskette 01 and select the 8130/8140 PA MAP menu option 03 or 04.

6. Check the fans on the 8130/8140 logic gate 01A for proper operation. If fans are not operating, use MD diskette 01 and select the 8130/8140 PA MAP menu option 07.

7. At the next system failure:

- a. Clear the BOP display, then press the BOP Processor Test pushbutton. A BOP display value other than 0 indicates an instruction/execution unit failure. If not 0, go to Chapter 5, BU249.
- b. Check for an intermittent processor storage failure using one of the following procedures which identifies the storage location containing the data in error.

**Note:** Do not reset the error condition unless instructed.

- (1) Go to Chapter 1, ST440 Procedure 05 and use the DPCX Standalone Dump Diskette to take a storage dump.
- (2) Scan processor storage using BU test Routine 39 as follows:
  - (a) Insert MD diskette 01 into the 8130/8140 diskette storage drive.
  - (b) Set the IPL switch to Manual and the keylock switch (if installed) to Enable and press the Reset/IPL pushbutton.
  - (c) At BOP message 0200, enter 0187 and press Enter Data.
  - (d) At BOP message 0201, enter 8039 and press Enter Function.

Storage scan now begins. Any 39XX message that remains at the BOP for more than 1 minute indicates a storage failure, while a 3F00 message indicates successful completion. For any 39XX message, go to Chapter 5, BU207.

- (3) Scan the Condition/Incident Log for Type-4 records with a system condition of 04 by using the SYSLEERR Utility (978). Refer to Chapter 2, CP830 and also to Figure CP840-4.

- (a) If only one Type-4 record exists, have the customer IPL the system.

**Caution: If the DPCX system-resident disk storage PA = 80 or 84, use primary mode IPL only. Any other mode can destroy the CIL records. If not PA 80 or 84, you can IPL in manual mode by entering 03PA at the BOP, where PA = the system resident disk storage address.**

- (b) If at least two Type-4 records exist, the error occurred more than once. Use the last two log record fields and Chapter 1, Figure ST440-37, to determine the defective FRU.

- (c) At the next system failure, again scan the log for Type-4 records; there should be at least two. Use the last two log record fields and Figure ST440-37 to determine the defective FRU.

8. Request aid.

*Action Plan 21. Not Used*

*Action Plan 22. DPCX Messages 6009 and 6010*

These messages occur for certain failures of diskette storage, displays, printers, and 129s attached to the display/printer adapter, and for downstream control units attached to a primary SDLC loop or link communications adapter.

1. Use the DPCX SYSLDEV Utility and select the LIST option to determine the failing unit type and the physical addresses of the adapter and the control unit. Refer to Chapter 2, CP851. Perform one of the following:
  - For any diskette failure, go to ST430 Action Plan 16.
  - For failures on a unit attached to the display/printer adapter, go to the DPCX GF1 (ST210) and follow the procedures for multiple or single device failures.
  - For any failures on a unit attached to a primary SDLC loop or data link adapter, go to DPCX GF1 (ST210) and follow the procedure for multiple or single downstream unit failures.

*Action Plan 23. Hang or Unexpected Interrupt*

1. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:
  - a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
  - b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and run the SCF and (if installed) 8140 expanded function panel (EFP) tests as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 1B.
  - c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
    - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
    - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
    - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.

4. Using MD diskette 03, select the Free-Lance Utility and run the disk storage tests on the system-resident disk.
  - a. At 80BC, enter PAB; at 81BC, enter 1B. Where PA = 80 for Models AXX or 84 for 8140 Models BXX.

**Note: Some installations might not use address 80 or 84 as the system-resident disk. If so, change the address accordingly.**

- b. If a failure occurs, using MD diskette 03, select the FA MAP and perform offline basic checkout option A.
5. Go to Chapter 2, CP653, General Procedure for Potential Disk Storage Surface Defects and check out all tracks on the system-resident disk.
6. Check the remaining 8100 hardware by using the Run-All option. You can use either of two checkout modes:
  - S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
  - S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
    - (1) Power on all 8101s.
    - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
    - (3) Power on the device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper, and, if a 129 (RPQ MK6956), insert cards.
    - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address, and make it ready.

(5) Power on all external modems attached to the communications features.

- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A, and at 81BC enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
- b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.
- c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. The tests contained on MD diskette 03 now load and run automatically.
- d. The PAXE or PAMI message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

7. Request aid.

#### Action Plan 24. PSCF or SSCF Failure When Using DPCX (Message 4X8Y)

In this error, the X value indicates the DPCX segment that detected either a PSCF or SSCF failure.

Y = 0 = PSCF failure  
Y = 1-F = SSCF failure = the first digit of the SSCF address 08Y8

1. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Using MD diskette 01, select the Free-Lance Utility, and perform the SC test on the failing PSCF and SSCF. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.

a. If Y was 0, at 80BC, enter 08B and at 81BC, enter B.

b. If Y was 1 through F, at 80BC, enter 08Y8, and at 81BC, enter 1B.

c. For any failure, using MD diskette 01, select the SC MAP.

(1) For 8130s without the System Expansion Feature (no SSCF), select option 3 "TO TEST PSCF ONLY", using address 08.

(2) For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF", using the same address as in the previous step.

3. Use MD diskette 02, select the Free-Lance Utility, and test all the adapters attached to the SCF as follows:

- a. For 8130s without the System Expansion Feature, at 80BC enter A; at 81BC, enter B.
- b. For 8130s with the System Expansion Feature and for all 8140s and 8101s:
  - (1) If Y was 0, at 80BC enter 8A; at 81BC enter B.
  - (2) If Y was 1 through F, at 80BC enter YA; at 81BC enter B.
- c. At the 13BC prompt message, insert MD diskette 03 and test continues automatically.
- d. When either a PAXE or PAMI failure occurs, note the PA and then enter F to terminate the test and start the next test.
- e. Perform basic checkout on each failing PA one at a time. Use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine the MAP and MD diskette required.

4. Request aid.

Action Plan 25. Not Used

#### Action Plan 26. Primary Communications Adapter Initialize Failure

1. Using MD diskette 02, select the Free-Lance Utility, and run tests to all communications adapters. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. At 80BC, enter A; at 81BC, enter B. This tests all communications adapters configured for the system. Failures are indicated by the PAXE or PAMI formats, and the 13BC message indicates test completion.
  - b. For any failure, using MD diskette 02, select the CA MAP and perform offline basic checkout option A on the failing PA.
  - c. If no failure occurs, report the problem to Network Control for problem determination.

#### Action Plan 27. DPCX Diskette Storage Failure During Installation or Dump Procedure

Note: DPCX only supports diskette storage address 87, located in the 8130/8140.

1. Using MD diskette 03, select the Free-Lance Utility, and run the diskette tests. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.

a. At 80BC, enter 87B; at 81BC, enter 1B.

Note: Scratch diskette must be loaded.

b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A using address 87.

2. Using MD diskette 03, select the DA MAP and specify the surface analysis option to check the failing diskette.

3. Use MD diskette 03, select the DA MAP, and specify the head alignment option to check the failing diskette drive.

4. Request aid.

**Action Plan 28. Tape Failure During DPCX Standalone Dump/Restore**

Perform steps a and b to obtain the tape adapter address and the tape symptom code (SYMC), and then go to step 1.

- a. Tape failures are presented in the format LAEE YYYY SYMC. Obtain the tape symptom code from the BOP message by performing the following at the BOP. Retain this value for later use.

- (1) Press Clear Panel.
- (2) Enter E and press Enter Function, which displays the YYYY field.
- (3) Press Enter Function, which displays the SYMC field.

- b. Identify the tape adapter address as follows:

- If the 8809 is a Model 1B, the adapter PA is 73.
- If the 8809 is a Model 1A, use MD diskette 01, select the configuration utility, and display the level 01 entry for unit type 0040 (tape adapter) by performing the following:

- (1) At the MD diskette menu, enter F.
- (2) At the utility menu, enter 6.
- (3) At the RST menu, enter 1.
- (4) At the PF menu, enter 3.
- (5) At message 7103, enter 0040.

**Note:** Refer to Chapter 2, CP466 Configuration Utility for a complete description.

Message 7100 then occurs, which specifies the level, tape adapter physical address, and unit type according to the LV PA UTUT format. The values displayed are: LV = 01, PA = XX, and UTUT = 0040, where XX is either 93, A3, B3, C3, or 5E

Convert the LA of the original message as follows:

<u>LA</u>	<u>DA</u>
04 = 00	
05 = 01	
06 = 02	
07 = 03	

1. Using diskette 03, select the Free-Lance Utility and run the tape tests on the failing drive. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages. Perform the following:

- a. Mount a scratch tape on the drive to be tested.
- b. At 80BC, enter PADA; at 81BC, enter 1B, where PA and DA are the values determined in the previous procedure.
- c. For any failure in the DA2E or DAMI formats, using MD diskette 03, select the TA MAP and perform offline basic checkout option A.

2. Use the tape symptom code (SYMC field) obtained from the DPCX system message and perform either of the following:

- If the SYMC field is AXXX, using MD diskette 03, select the TA MAP and use the test symptom entry.
- If the SYMC field is not AXXX, refer to the 8809 Maintenance Manual START MAP.

**Action Plan 29. DPPX Diskette Storage Operational Failure**

1. Using MD diskette 03, select the DA MAP and perform offline basic checkout option A on the failing diskette storage.

**Note:** A CSU or MD diskette can be used as a scratch diskette, as this step does not alter the diskette data.

2. At the DA MAP menu, specify the surface analysis option to check the failing diskette.
3. At the DA MAP menu, specify the head alignment option to check the failing diskette drive.

**Action Plan 30. System Check When Using DPPX and with System Operating**

Failures of this type are usually caused by program exceptions, and are the result of a programming design problem. Occasionally, hardware can cause these failures.

If the system is not available for offline checkout, request that the problem determination actions as specified in *DPPX/Base Messages and Codes, SC27-0407*, and the *DPPX/Base Diagnosis: Guide, SC27-0410*, be performed.

If the system is available for offline checkout, or the problem determination procedures indicate a hardware problem, perform the following action plan steps:

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:

- a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
- b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:

- a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
- b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:

- (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
  - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.
- c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
- (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
4. Check the remaining 8100 hardware by using the Run All option.

You can use either of two checkout modes:

- S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
  - S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
    - (1) Power on all 8101s.
    - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
    - (3) Power on device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper, and, if a 129 (RPQ MK6956), insert cards.
    - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address, and make it ready.
    - (5) Power on all external modems attached to the communications features.
- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A; at 81BC, enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
  - b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.
  - c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. The tests contained on MD diskette 03 now load and run automatically.
  - d. The PAXE or PAMI message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

5. Using your voltmeter, measure the standard voltages on the 8130/8140 board 01A-A1:

Volts	Range	Board Test Point	J Connector Test Point (PA760)
+5V dc	+4.5 to +5.5V dc	D03	4
+8.5V dc	+7.7 to +9.3V dc	B11	3
-5V dc	-4.5 to -5.5V dc	B06	2
Ground		D08	1

If voltages are missing or out of tolerance, use MD diskette 01 and select the 8130/8140 PA MAP menu option 03 or 04.

6. Check the fans on the 8130/8140 logic gate 01A for proper operation. If fans are not operating, use MD diskette 01 and select the 8130/8140 PA MAP menu option 07.
7. At the next system failure:
- a. Clear the BOP display, then press the BOP Processor Test pushbutton. A BOP display value other than 0 indicates an instruction/execution unit failure. If not 0, go to Chapter 5, BU249.
  - b. Check for an intermittent processor storage failure using one of the following procedures which identifies the storage location containing the data in error:
 

**Note: Do not reset the error condition.**

    - (1) Go to Chapter 1, ST440 Procedure 08 and use the DPPX Standalone Dump Diskette to take a storage dump.
    - (2) Scan processor storage using BU test Routine 39 as follows:
      - (a) Insert MD diskette 01 into the 8130/8140 Diskette Storage drive.
      - (b) Set the IPL Switch to Manual and the keylock switch (if installed) to Enable and press the Reset/IPL pushbutton.
      - (c) At BOP message 0200, enter 0187 and press Enter Data.
      - (d) At BOP message 0201, enter 8039 and press Enter Function.

Storage scan now begins. Any 39XX message that remains at the BOP for more than 1 minute indicates a storage failure, while a 3F00 message indicates successful completion. For any 39XX message, go to Chapter 5, BU207.

8. Verify that the customer has performed the response problem determination procedures for the failing SMN as specified in *DPPX/Base Messages and Codes*, SC27-0407.

If actions were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

### Action Plan 31. IPL Failure, Hang, or System Check While Running Under DPPX

1. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Using MD diskette 01, select the Free-Lance Utility and run the SCF and (if installed) 8140 expanded function panel (EFP) tests as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 1B.
  - c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
    - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
    - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
    - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
3. Using MD diskette 03, select the Free-Lance Utility and run the disk storage tests on the system-resident disk.
  - a. At 80BC, enter PAB; at 81BC, enter 1B; where PA = 80 for Models AXX, and 84 for 8140 Models BXX.
4. Go to Chapter 2, CP653 General Procedure for Potential Disk Storage Surface Defects and check out all tracks on the system-resident disk.
5. Check the remaining 8100 hardware by using the Run All option.

You can use either of two checkout modes:

- S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
- S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
  - (1) Power on all 8101s.
  - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
  - (3) Power on the device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper, and, if a 129 (RPQ MK6956), insert cards.
  - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address, and make it ready.
  - (5) Power on all external modems attached to the communications features.

- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A; at 81BC, enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
- b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.
- c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. The tests contained on MD diskette 03 now load and run automatically.
- d. The PAXE or PAMI message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

6. Verify that the customer has performed the response and problem determination procedures for the failing SMN as specified in *DPPX/Base Messages and Codes, SC27-0407*.

If actions were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

### Action Plan 32. IPL Hang, Unexpected Interrupt, or System Check While Running Under DPPX

1. Using MD diskette 01, select the Free-Lance Utility and loop the BU tests for 15 minutes. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

A message that displays at the BOP for greater than 2 minutes indicates a BU test failure. To terminate looping, press Reset/IPL at the BOP. For any BU failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.

2. Perform the Storage Data Retention Test by using the following procedure:

- a. At prompt message 0200, enter 2F and press Enter Data at the BOP.
- b. At prompt message 0201, enter 0037 and press Enter Function.

Successful completion of the Storage Data Retention Test results in a 3F00 message at the BOP. For 3765 or 37CC messages, go to Chapter 5, BU206.

3. Using MD diskette 01, select the Free-Lance Utility and loop the SCF and (if installed) 8140 expanded function panel (EFP) tests for 5 minutes as follows:

- a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
- b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
  - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter 01B.
  - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 11B.

- c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
- (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
4. Check the remaining 8100 hardware by using the Run All option.

You can use either of two checkout modes:

- S = 0 only tests the 8100 adapters. It does NOT test disk drives, diskette drives, tape drives, communications driver/receiver cards, or the path to the 32XX displays and printers. This mode does NOT require units to be either attached or ready.
  - S = 1 performs a more complete system checkout, and should be used whenever possible. To use this mode, first perform the following:
    - (1) Power on all 8101s.
    - (2) Load scratch diskettes into all diskette storage drives. You can use the CSU diskettes, as the test does not alter diskette data.
    - (3) Power on the device attached to display/printer adapter port 00. Make it ready; if a printer, insert paper and, if a 129 (RPQ MK6956), insert cards.
    - (4) Mount a scratch tape containing a write protect ring on the 8809 with the lowest numerical tape drive address, and make it ready.
    - (5) Power on all external modems attached to the communications features.
- a. Using MD diskette 01, select the Free-Lance Utility. At either 80BC or PA00, enter A; at 81BC enter SB, where S = either 0 or 1 as defined above. The SCF tests are now rerun.
  - b. At the 13BC (diskette 01 complete) message, press FWD, then insert MD diskette 02. The tests contained on MD diskette 02 now load and run automatically.
  - c. At the 13BC (diskette 02 complete) message, press FWD, then insert MD diskette 03. The tests contained on MD diskette 03 now load and run automatically.
  - d. The PAXE or PAMI message formats indicate failures. Note the PA value and enter an F at the MD to continue testing or press RESET to terminate the Run All operation.

To troubleshoot a failure, use Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference to determine which MAP and MD diskette to use. Select the MAP(s) and perform the basic checkout option A on each of the failing PAs. If you need to change diskettes to run further tests, use the CDK = E (change diskette) option at the diskette menu.

5. Using your voltmeter, measure the standard voltages on 8130/8140 board 01A-A1:

Volts	Range	Board Test Point	J Connector Test Point (PA760)
+5V dc	+4.5 to +5.5V dc	D03	4
+8.5V dc	+7.7 to +9.3V dc	B11	3
-5V dc	-4.5 to -5.5V dc	B06	2
Ground		D08	1

If voltages are missing or out of tolerance, use MD diskette 01 and select the 8130/8140 PA MAP menu option 03 or 04.

6. Check the fans on the 8130/8140 logic gate 01A for proper operation. If fans are not operating, use MD diskette 01 and select the 8130/8140 PA MAP menu option 07.

7. At the next system failure:

- a. Clear the BOP display, then press the BOP Processor Test pushbutton. A BOP display value other than 0 indicates an instruction/execution unit failure. If not 0, go to Chapter 5, BU249.
- b. Check for an intermittent processor storage failure using one of the following procedures which identifies the storage location containing the data in error:

**Note:** Do not reset the error condition.

- (1) Go to Chapter 1, ST440 Procedure 08 and use the DPPX Standalone Dump Diskette to take a storage dump.
- (2) Scan processor storage using BU test Routine 39 as follows:
  - (a) Insert MD diskette 01 into the 8130/8140 diskette storage drive.
  - (b) Set the IPL switch to Manual and the keylock switch (if installed) to Enable and press the Reset/IPL pushbutton.
  - (c) At BOP message 0200, enter 0187 and press Enter Data.
  - (d) At BOP message 0201, enter 8039 and press Enter Function.
 Storage scan now begins. Any 39XX message that remains at the BOP for more than 1 minute indicates a storage failure, while a 3F00 message indicates successful completion. For any 39XX message, go to Chapter 5, BU207.

8. Notify Network Control that the hardware checks correctly and that further problem determination action is required.

### Action Plan 33. DPPX Diskette Failure During Installation or Dump Procedure

The customer should identify the failing diskette storage. Valid diskette storage physical addresses (PAs) are: 87, 97, A7, B7, C7. The first digit of the diskette storage PA appears on the address label located on the 8130/8140/8101 operator panel.

1. Using MD diskette 03, select the Free-Lance Utility and run the diskette tests. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. Ensure that a scratch diskette is loaded into the diskette storage drive. At 80BC, enter PAB; at 81BC enter 1B, where PA = the diskette storage address.
  - b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A.
2. Using MD diskette 03, select the DA MAP and specify the surface analysis option to check the failing diskette.
3. Using MD diskette 03, select the DA MAP, and specify the head alignment option to check the failing diskette drive.
4. Request aid.

**Action Plan 34. DPPX Disk or Diskette Storage Checkout**

The customer should identify the disk and diskette storage being used. Valid diskette storage physical addresses (PAs) are: 87, 97, A7, B7, C7. Valid disk storage physical addresses are: 80, 90, A0, B0, C0, 84, 85, 91, A1, B1, C1. The first digit of the diskette storage PA appears on the address label located on the 8130/8140/8101 operator panel.

1. Using MD diskette 03, select the Free-Lance Utility, and run the diskette tests. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. Ensure that a scratch diskette is loaded into the diskette storage drive. At 80BC enter PAB; at 81BC, enter 1B, where PA = the diskette storage address.
  - b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A.
2. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests.
  - a. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the disk storage address.
  - b. For any failure using the PA1E or PAMI formats, select the FA MAP and perform offline basic checkout option A.
3. Inform Network Control that the hardware checks out correctly, and that further problem determination action is required.

**Action Plan 35. System Check, Program Exception, or Hang While Installing DPPX**

The customer should identify the disk and diskette storage being used. Valid diskette storage physical addresses (PAs) are: 87, 97, A7, B7, C7. Valid disk storage physical addresses are: 80, 90, A0, B0, C0, 84, 85, 91, A1, B1, C1. The first digit of the diskette storage PA appears on the address label located on the 8130/8140/8101 operator panel.

1. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
2. Using MD diskette 01, select the Free-Lance Utility and run the SCF and (if installed) 8140 expanded function panel (EFP) tests as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 1B.

- c. For any failure, identify the failing address P8 or 0A from the message P8XE, P8MI, or 0A2E.
  - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address 0A (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
3. Using MD diskette 03, select the Free-Lance Utility and run the diskette storage tests.
  - a. Ensure that a scratch diskette is loaded into the diskette storage drive. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the diskette storage address.
  - b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A.
4. Using MD diskette 03, select the Free-Lance Utility and run the disk storage tests.
  - a. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the disk storage address.
  - b. For any failure using the PA1E or PAMI formats, select the FA MAP and perform offline basic checkout option A.
5. Inform Network Control that the hardware checks out correctly and that further problem determination action is required.

**Action Plan 36. PSCF IPL Switches Invalid**

Verify the PSCE switch settings as follows:

1. Set the IPL mode switch to Manual and the keylock switch (if installed) to Enable and press Reset/IPL at the BOP.
2. At the 0200 prompt message, press Clear Display followed by Enter Data.
3. At the 0201 prompt message, enter 0001 and press Enter Function.

The BOP then displays the contents of the IPL parameter switches. The value should be hex 4380 for Models AXX and 4384 for 8140 Models BXX. If not correct, go to Chapter 5, SC440 and correct the switch settings.
4. If the correct value does not display after correcting the switch settings, using MD diskette 01, select the SC MAP and perform option 3 TO TEST PSCF ONLY.
5. If the correct value displays, notify Network Control that a possible program problem exists and that further problem determination must be performed.

**Action Plan 37. Unidentified I/O Problem Using DPPX Standalone Dump/Restore**

The customer should identify the disk, diskette, tape adapter, and tape drive physical addresses (PAs) being used by the utility. The addresses are inputted to the utility by the operator. Valid diskette storage PAs are: 87, 97, A7, B7, C7. Valid disk storage PAs are: 80, 90, A0, B0, C0, 84, 85, 91, A1, B1, C1. Valid tape adapter PAs are: 73, 93, A3, B3, C3, 5E. Valid tape drive PAs are: 00, 01, 02, 03.



1. Using MD diskette 03, select the Free-Lance Utility and run the diskette storage tests. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. Ensure that a scratch diskette is loaded into the diskette storage drive. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the diskette storage address.
  - b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A.
2. Using MD diskette 03, select the Free-Lance Utility and run the disk storage tests.
  - a. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the disk storage address.
  - b. For any failure using the PA1E or PAMI formats, select the FA MAP and perform offline basic checkout option A.

**Note:** Perform step 3 only if the operator is using a tape drive rather than diskette storage as the dump/restore device.
3. Using MD diskette 03, select the Free-Lance Utility and run the tape tests.
  - a. Ensure that a scratch tape with a ring is mounted on the drive being used for the utility. At 80BC, enter PADAB; at 81BC, enter 1B, where PA = the tape adapter address and DA = the tape drive address.
  - b. For any failure using the DA2E or DAMI formats, select the TA MAP and perform offline basic checkout option A.
4. Inform Network Control that the hardware checks out correctly and that further problem determination action is required.

**Action Plan 38. System Check, Program Exception, or Hang While Using DPPX Standalone Dump/Restore**

The customer should identify the disk, diskette, tape adapter, and tape drive physical address (PAs) being used by the utility. The addresses are inputted to the utility by the operator. Valid diskette storage PAs are: 87, 97, A7, B7, C7. Valid disk storage PAs are: 80, 90, A0, B0, C0, 84, 85, 91, A1, B1, C1. Valid tape adapter PAs are: 73, 93, A3, B3, C3, 5E. Valid tape drive PAs are: 00, 01, 02, 03.

1. Using MD diskette 01, select the Free-Lance Utility and run the BU tests. Refer to Chapter 2, CP523 How to Run the Bringup Tests Using the MD Free-Lance Utility.
 

Successful completion of the bringup tests result in a 3F00 message at the BOP and a 03BC message at the MD. For any failure, using MD diskette 01, select the BU MAP and perform offline basic checkout option A.
2. Using MD diskette 01, select the Free-Lance Utility and run the SCF and (if installed) 8140 expanded function panel (EFP) tests as follows:
  - a. If the MD displays 03BC, enter F at the MD to load the offline test control monitor into processor storage.
  - b. Test the SCF (and EFP) by performing either of the following steps, depending on the machine type and features installed:
    - (1) For an 8130 without the System Expansion Feature, at 80BC, enter 08B; at 81BC, enter B.
    - (2) For an 8130 with the System Expansion Feature and for all 8140s with or without the EFP, at 80BC, enter 08A; at 81BC, enter 1B.

- c. For any failure, identify the failing address P8 or OA from the message P8XE, P8MI, or OA2E.
  - (1) For failing address 08, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 3 "TO TEST PSCF ONLY."
  - (2) For failing address P8, use MD diskette 01 and select the SC MAP. At the MAP menu, select option 1 "TO TEST EVERY SSCF."
  - (3) For failing address OA (8140 EFP), use MD diskette 01 and select the SP MAP. At the MAP menu, select option A to perform offline basic checkout.
3. Using MD diskette 03, select the Free-Lance Utility and run the diskette storage tests.
  - a. Ensure that a scratch diskette is loaded into the diskette storage drive. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the diskette storage address.
  - b. For any failure using the PA1E or PAMI formats, select the DA MAP and perform offline basic checkout option A.
4. Using MD diskette 03, select the Free-Lance Utility, and run the disk storage tests.
  - a. At 80BC, enter PAB; at 81BC, enter 1B, where PA = the disk storage address.
  - b. For any failure using the PA1E or PAMI formats, select the FA MAP and perform offline basic checkout option A.
5. Using MD diskette 03, select the Free-Lance Utility and run the tape tests.
  - a. Ensure that a scratch tape with a ring is mounted on the drive being used for the utility. At 80BC, enter PADAB; at 81BC, enter 1B, where PA = the tape adapter address and DA = the tape drive address.
  - b. For any failure using the DA2E or DAMI formats, select the TA MAP and perform offline basic checkout option A.
6. Inform Network Control that the hardware checks out correctly, and that further problem determination action is required.

*Action Plan 39. Primary ALC Communications Adapter Overrun/Underrun*

If this problem occurs frequently, perform the following:

1. Using MD diskette 70, select the Free-Lance Utility, and run tests on the airlines reservation (RPQ) communications adapter. Refer to Chapter 2, CP462 Free-Lance Utility and CP600 Common Test Procedures and Messages.
  - a. At 80BC, enter A; at 81BC, enter B. This tests all airlines reservation communications adapters configured for the system. Failures are indicated by the PAXE or PAMI formats, and the 13BC message indicates test completion.
  - b. For any failure, using MD diskette 70, select the CZ MAP and perform offline basic checkout option A on the failing PA.
2. Using MD diskette 01, select the Free-Lance Utility and test the SCF associated with the failing communications adapter.
  - a. For an 8130 without the System Expansion Feature (no SSCF), at 80BC enter 08B; at 81BC enter 0B.
  - b. For an 8130 with the System Expansion Feature and for all 8140s and 8101s, at 80BC, enter 08P8B; at 81BC, enter 1B, where P equals the failing communications adapter SSCF address.
3. For any failure, using MD diskette 01, select the SC MAP.
  - a. For 8130s without the System Expansion Feature (no SSCF), select option 3 "TO TEST PSCF ONLY".
  - b. For 8130s with the System Expansion Feature and for all 8140s and 8101s, select option 2 "TO TEST ONE SSCF".
4. Inform Network Control that the communications ALC RPQ operates properly, and that system activity should be rescheduled to distribute communications RPQ usage.

## ST440 Procedures

### Procedure 01. 8809 Tape Problem with DPCX Installed and Operating

**Note:** This procedure assumes that the tape media has been eliminated as a cause of the problem by using either the SYSLTSD Utility or some other method that determines tape media reliability.

Identify the tape adapter physical address and tape drive address by using the DPCX SYSLDEV Utility. Refer to Chapter 2, CP851.

- Valid tape adapter addresses (PAs) are:
  - 8809-1B = 73 (adapter in 8809)
  - 8809-1A = 93, A3, B3, and C3 (adapter in 8101; first digit on 8101 address label)
  - 8809-1A = 5E (adapter in 8140 Model BXX)
- Valid tape drive addresses (DAs) are:

<u>LA</u>	<u>DA</u>
04	= 00
05	= 01
06	= 02
07	= 03

1. Do any obvious symptoms exist, such as:

- Drive cannot be powered on.
- Tape cannot load.
- Tape does not rewind or unload properly.
- Tape drive cannot be made ready.
- Drive indicated an invalid end-of-tape condition.
- Tape motion did not stop at the end of tape.
- Drive cannot run using all tape reel sizes.
- Tape reels move when they should not.
- Tape is broken or otherwise damaged.
- Tape appears to run at the wrong speed.
- Rewind operation only occurs using low speed.
- Drive causes excessive data checks.

a. YES — Terminate this procedure and go to the 8809 Maintenance Manual START MAP.

b. NO — Can you obtain the 8100 system for offline checkout?

(1) YES — Terminate this procedure. Using MD diskette 03, select the TA MAP and perform offline basic checkout option A.

(2) NO — Run the DPCX online tape test on the failing drive. Refer to Chapter 2, CP810 How to Log On and Run DPCX Online Tests and also to Chapter 5, TA222 DPCX Online Test Exerciser. At 80BC, enter PADAB; at 81BC, enter 1B. Failures are indicated in the format:

PAXE RREN SYMC XXXX . . . .

2. Did a test failure occur while running the DPCX online test exerciser?

a. YES — Terminate this procedure and obtain the tape symptom code (SYMC field) from the PAXE error message.

- If the symptom code is AXXX, using MD diskette 03, select the TA MAP and use the test symptom entry.
- If the symptom code is not AXXX, go to the 8809 Maintenance Manual START MAP.

b. NO — Use the DPCX SYSLERR Utility to obtain the tape symptom code. Refer to Chapter 2, CP830 DPCX Error Log Utility (SYSLERR) and How to Use It and also to Chapter 5, TA332. Obtain the type 5 records in the Condition/Incident log for the failing tape drive logical address (LA).

3. Do the type 5 records exist for the failing drive?

a. YES — Obtain the tape symptom code from the D21 field of the type 5 error record.

- If the symptom code is AXXX, using MD diskette 03, select the TA MAP and use the test symptom entry.
- If the symptom code is not AXXX, go to the 8809 Maintenance Manual START MAP.

b. NO — Obtain the system. Using MD diskette 03, select the TA MAP and perform offline basic checkout option A.

### Procedure 02. How to Define an 8809 Tape Problem Without DPCX Installed and Operating

**Note:** This procedure assumes that the tape media is not a likely cause of the problem.

1. Do any obvious symptoms exist, such as:

- Drive cannot be powered on.
- Tape cannot load.
- Tape does not rewind or unload properly.
- Tape drive cannot be made ready.
- Drive indicated an invalid end-of-tape condition.
- Tape motion did not stop at the end of tape.
- Drive cannot run using all tape reel sizes.
- Tape reels move when they should not.
- Tape is broken or otherwise damaged.
- Tape appears to run at the wrong speed.
- Rewind operation only occurs using low speed.
- Drive causes excessive data checks.

a. YES — Terminate this procedure and go to the 8809 Maintenance Manual START MAP.

b. NO — Obtain the system. Using MD diskette 03, select the TA MAP and perform offline basic checkout option A.

Procedure 03. How to Define a Power Problem

When using this procedure, select the symptom that most closely describes the failure indication.

**Note:** The 8101s can be placed in local mode to isolate power problems to an individual unit.

Symptom	Action
System does not power on. <ul style="list-style-type: none"> <li>● no operator panel indicators on.</li> <li>● no relays pick (see Chapter 5, PA700).</li> <li>● no sound, or no motors or fans running.</li> </ul>	Use your meter and check that the line source voltage is available at the customer's outlet for the 8100. Refer to the machine configuration list (MCL) to determine the correct ac line source voltage.
Line voltage source is present and placing the 8130/8140 power switch to the Power On position does not pick any relays (see Chapter 5, PA700) and no indicators turn on.	Disconnect the 8100 ac power cable and test the continuity of fuse 11 (see Chapter 5, PA410, 420, or 430) and the ac power cable. Replace if defective. After correcting the problem, go to ST430 Action Plan 10 and perform a general system checkout.
Line voltage source is present but an 8130/8140 power-on sequence fails or power dropped on 8101. Power/Thermal Check indicator on. You can power on the MD by plugging it into the 8130/8140 ac convenience output on the 01H gate.	Use MD diskette 01 and select MD diskette power MAP option 4 or 5 (see PA200). After correcting the problem, go to ST430 Action Plan 10 and perform a general system checkout.
You or the customer discovered an 8100 power problem. The ac convenience outlet on the 8130/8140 has no voltage present, and no other customer ac outlet is available for the MD.	Use the machine configuration list (MCL) to determine the correct ac line source voltage. Go to the appropriate wiring diagram (Chapter 5, PA410, 420, or 430) to troubleshoot the source ac problem. Possible causes are: <ul style="list-style-type: none"> <li>● FL 1 (line filter) assembly</li> <li>● 01G Fuse F13</li> <li>● 01L Fuse F1 (8140 Models BXX)</li> <li>● Customer source voltage circuit breaker</li> <li>● Missing line source voltage.</li> </ul> After correcting the problem, go to ST430 Action Plan 10 and perform a general system checkout.

Procedure 04. SCF Signal Bus Fault Isolation

Failures in the SCF signal bus logic of any adapter could appear as either single or multiple adapter or SCF signal bus failures.

Use this procedure when you have determined that the SCF signal bus failed. This can occur:

- When the SC test detected the possibility that a bit might always be active on the line between the SSCF and its attached adapter.
- When an adapter test detected the possibility that a bit might always be active on the bus from the adapter to the SSCF.
- On an 8130 without the System Expansion Feature (no SSCF), when an adapter test detected the possibility that a bit might always be active on the programmed I/O (PIO) bus.
- On an 8130 with the System Expansion Feature, when the SC test runs without errors if the W, X, and Y cables are removed from the 01A-A2G2 card with power on after IPL completion.

1. Identify the failing address group, which is the first digit of either the SSCF PA or the adapter.

2. Select the correct figure according to the failing address group:

Address Group	Figure Ref
8X (8130) without System Expansion Feature)	ST440-1
8X (8130 with System Expansion Feature)	ST440-2
8X (8140 Models A3X – A4X)	ST440-3
8X (8140 Models A5X – A7X)	ST440-4
8X (8140 Models BXX)	ST440-5
5X (8140 Models BXX)	ST440-6
1X, 2X, 3X, 4X (8101)	ST440-7
9X, AX, BX, CX (8101)	ST440-8

3. Attempt isolation of the failing adapter card by performing the following steps on each adapter attached to the failing SSCF (or PSCF on an 8130 without the System Expansion Feature.)

**Caution:** Turn power off when removing or reseating cards or cables.

a. After powering down, refer to the figure determined in step 2.

**Note:** If the failing SSCF group is either 1X, 2X, 3X, or 4X, unseat the cables in the 8101 between the 01A-A1 and 01A-B1 boards to save time.

**Note:** Test only one adapter at a time. Do not remove the adapter cards associated with the adapter under test.

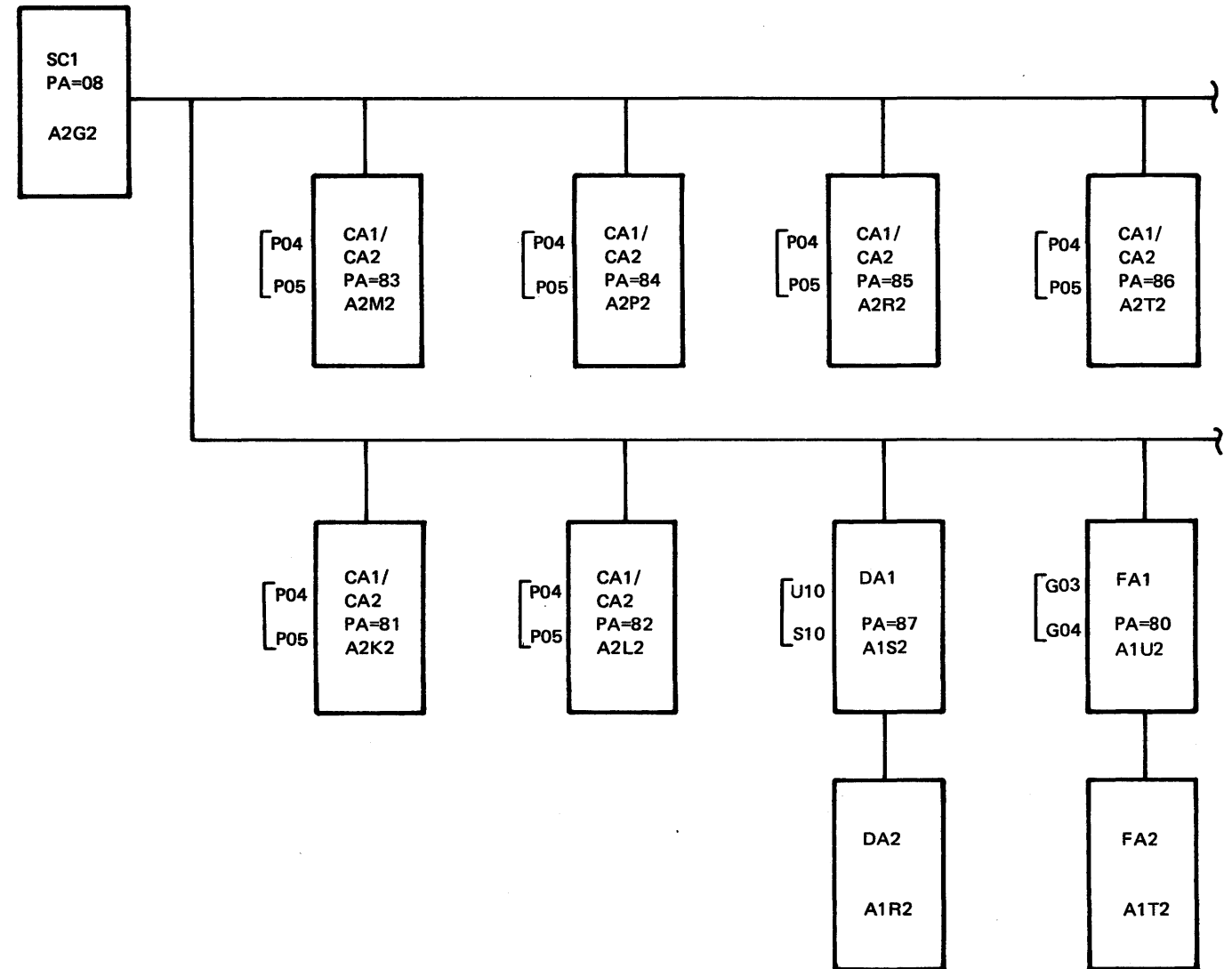
b. Remove the card(s) for one installed adapter on the failing SCF bus.

c. Install the board jumper for that adapter as indicated by the figure. (The jumper bypasses any channel I/O requests from that adapter.)

d. Power up and run the failing test.

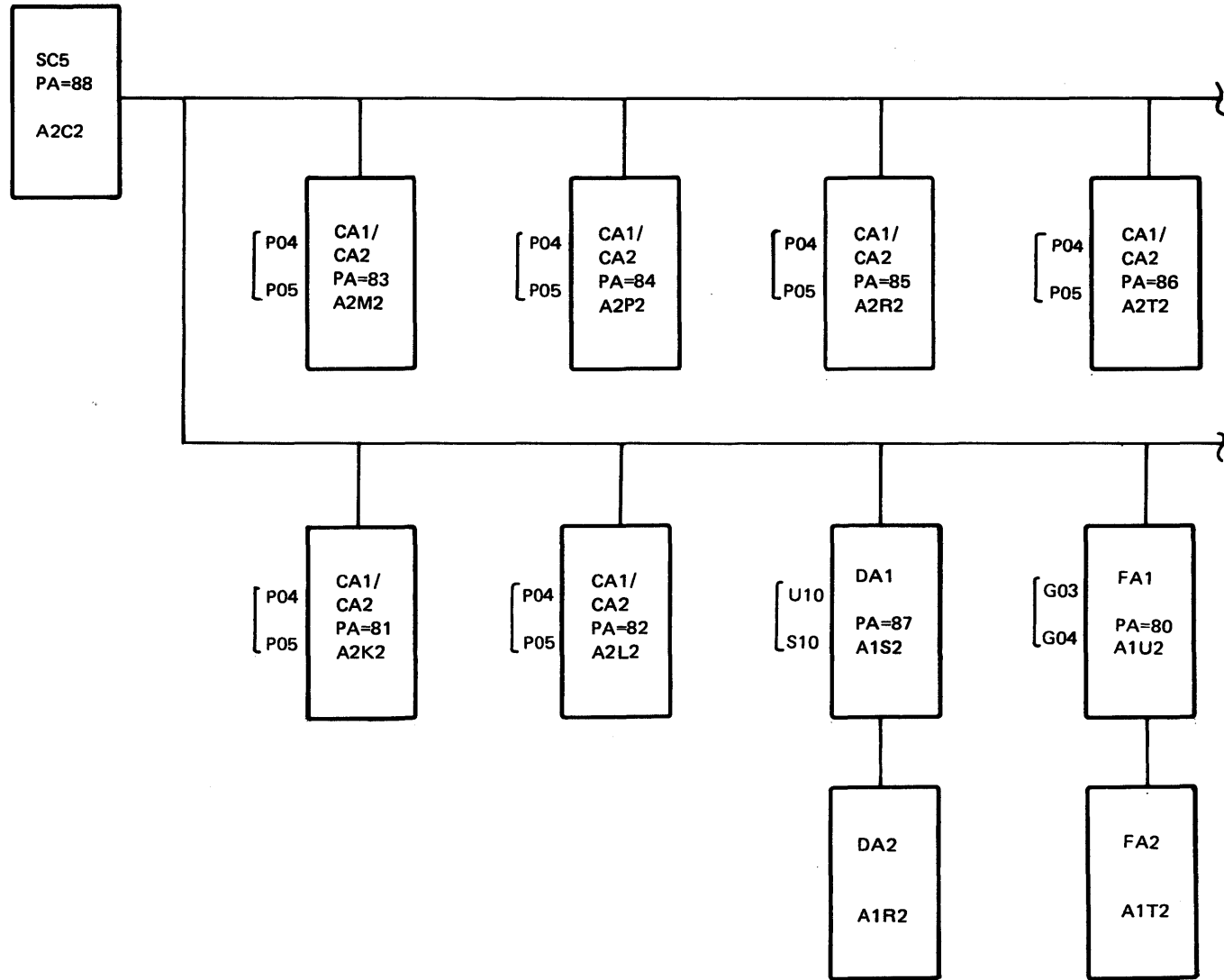
4. If the tests run successfully, the bypassed adapter caused the error. Exchange the failing card. If this is a multiple card adapter, isolate the failing card by removing them one at a time.

5. If the test still fails, again perform step 3 on another adapter attached to the failing SCF signal bus.
6. If all adapter cards attached to the failing SCF signal bus have been removed, their corresponding board pins jumpered, and the failure still occurs, request aid, or return to the SC action plan that sent you here.



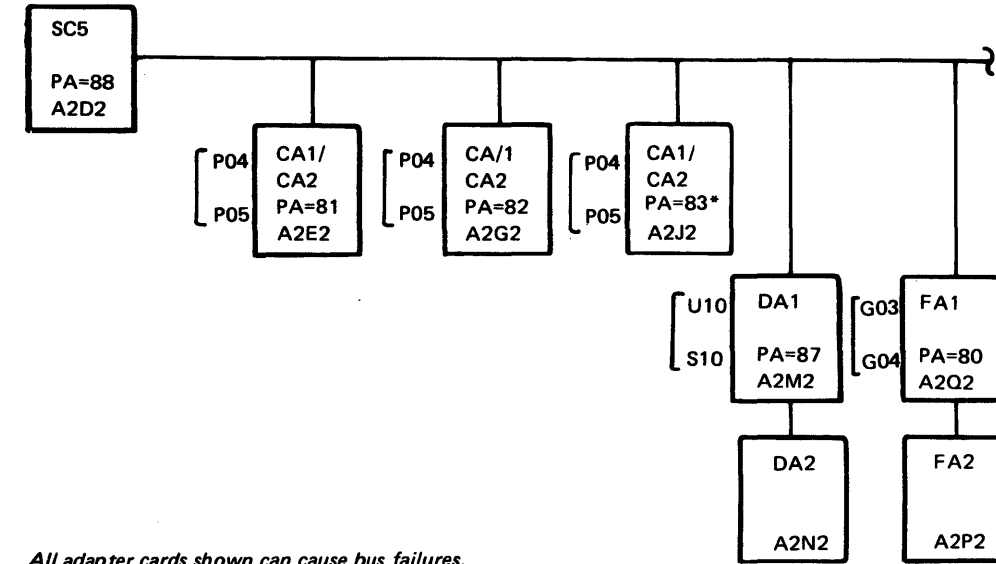
*All adapter cards shown can cause bus failures.*

**Figure ST440-1. 8130 Address Group 8X (without System Expansion Feature)**



All adapter cards shown can cause bus failures.

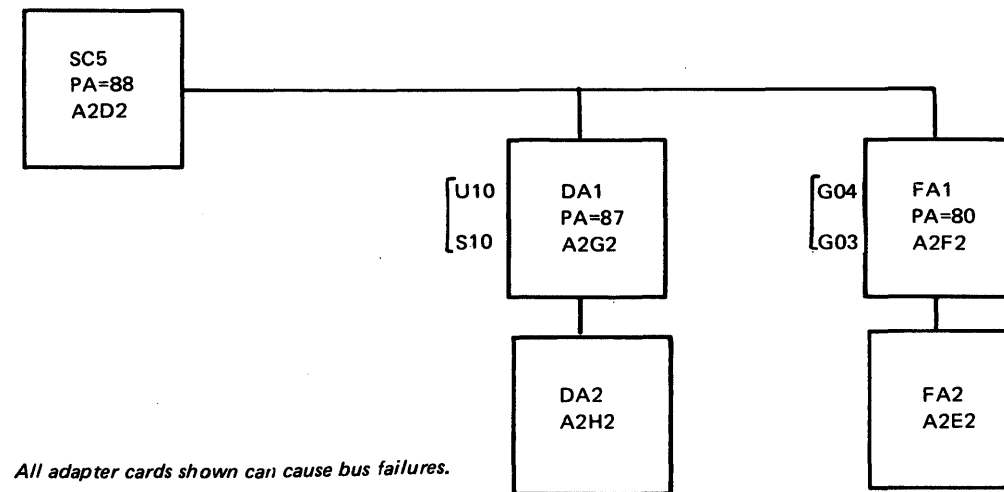
Figure ST440-2. 8130 Address Group 8X (with System Expansion Feature)



All adapter cards shown can cause bus failures.

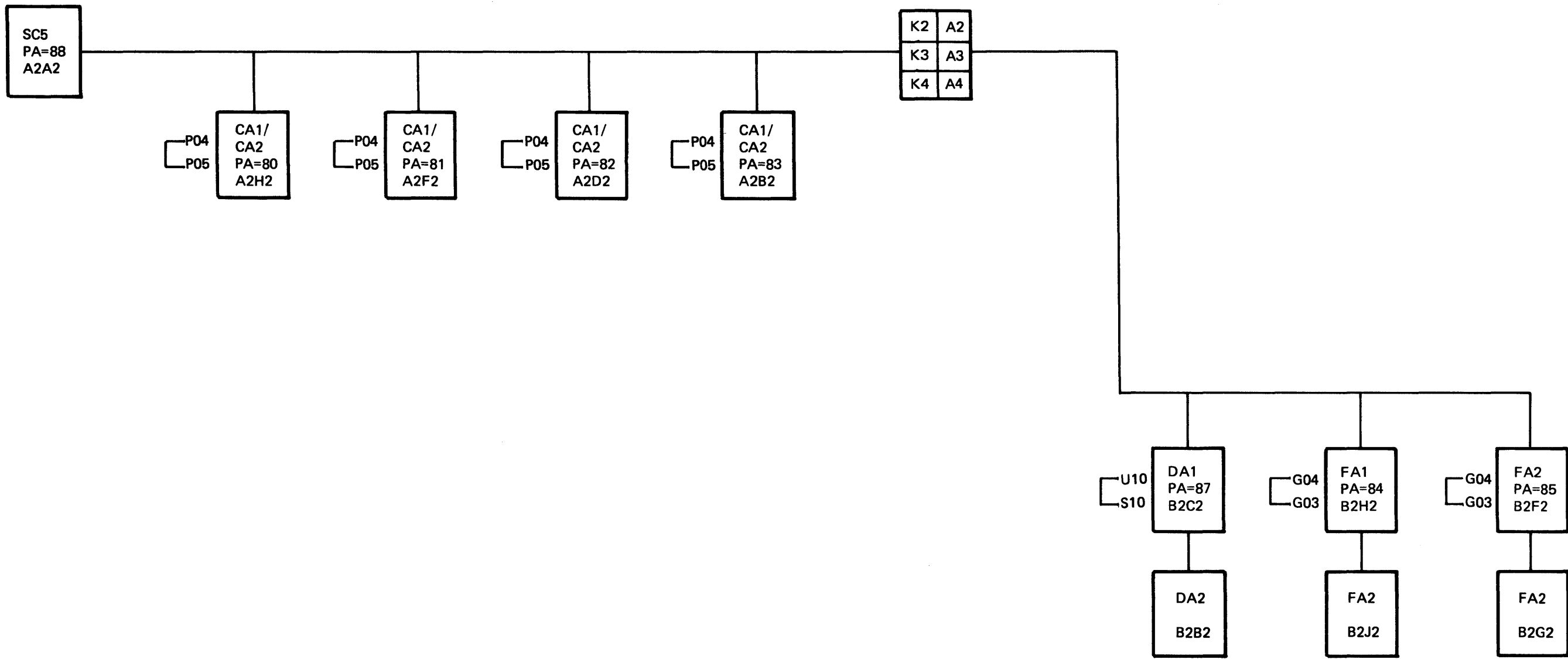
\*This communications port is not available on Models A41-A44.

Figure ST440-3. 8140 Models A3X - A4X Address Group 8X (Board 01A-A2)



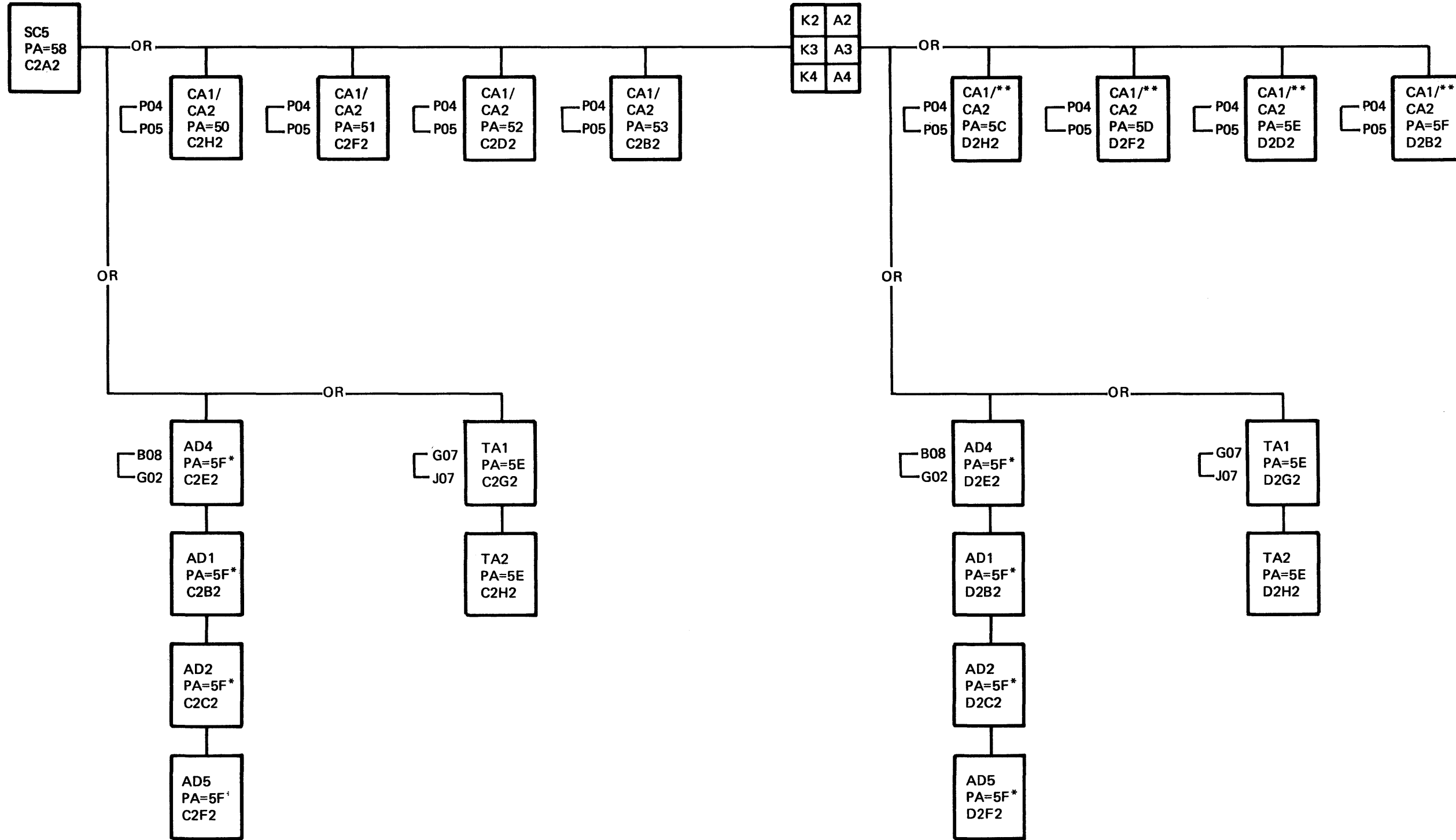
All adapter cards shown can cause bus failures.

Figure ST440-4. 8140 Models A5X - A7X Address Group 8X (Board 01A-A2)



Note: All adapter cards shown can cause bus failures.

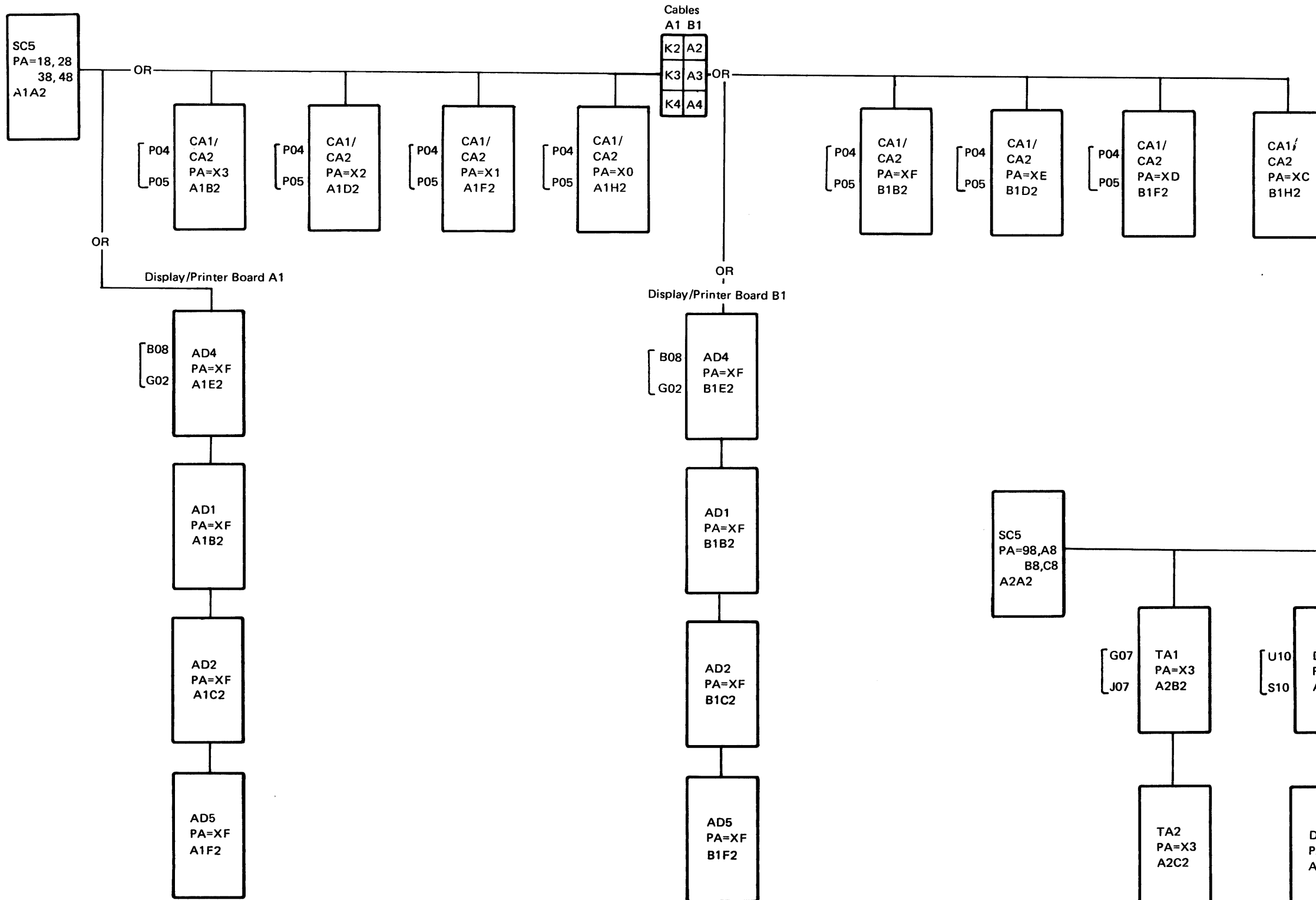
Figure ST440-5. 8140 Models BXX Address Group 8X (Boards 01A-A2 and 01A-B2)



All adapter cards shown can cause bus failures.  
 \*Display/printer and tape adapters are mutually exclusive.  
 \*\* Communications ports 9, 10, 11, and 12 are not allowed if display/printer or tape adapters are installed.

Figure ST440-6. 8140 Models BXX Address Group 5X (Boards 01A-C2 and 01A-D2)

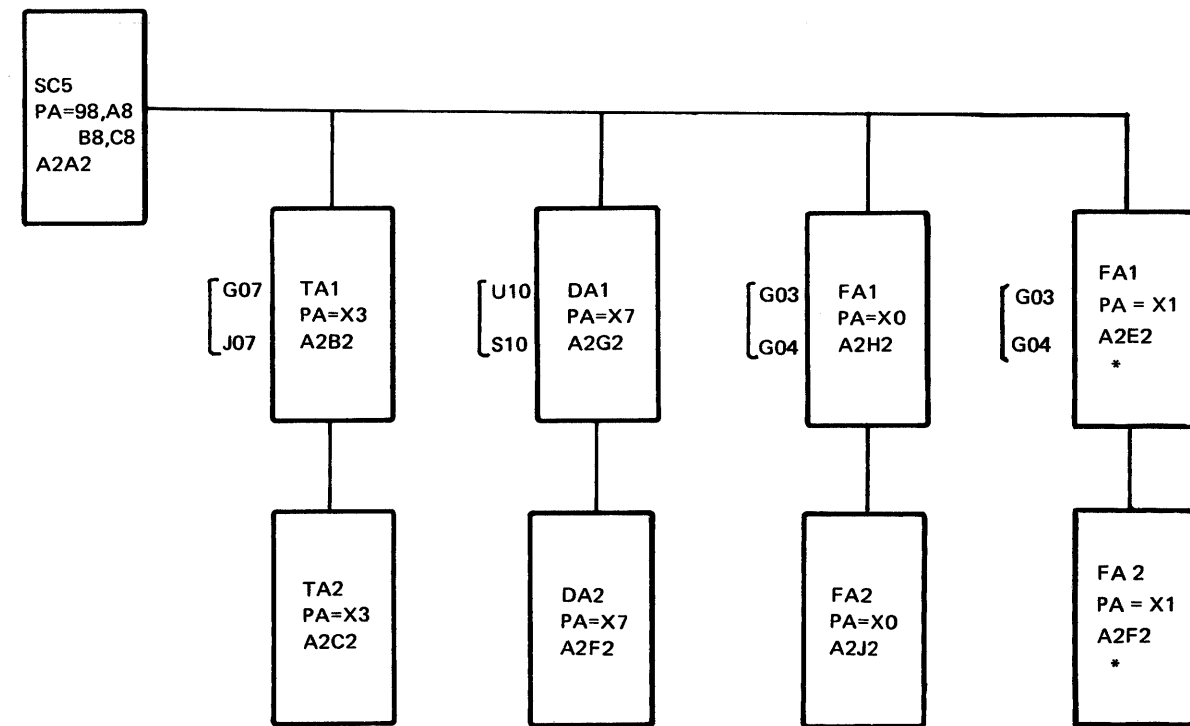




All adapter cards shown can cause bus failures.

Note: Display and printer adapter boards 01A-A1 and 01B-B1 always have a 4-wide card in positions G3 and G4. Communications adapter boards 01A-A1 and 01B-B1 do not.

Figure ST440-7. 8101 Address Groups 1X, 2X, 3X, 4X (Boards 01A-A1 and 01A-B1)



All adapter cards shown can cause bus failures.

\*8101 Model A25 only.

Figure ST440-8. 8101 Address Groups 9X, AX, BX, CX (Board 01A-A2)

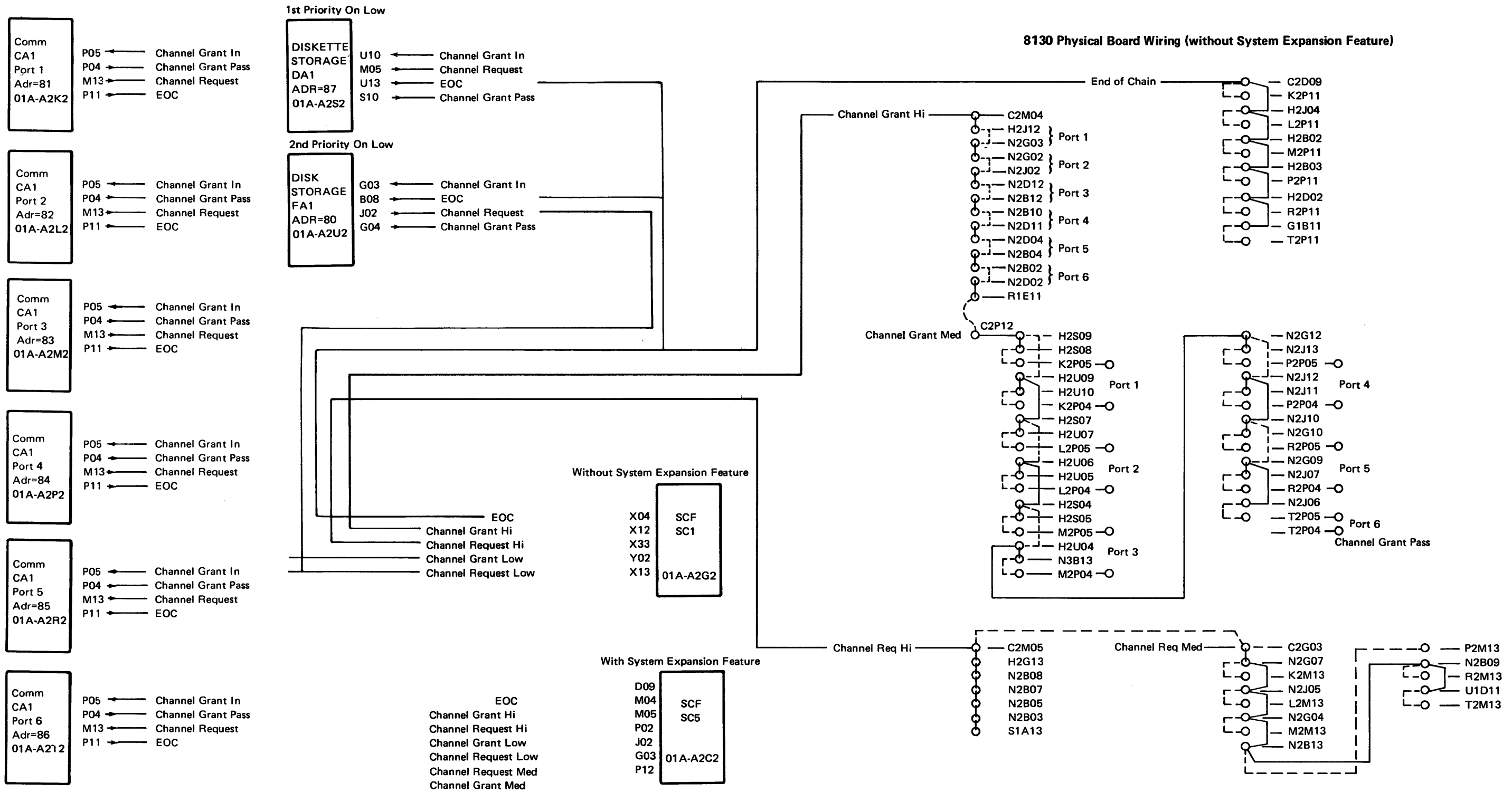
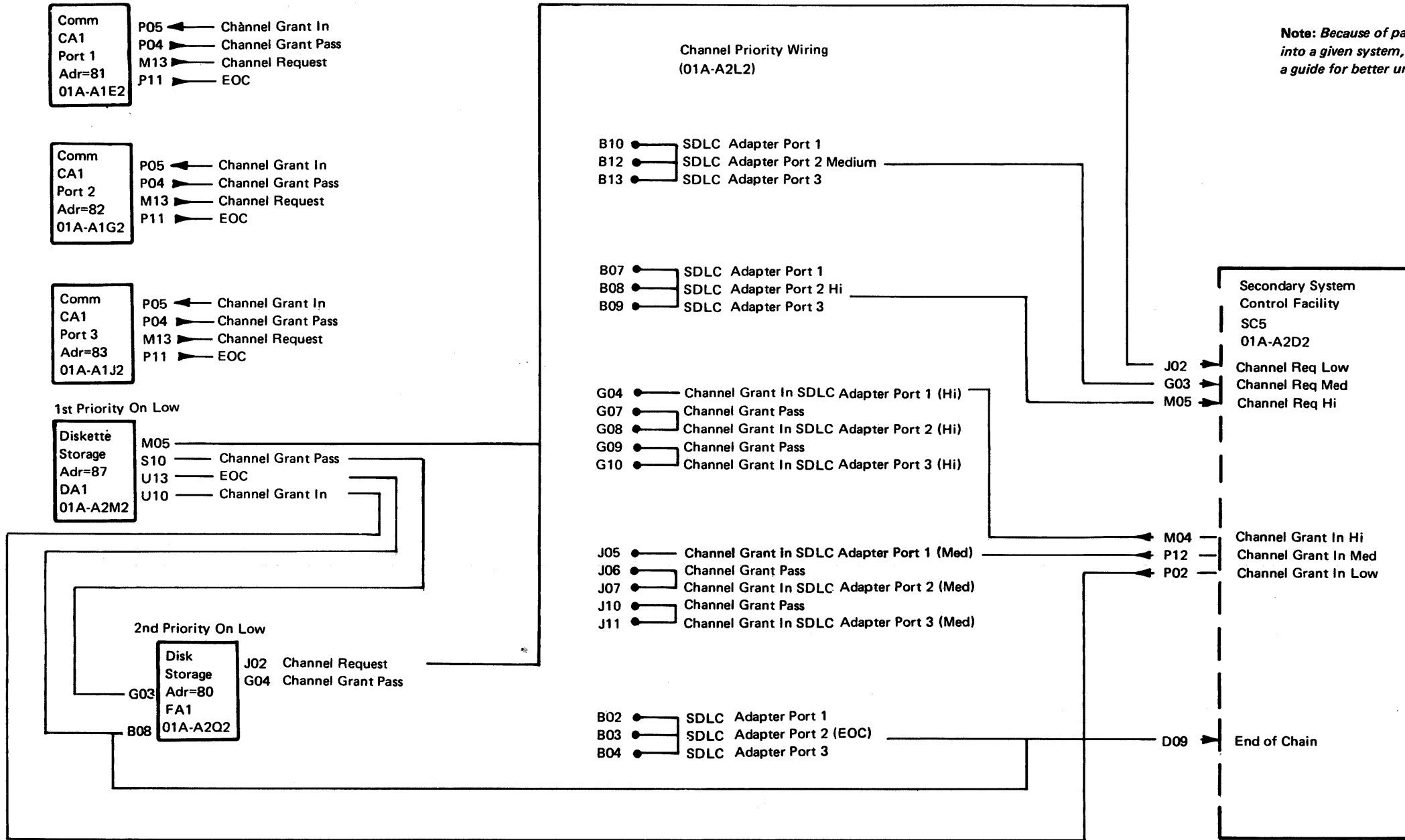


Figure ST440-9. 8130 Channel Priority



*Note: Because of page space limitations, and the many priority schemes that can be hard-wired into a given system, all wiring has not been shown. However, you can use the following chart as a guide for better understanding. Wires shown are examples only.*

**Example 1: Port 1 Designated Hi Priority (Only One Per System)**

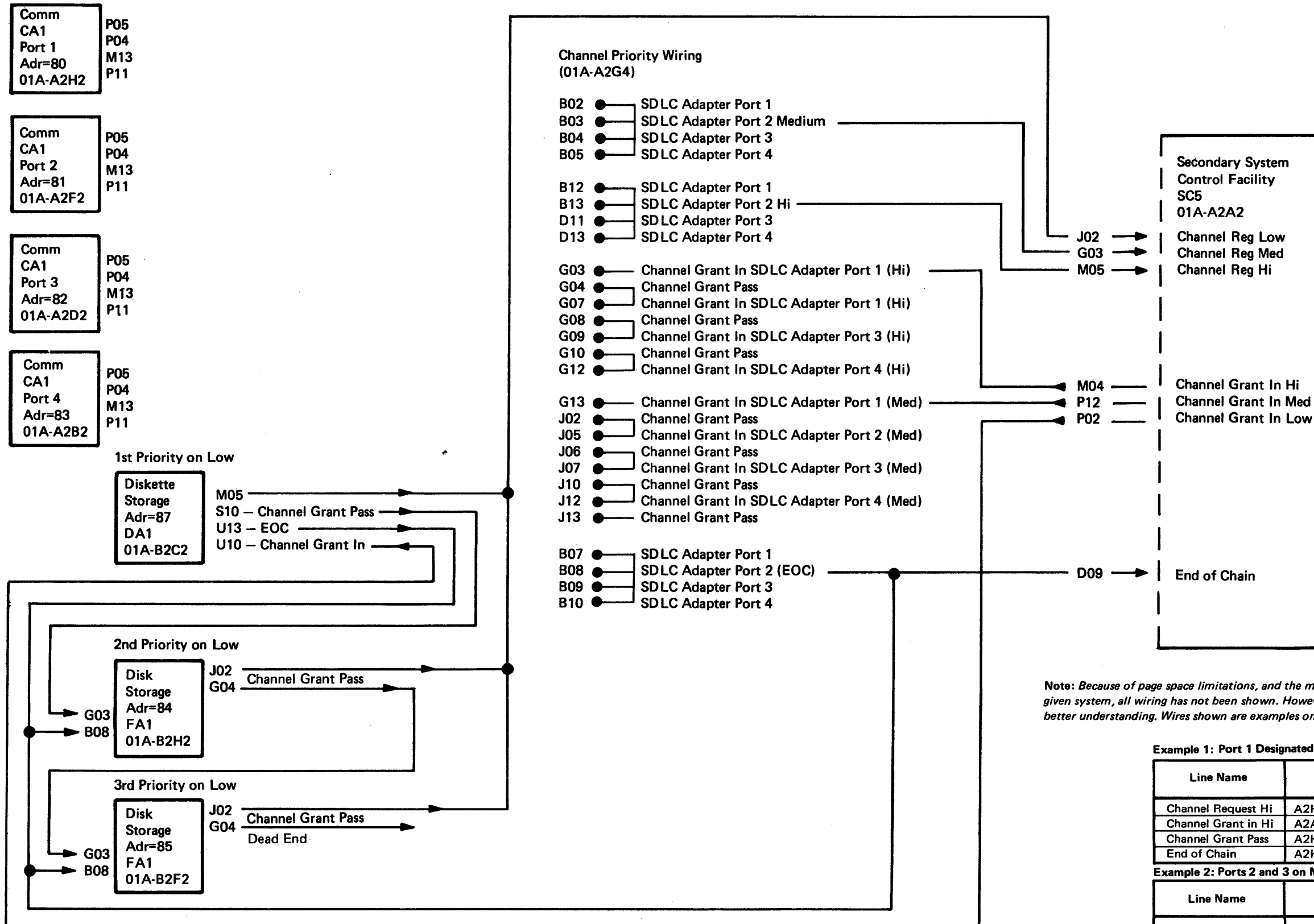
Line Name	Wiring
Channel Request Hi	A1E2M13 to A2L2B07 to A2D2M05
Channel Grant In Hi	A2D2M04 to A2L2G04 to A1E2P05
Channel Grant Pass	A1E2P04 - Dead Ended
End of Chain	A1E2P11 to A2L2B02 to A2D2D09

**Example 2: Ports 2 and 3 on Medium Priority**

Line Name	Wiring
Channel Request Med	A1G2M13 to A2L2B12 to A2D2G03
Channel Grant in Med	A2D2P12 to A2L2J05 to A1G2P05
	A1G2P04 to A2L2J06 to A2L2J07 to A1J2P05
	A1J2P04 to A2L2J10
Channel Request Med	A1J2M13 to A2L2B13 to A2D2G03
End of Chain 2	A1G2P11 to A2L2B03
End of Chain 3	A1J2P11 to A2L2B04

**Note:** Channel Grant High for communications is used for rates above 9600 bps.  
 Channel Grant Medium is used for rates at or below 9600 bps.

**Figure ST440-10. 8140 Model AXX Channel Priority**



Note: Because of page space limitations, and the many priority schemes that can be hard-wired into a given system, all wiring has not been shown. However, you can use the following chart as a guide for better understanding. Wires shown are examples only.

Example 1: Port 1 Designated Hi Priority (Only One Per System)

Line Name	Wiring
Channel Request Hi	A2H2M13 to A2G4B12 to A2A2M05
Channel Grant in Hi	A2A2M04 to A2G4G03 to A2H2P05
Channel Grant Pass	A2H2P04 to A2G4G04
End of Chain	A2H2P11 to A2G4B07 to A2A2D09

Example 2: Ports 2 and 3 on Medium Priority

Line Name	Wiring
Channel Request Med	A2F2M13 to A2G4B03 to A2A2G03
Channel Grant in Med	A2A2P12 to A2G4G13 to A2F2P05
	A2F2P04 to A2G4J02 to A2G4J05 to A2D2P05; A2D2P04 to A2G4J06
Channel Request Med	A2D2M13 to A2G4B04 to A2A2G03
End of Chain 2	A2F2P11 to A2G4B08 to A2D2D09
End of Chain 3	A2D2P11 to A2G4B04 to A2D2D09

Note: Channel Grant High for communications is used for rates above 9600 bps.  
Channel Grant Medium is used for rates at or below 9600 bps.

Figure ST440-11. 8140 Model BXX Channel Priority for Communications, Diskette, and Disk (Boards 01A-A2 and 01A-B2)

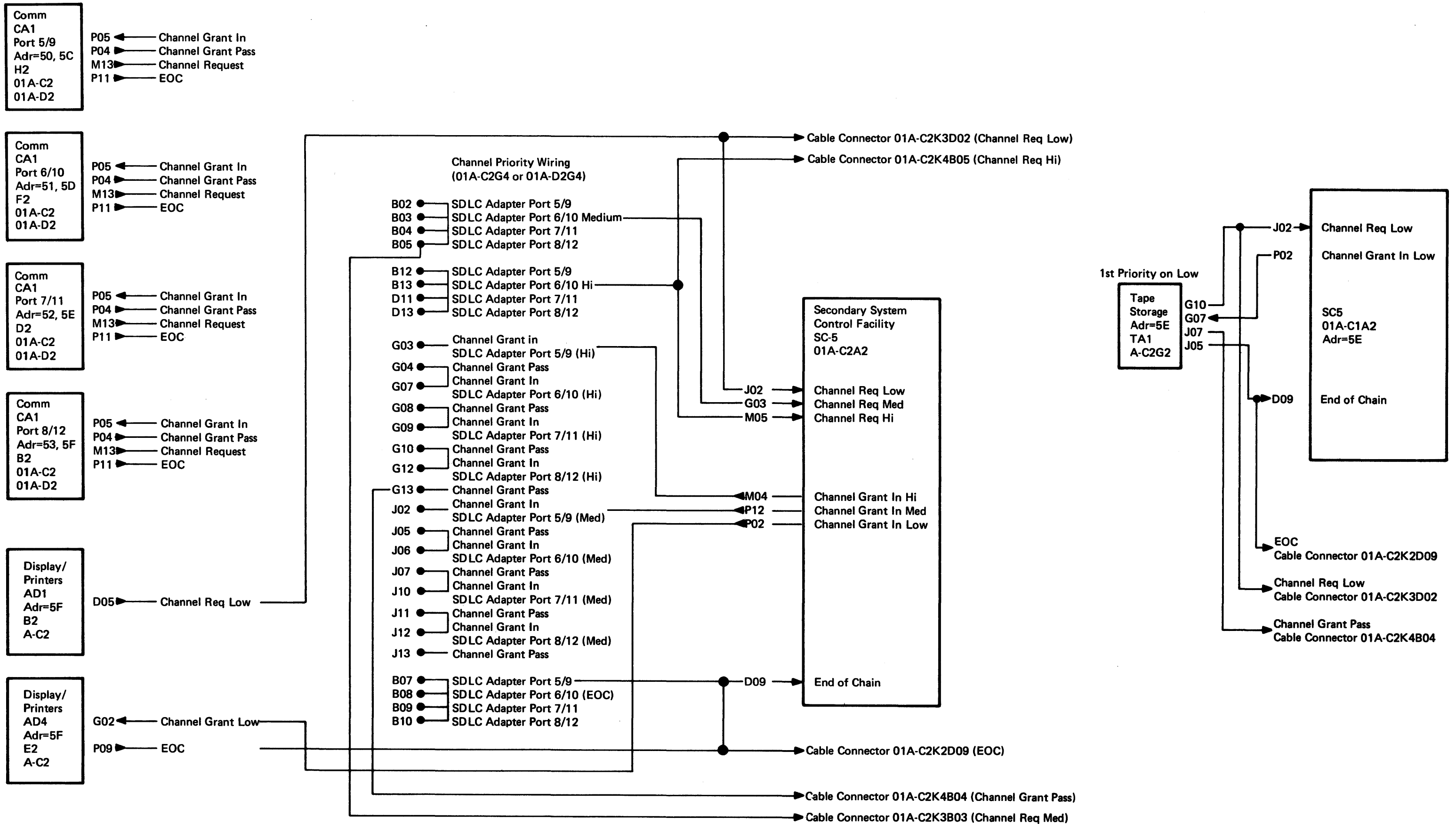


Figure ST440-12. 8140 Model BXX Channel Priority for Communications, Displays, Printers, and Tape (Boards 01A-C2 and 01A-D2)

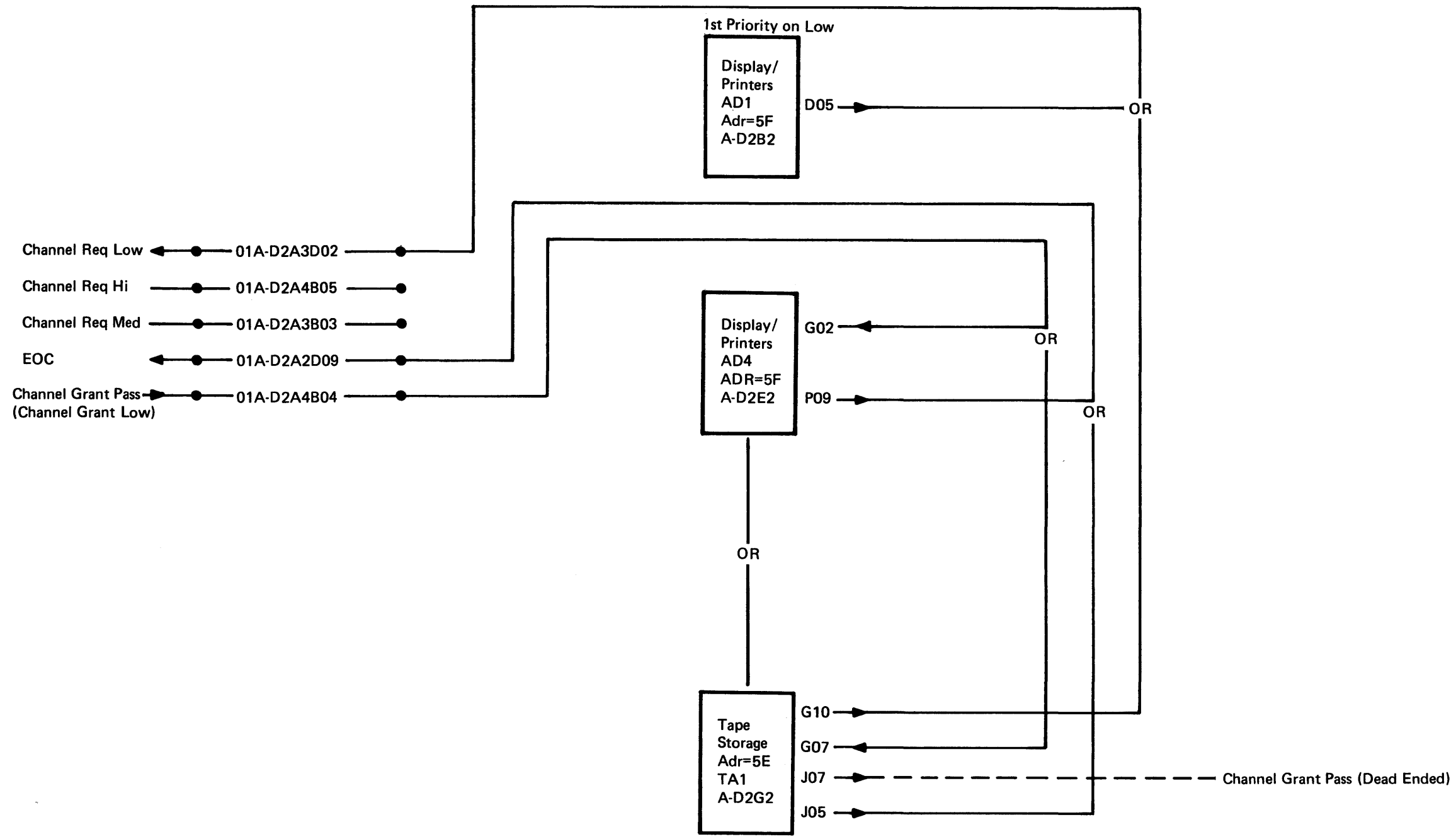
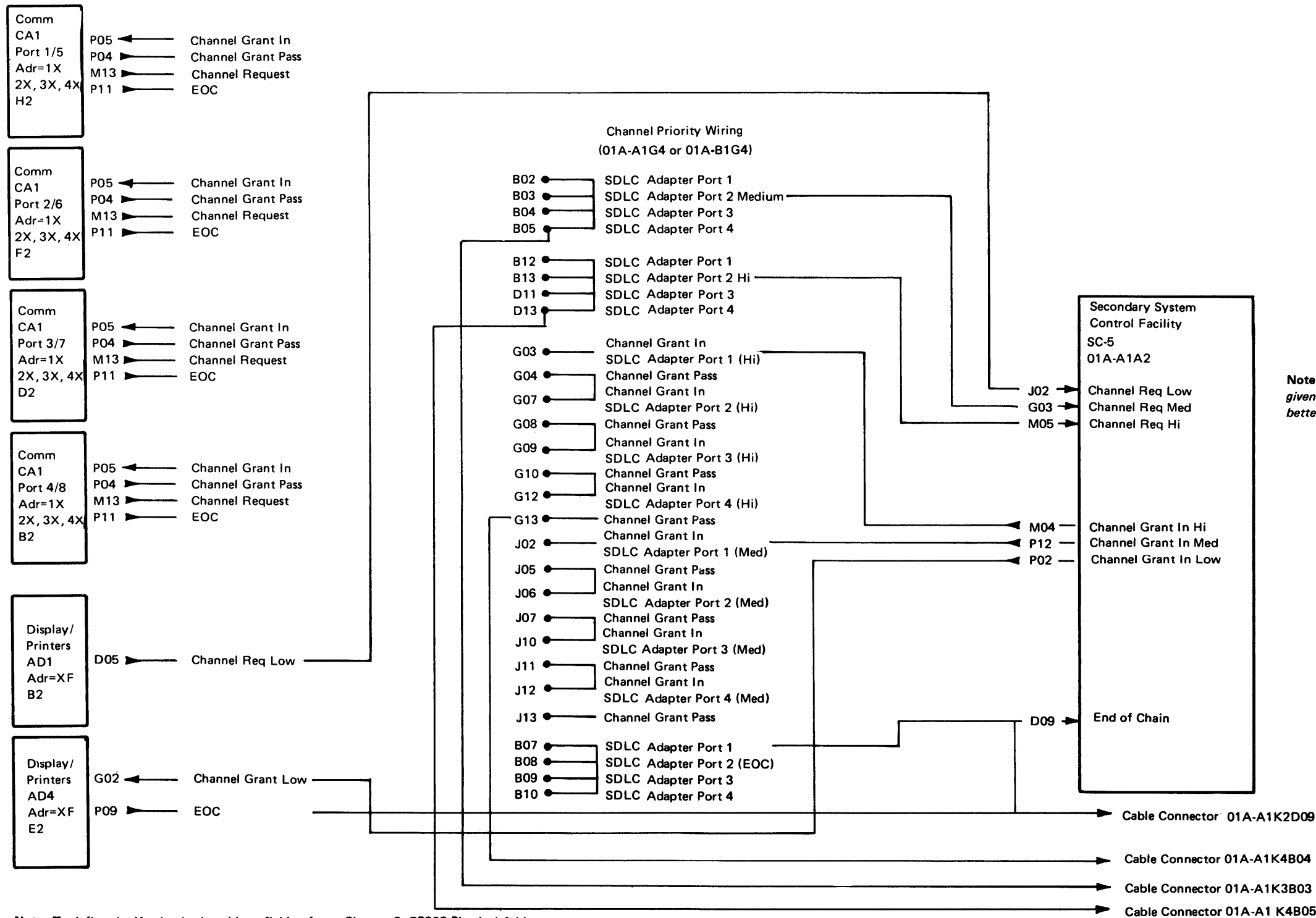


Figure ST440-13. 8140 Model BXX Channel Priority for Displays, Printers, and Tape (Board 01A-D2)



Note: Because of page space limitations, and the many priority schemes that can be hard-wired into a given system, all wiring has not been shown. However, you can use the following chart as a guide for better understanding. Wires shown are examples only.

Example 1: Port 1 Designated Hi Priority (Only One Per System)

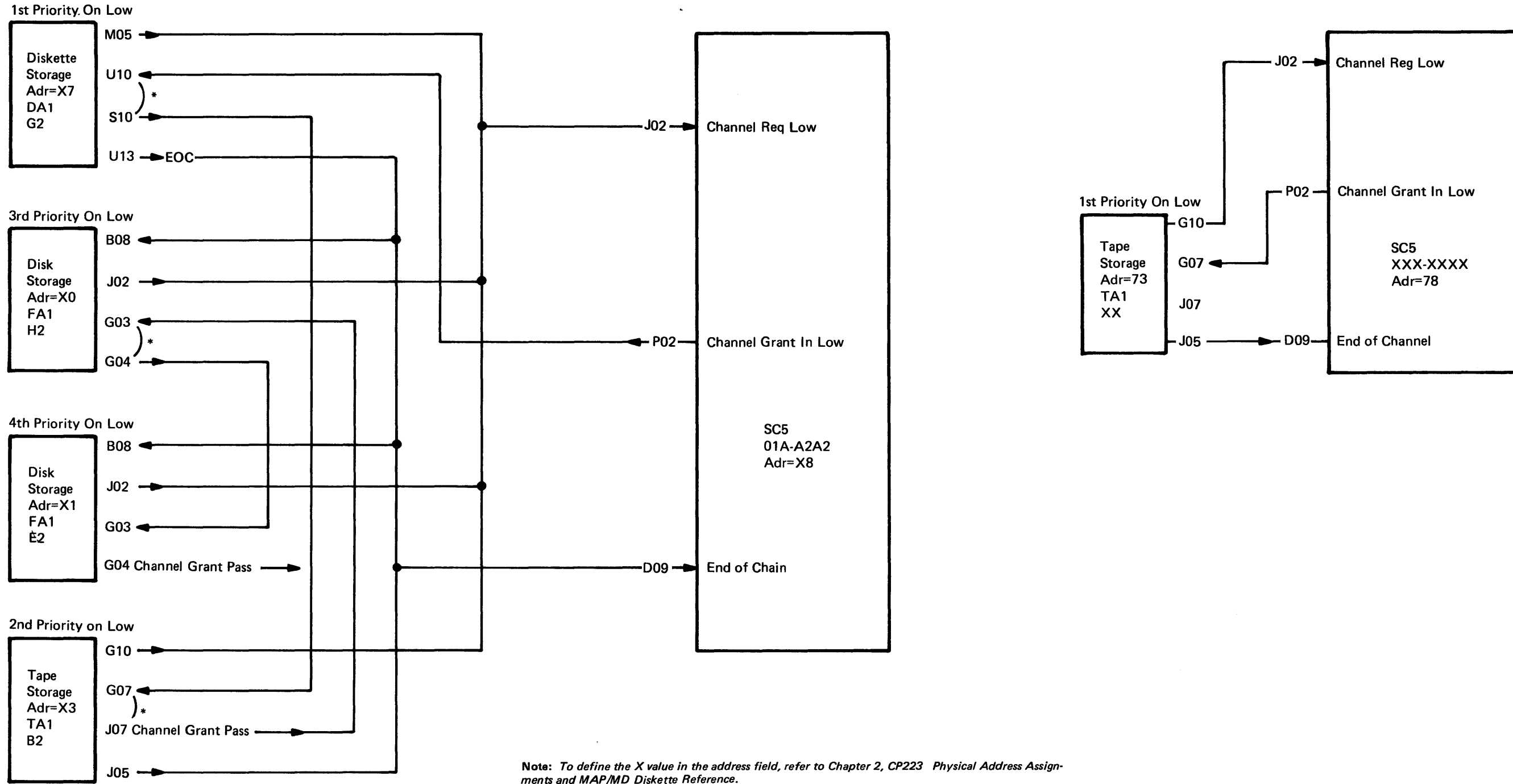
Line Name	Wiring
Channel Request Hi	H2M13 to G4B12 to A1A2M05
Channel Grant in Hi	A1A2M04 to G4G03 to H2P05
Channel Grant Pass	H2P04 to G4G04 to G4G07
End of Chain	H2P11 to G4B07 to A1A2D09

Example 2: Ports 2 and 3 on Medium Priority

Line Name	Wiring
Channel Request Med	F2M13 to G4B03 to A1A2G03
Channel Grant in Med	D2M13 to G4B04 to A1A2G03
	A1A2P12 to G4J02 to F2P05
	F2P04 to G4J05 to G4J06 to D2P05
Channel Request Med	D2P04 to G4J07
End of Chain 2	F2P11 to G4B08 to A1A2D09
End of Chain 3	D2P11 to G4B09 to A1A2D09

Note: To define the X value in the address field, refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference.

Figure ST440-14. 8101 Channel Priority for Communications, Displays, and Printers



Note: To define the X value in the address field, refer to Chapter 2, CP223 Physical Address Assignments and MAP/MD Diskette Reference.

\*If this adapter is not installed a jumper exists between these pins.

Figure ST440-15. 8101 Channel Priority for Disk, Diskette and Tape



**SSCF to Adapter Signal Bus Connections**

Figures ST440-16 through ST440-28 show the signal bus wiring from the SSCF to all adapters. For adapter block diagrams, refer to Figures ST440-1 through ST440-8.

Line Name	81	82	83	84	85	86
-SCF Bus Bit P0	K2B02	L2B02	M2B02	P2B02	R2B02	T2B02
-SCF Bus Bit 0	K2G02	L2G02	M2G02	P2G02	R2G02	T2G02
-SCF Bus Bit 1	K2J02	L2J02	M2J02	P2J02	R2J02	T2J02
-SCF Bus Bit 2	K2D10	L2D10	M2D10	P2D10	R2D10	T2D10
-SCF Bus Bit 3	K2G08	L2G08	M2G08	P2G08	R2G08	T2G08
-SCF Bus Bit 4	K2J04	L2J04	M2J04	P2J04	R2J04	T2J04
-SCF Bus Bit 5	K2D09	L2D09	M2D09	P2D09	R2D09	T2D09
-SCF Bus Bit 6	K2B09	L2B09	M2B09	P2B09	R2B09	T2B09
-SCF Bus Bit 7	K2D06	L2D06	M2D06	P2D06	R2D06	T2D06

Note: Refer to Figure ST440-1 or 2 for block diagram.

**Figure ST440-16. 8130 Address Group 8X SCF Signal Bus Connections**

Line Name	PA	88	81	82	83	87	80
	CARD	SC5	To CA1/2	To CA1/2	To CA1/2	To DA1/2	To FA1
-SCF Bus Bit P0		D2M12	E2B02	G2B02	J2B02	M2B12	Q2P10
-SCF Bus Bit 0		D2B02	E2G02	G2G02	J2G02	M2G04	Q2S04
-SCF Bus Bit 1		D2B08	E2J02	G2J02	J2J02	M2D13	Q2U11
-SCF Bus Bit 2		D2D11	E2D10	G2D10	J2D10	M2J02	Q2S07
-SCF Bus Bit 3		D2G04	E2G08	G2G08	J2G08	M2G02	Q2U05
-SCF Bus Bit 4		D2J07	E2J04	G2J04	J2J04	M2J06	Q2U10
-SCF Bus Bit 5		D2G09	E2D09	G2D09	J2D09	M2G07	Q2S13
-SCF Bus Bit 6		D2M02	E2B09	G2B09	J2B09	M2G08	Q2S08
-SCF Bus Bit 7		D2P10	E2D06	G2D06	J2D06	M2G03	Q2M10
SCF Bus Bit P1		D2P13				M2B10	Q2U12
-SCF Bus Bit 8		D2D05				M2D12	Q2S09
-SCF Bus Bit 9		D2B10				M2J04	Q2S10
-SCF Bus Bit 10		D2D13				M2G09	Q2U02
-SCF Bus Bit 11		D2G05				M2J07	Q2S05
-SCF Bus Bit 12		D2G08				M2D10	Q2U13
-SCF Bus Bit 13		D2J09				M2J09	Q2U04
-SCF Bus Bit 14		D2P06				M2G05	Q2U07
-SCF Bus Bit 15		D2P11				M2J05	Q2S12

Note: Refer to Figure ST440-3 or 4 for block diagram.

**Figure ST440-17. 8140 Model AXX Address Group 8X SCF Signal Bus Connections for Communications, Disk, and Diskette**

Line Name	PA	88	83	82	81	80	To Board B2 Cable	PA	87	85	84
	Card	SC5	to CA1/2	to CA1/2	to CA1/2	to CA1/2		Card	DA1/2	to FA1	to FA1
-SCF Bus Bit P0		A2M12	B2B02	D2B02	F2B02	H2B02	K4B12		C2M12	F2P10	H2P10
-SCF Bus Bit 0		A2B02	B2G02	D2G02	F2G02	H2G02	K2B02		C2G04	F2S04	H2S04
-SCF Bus Bit 1		A2B08	B2J02	D2J02	F2J02	H2J02	K2B08		C2D13	F2U11	H2U11
-SCF Bus Bit 2		A2D11	B2D10	D2D10	F2D10	H2D10	K2D11		C2J02	F2S07	H2S07
-SCF Bus Bit 3		A2G04	B2G08	D2G08	F2G08	H2G08	K3B04		C2G02	F2U05	H2U05
-SCF Bus Bit 4		A2J07	B2J04	D2J04	F2J04	H2J04	K3D07		C2J06	F2U10	H2U10
-SCF Bus Bit 5		A2G09	B2D09	D2D09	F2D09	H2D09	K3B09		C2G07	F2S13	H2S13
-SCF Bus Bit 6		A2M02	B2B09	D2B09	F2B09	H2B09	K4B02		C2G08	F2S08	H2S08
-SCF Bus Bit 7		A2P10	B2D06	D2D06	F2D06	H2D06	K4D10		C2G03	F2M10	H2M10
-SCF Bus Bit P1		A2P13					K4D13		C2B10	F2U12	H2U12
-SCF Bus Bit 8		A2D05					K2D05		C2D12	F2S09	H2S09
-SCF Bus Bit 9		A2B10					K2B10		C2J04	F2S10	H2S10
-SCF Bus Bit 10		A2D13					K2D13		C2G09	F2U02	H2U02
-SCF Bus Bit 11		A2G05					K3B05		C2J07	F2S05	H2S05
-SCF Bus Bit 12		A2G08					K3B08		C2D10	F2U13	H2U13
-SCF Bus Bit 13		A2J09					K3D09		C2J09	F2U04	H2U04
-SCF Bus Bit 14		A2P06					K4D06		C2G05	F2U07	H2U07
-SCF Bus Bit 15		A2P11					K4D11		C2J05	F2S12	H2S12

Note: Refer to Figure ST440-5 for block diagram.

**Figure ST440-18. 8140 Model BXX Address Group 8X SCF Signal Bus Connections for Communications, Disk, and Diskette (Boards 01A-A2 and 01A-B2)**

Line Name	PA	58	53	52	51	50	To Board D2 Cable	PA	5F	5E	5D	5C
	Card	SC5	to CA1/2	to CA1/2	to CA1/2	to CA1/2		Card	CA1/2	to CA1/2	to CA1/2	to CA1/2
-SCF Bus Bit P0		A2M12	B2B02	D2B02	F2B02	H2B02	K4B12		B2B02	D2B02	F2B02	H2B02
-SCF Bus Bit 0		A2B02	B2G02	D2G02	F2G02	H2G02	K2B02		B2G02	D2G02	F2G02	H2G02
-SCF Bus Bit 1		A2B08	B2J02	D2J02	F2J02	H2J02	K2B08		B2J02	D2J02	F2J02	H2J02
-SCF Bus Bit 2		A2D11	B2D10	D2D10	F2D10	H2D10	K2D11		B2D10	D2D10	F2D10	H2D10
-SCF Bus Bit 3		A2G04	B2G08	D2G08	F2G08	H2G08	K3B04		B2G08	D2G08	F2G08	H2G08
-SCF Bus Bit 4		A2J07	B2J04	D2J04	F2J04	H2J04	K3D07		B2J04	D2J04	F2J04	H2J04
-SCF Bus Bit 5		A2G09	B2D09	D2D09	F2D09	H2D09	K3B09		B2D09	D2D09	F2D09	H2D09
-SCF Bus Bit 6		A2M02	B2B09	D2B09	F2B09	H2B09	K4B02		B2B09	D2B09	F2B09	H2B09
-SCF Bus Bit 7		A2P10	B2D06	D2D06	F2D06	H2D06	K4D10		B2D06	D2D06	F2D06	H2D06
-SCF Bus Bit P1		A2P13					K4D13					
-SCF Bus Bit 8		A2D05					K2D05					
-SCF Bus Bit 9		A2B10					K2B10					
-SCF Bus Bit 10		A2D13					K2D13					
-SCF Bus Bit 11		A2G05					K3B05					
-SCF Bus Bit 12		A2G08					K3B08					
-SCF Bus Bit 13		A2J09					K3D09					
-SCF Bus Bit 14		A2P06					K4D06					
-SCF Bus Bit 15		A2P11					K4D11					

Note: Refer to Figure ST440-6 for block diagram.

**Figure ST440-19. 8140 Models BXX Address Group 5X SCF Signal Bus Connections for Communications (Boards 01A-C2 and 01A-D2)**

Line Name	PA	58	5E
	Card	SC5 to	TA1
-SCF Bus Bit P0		A2M12	G2M04
-SCF Bus Bit 0		A2B02	G2M05
-SCF Bus Bit 1		A2B08	G2M03
-SCF Bus Bit 2		A2D11	G2P06
-SCF Bus Bit 3		A2G04	G2M09
-SCF Bus Bit 4		A2J07	G2M07
-SCF Bus Bit 5		A2G09	G2P11
-SCF Bus Bit 6		A2M02	G2P05
-SCF Bus Bit 7		A2P10	G2P12
-SCF Bus Bit P1		A2P13	G2P09
-SCF Bus Bit 8		A2D05	G2P13
-SCF Bus Bit 9		A2B10	G2M12
-SCF Bus Bit 10		A2D13	G2M10
-SCF Bus Bit 11		A2G05	G2P10
-SCF Bus Bit 12		A2G08	G2M13
-SCF Bus Bit 13		A2J09	G2P04
-SCF Bus Bit 14		A2P06	G2M08
-SCF Bus Bit 15		A2P11	G2P07

Note: Refer to Figure ST440-6 for block diagram.

Figure ST440-20. 8140 Model BXX Address Group 5X SCF Signal Bus Connections for Tape (Board 01A-C2)

Line Number	PA	58	5F
	Card	SC5 to	AD2
-SCF Bus Bit P0		A2M12	C2G04
-SCF Bus Bit 0	A2B	A2B02	C2J06
-SCF Bus Bit 1		A2B08	C2G05
-SCF Bus Bit 2		A2D11	C2D09
-SCF Bus Bit 3		A2G04	C2G02
-SCF Bus Bit 4		A2J07	C2J02
-SCF Bus Bit 5		A2G09	C2B10
-SCF Bus Bit 6		A2M02	C2G03
-SCF Bus Bit 7		A2P10	C2D12
-SCF Bus Bit P1		A2P13	C2J12
-SCF Bus Bit 8		A2D05	C2M04
-SCF Bus Bit 9		A2B10	C2P04
-SCF Bus Bit 10		A2D13	C2P02
-SCF Bus Bit 11		A2G05	C2P07
-SCF Bus Bit 12		A2G08	C2M02
-SCF Bus Bit 13		A2J09	C2P05
-SCF Bus Bit 14		A2P06	C2J11
-SCF Bus Bit 15		A2P11	C2G13

Note: Refer to Figure ST440-6 for block diagram.

Figure ST440-21. 8140 Model BXX Address Group 5X SCF Signal Bus Connections for Displays and Printers (Board 01A-C2)

Line Name	PA	58	53	52	51	50	To Board D2 Cable	PA	5E
	Card	SC5 to	CA1/2 to	CA1/2 to	CA1/2 to	CA1/2 to		Card	TA1
-SCF Bus Bit P0		A2M12	B2B02	D2B02	F2B02	H2B02	K4B12		G2M04
-SCF Bus Bit 0		A2B02	B2G02	D2G02	F2G02	H2G02	K2B02		G2M05
-SCF Bus Bit 1		A2B08	B2J02	D2J02	F2J02	H2J02	K2B08		G2M03
-SCF Bus Bit 2		A2D11	B2D10	D2D10	F2D10	H2D10	K2D11		G2P06
-SCF Bus Bit 3		A2G04	B2G08	D2G08	F2G08	H2G08	K3B04		G2M09
-SCF Bus Bit 4		A2J07	B2J04	D2J04	F2J04	H2J04	K3D07		G2M07
-SCF Bus Bit 5		A2G09	B2D09	D2D09	F2D09	H2D09	K3B09		G2P11
-SCF Bus Bit 6		A2M02	B2B09	D2B09	F2B09	H2B09	K4B02		G2P05
-SCF Bus Bit 7		A2P10	B2D06	D2D06	F2D06	H2D06	K4D10		G2P12
-SCF Bus Bit P1		A2P13					K4D13		G2P09
-SCF Bus Bit 8		A2D05					K2D05		G2P13
-SCF Bus Bit 9		A2B10					K2B10		G2M12
-SCF Bus Bit 10		A2D13					K2D13		G2M10
-SCF Bus Bit 11		A2G05					K3B05		G2P10
-SCF Bus Bit 12		A2G08					K3B08		G2M13
-SCF Bus Bit 13		A2J09					K3D09		G2P04
-SCF Bus Bit 14		A2P06					K4D06		G2M08
-SCF Bus Bit 15		A2P11					K4D11		G2P07

Note: Refer to Figure ST440-6 for block diagram.

Figure ST440-23. 8140 Model BXX Address Group 5X SCF Signal Bus Connections for Communications and Tape (Boards 01A-C2 and 01A-D2)

Line Name	PA	58	53	52	51	50	To Board D2 Cable	PA	5F
	Card	SC5 to	CA1/2 to	CA1/2 to	CA1/2 to	CA1/2 to		Card	AD2
-SCF Bus Bit P0		A2M12	B2B02	D2B02	F2B02	H2B02	K4B12		C2G04
-SCF Bus Bit 0		A2B02	B2G02	D2G02	F2G02	H2G02	K2B02		C2J06
-SCF Bus Bit 1		A2B08	B2J02	D2J02	F2J02	H2J02	K2B08		C2G05
-SCF Bus Bit 2		A2D11	B2D10	D2D10	F2D10	H2D10	K2D11		C2D09
-SCF Bus Bit 3		A2G04	B2G08	D2G08	F2G08	H2G08	K3B04		C2G02
-SCF Bus Bit 4		A2J07	B2J04	D2J04	F2J04	H2J04	K3D07		C2J02
-SCF Bus Bit 5		A2G09	B2D09	D2D09	F2D09	H2D09	K3B09		C2B10
-SCF Bus Bit 6		A2M02	B2B09	D2B09	F2B09	H2B09	K4B02		C2G03
-SCF Bus Bit 7		A2P10	B2D06	D2D06	F2D06	H2D06	K4D10		C2D12
-SCF Bus Bit P1		A2P13					K4D13		C2J12
-SCF Bus Bit 8		A2D05					K2D05		C2M04
-SCF Bus Bit 9		A2B10					K2B10		C2P04
-SCF Bus Bit 10		A2D13					K2D13		C2P02
-SCF Bus Bit 11		A2G05					K3B05		C2P07
-SCF Bus Bit 12		A2G08					K3B08		C2M02
-SCF Bus Bit 13		A2J09					K3D09		C2P05
-SCF Bus Bit 14		A2P06					K4D06		C2J11
-SCF Bus Bit 15		A2P11					K4D11		C2G13

Note: Refer to Figure ST440-6 for block diagram.

Figure ST440-22. 8140 Model BXX Address Group 5X SCF Signal Bus Connections for Communications, Displays, and Printers (Boards 01A-C2 and 01A-D2)

Line Name	PA	X8	X3 Port 4		X2 Port 3		X3 Port 2		X0 Port 1		To B1 Board B1 Cable	
	Card	SC5	To	CA1/2	To	CA1/2	To	CA1/2	To	CA1/2		Out
-SCF Bus Bit P0		A2M12	B2B02	D2B02	F2B02	H2B02	H2G12	K4B12				
-SCF Bus Bit 0		A2B02	B2G02	D1G02	F2G02	H2G02	H2B07	K2B02				
-SCF Bus Bit 1		A2B08	B2J02	D2J02	F2J02	H2J02	H2J06	K2B08				
-SCF Bus Bit 2		A2D11	B2D10	D2D10	F2D10	H2D10	H2G07	K2D11				
-SCF Bus Bit 3		A2G04	B2G08	D2G08	F2G08	H2G08	H2J07	K3B04				
-SCF Bus Bit 4		A2J07	B2J04	D2J04	F2J04	H2J04	H2G10	K3D07				
-SCF Bus Bit 5		A2G09	B2D09	D2D09	F2D09	H2D09	H2J10	K3B09				
-SCF Bus Bit 6		A2M02	B2B09	D2B09	F2B09	H2B09	H2J11	K3B02				
-SCF Bus Bit 7		A2P10	B2D06	D2D06	F2D06	H2D06	H2J12	K4D10				

Note: Refer to Figure ST440-7 for block diagram.

Figure ST440-24. 8101 SCF Signal Bus Connections for Communications (Board 01A-A1)

Line Name	PA	X8	
	Card	SC5	To AD2
-SCF Bus Bit P0		A2M12	C2G04
-SCF Bus Bit 0		A2B02	C2J06
-SCF Bus Bit 1		A2B08	C2G05
-SCF Bus Bit 2		A2D11	C2D09
-SCF Bus Bit 3		A2G04	C2G02
-SCF Bus Bit 4		A2J07	C2J02
-SCF Bus Bit 5		A2G09	C2B10
-SCF Bus Bit 6		A2M02	C2G03
-SCF Bus Bit 7		A2P10	C2D12
-SCF Bus Bit P1		A2P13	C2J12
-SCF Bus Bit 8		A2D05	C2M04
-SCF Bus Bit 9		A2B10	C2P04
-SCF Bus Bit 10		A2D13	C2P02
-SCF Bus Bit 11		A2G05	C2P07
-SCF Bus Bit 12		A2G08	C2M02
-SCF Bus Bit 13		A2J09	C2P05
-SCF Bus Bit 14		A2P06	C2J11
-SCF Bus Bit 15		A2P11	C2G13

Note: Refer to Figure ST440-7 for block diagram.

Figure ST440-26. 8101 SCF Signal Bus Connections for Displays and Printers (Board 01A-A1)

Line Name	PA	X8	X3	X7	X0
	Card	SC5	To TA1	To DA1	To FA1
-SCF Bus Bit P0		A2M12	B2M04	G2B12	H2P10
-SCF Bus Bit 0		A2B02	B2M05	G2G04	H2S04
-SCF Bus Bit 1		A2B08	B2M03	G2D13	H2U11
-SCF Bus Bit 2		A2D11	B2P06	G2J02	H2S07
-SCF Bus Bit 3		A2G04	B2M09	G2G02	H2U05
-SCF Bus Bit 4		A2J07	B2M07	G2J06	H2U10
-SCF Bus Bit 5		A2G09	B2P11	G2G07	H2S13
-SCF Bus Bit 6		A2M02	B2P05	G2G08	H2S08
-SCF Bus Bit 7		A2P10	B2P12	G2G03	H2M10
-SCF Bus Bit P1		A2P13	B2P09	G2B10	H2U12
-SCF Bus Bit 8		A2D05	B2P13	G2D12	H2S09
-SCF Bus Bit 9		A2B10	B2M12	G2J04	H2S10
-SCF Bus Bit 10		A2D13	B2M10	G2G09	H2U02
-SCF Bus Bit 11		A2G05	B2P10	G2J07	H2S05
-SCF Bus Bit 12		A2G08	B2M13	G2D10	H2U13
-SCF Bus Bit 13		A2J09	B2P04	G2J09	H2U04
-SCF Bus Bit 14		A2P06	B2M08	G2G05	H2U07
-SCF Bus Bit 15		A2P11	B2P07	G2J05	H2S12

Note: Refer to Figure ST440-7 for block diagram.

Figure ST440-27. 8101 SCF Signal Bus Connections for Disk, Diskette, and Tape (Board 01A-A2)

Line Name	PA	To B1 Board A1 Cable	XF	XE	XD	XC
	Card		Port 8	Port 7	Port 6	Port 5
-SCF Bus Bit P0		K4D07	B2B02	D2B02	F2B02	H2B02
-SCF Bus Bit 0		K2D02	B2G02	D2G02	F2G02	H2G02
-SCF Bus Bit 1		K2D04	B2J02	D2J02	F2J02	H2J02
-SCF Bus Bit 2		K2B07	B2D10	D2D10	F2D10	H2D10
-SCF Bus Bit 3		K3D04	B2G08	D2G08	F2G08	H2G08
-SCF Bus Bit 4		K3B07	B2J04	D2J04	F2J04	H2J04
-SCF Bus Bit 5		K4D04	B2D09	D2D09	F2D09	H2D09
-SCF Bus Bit 6		K4D05	B2B09	D2B09	F2B09	H2B09
-SCF Bus Bit 7		K4B07	B2D06	D2D06	F2D06	H2D06

Note: Refer to Figure ST440-8 for block diagram.

Figure ST440-25. 8101 Signal Bus Connections for Communications (Board 01A-B1)

Line Name	PA	To B1 Board A1 Cable	XF
	Card		AD2
-SCF Bus Bit P0			C2G04
-SCF Bus Bit 0			C2J06
-SCF Bus Bit 1			C2G05
-SCF Bus Bit 2			C2D09
-SCF Bus Bit 3			C2G02
-SCF Bus Bit 4			C2J02
-SCF Bus Bit 5			C2B10
-SCF Bus Bit 6			C2G03
-SCF Bus Bit 7			C2D12
-SCF Bus Bit P1			C2J12
-SCF Bus Bit 8			C2M04
-SCF Bus Bit 9			C2P04
-SCF Bus Bit 10			C2P02
-SCF Bus Bit 11			C2P07
-SCF Bus Bit 12			C2M02
-SCF Bus Bit 13			C2P05
-SCF Bus Bit 14			C2J11
-SCF Bus Bit 15			C2G13

Note: Refer to Figure ST440-7 for block diagram.

Figure ST440-28. 8101 SCF Signal Bus Connections for Displays and Printers (Board 01A-B1)

Adapter Interrupt Request Wiring

Figures ST440-29 through ST440-35 show adapter to 8140/8101 SSCF wiring.

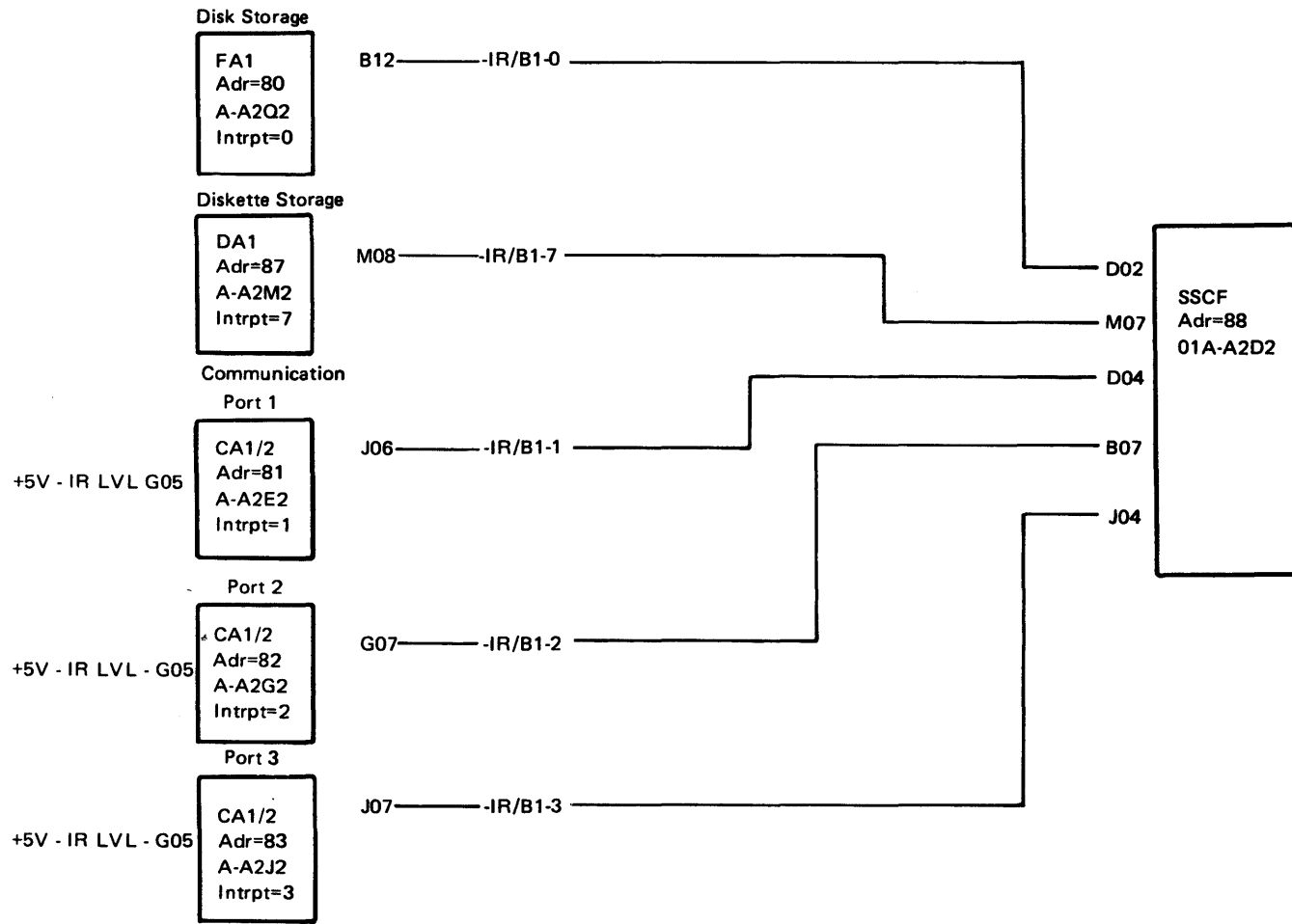


Figure ST440-29. Adapter to 8140 Model AXX SSCF Address 88 Interrupt Request Wiring

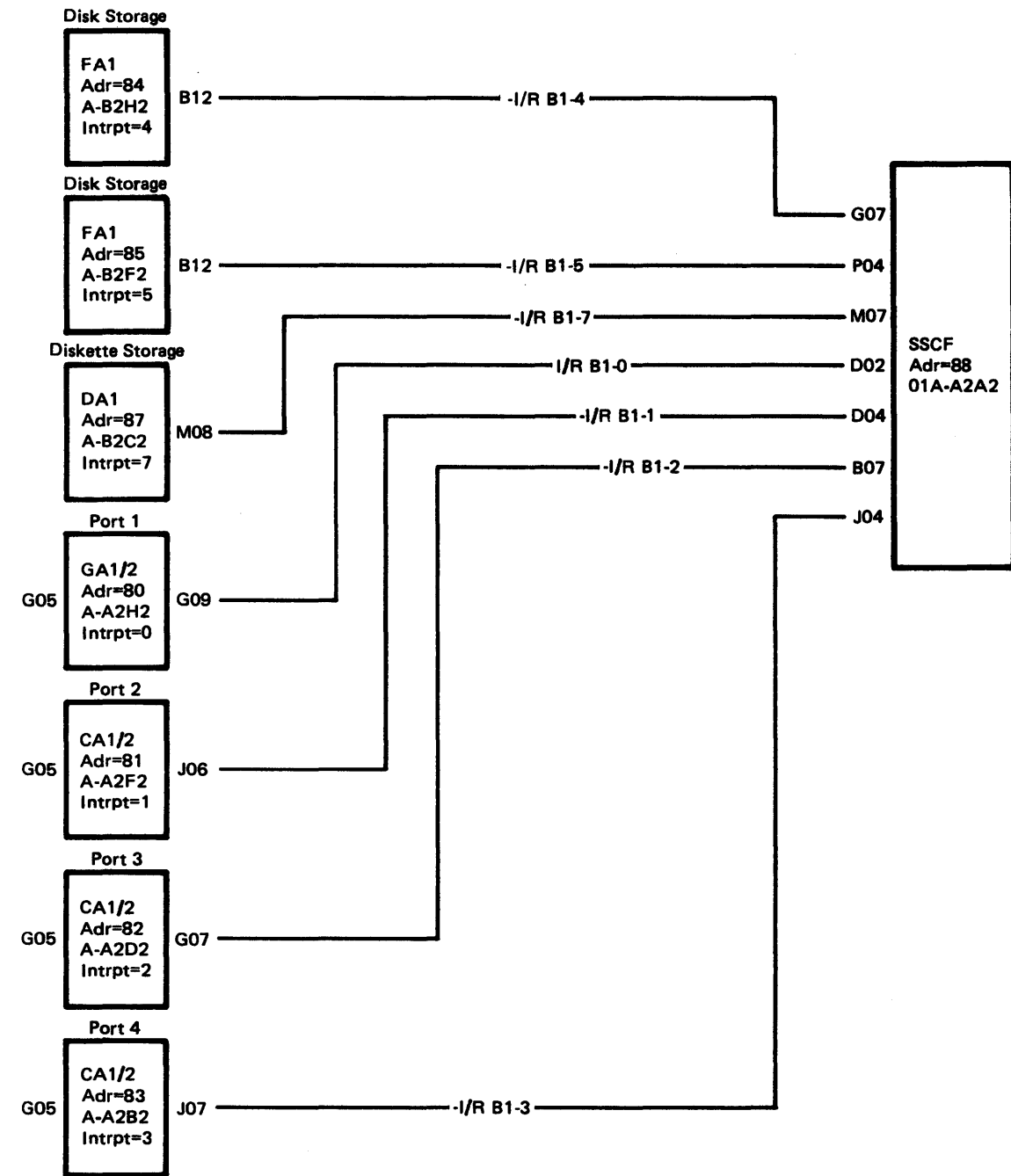


Figure ST440-30. Adapter to 8140 Model BXX SSCF Address 88 Interrupt Request Wiring

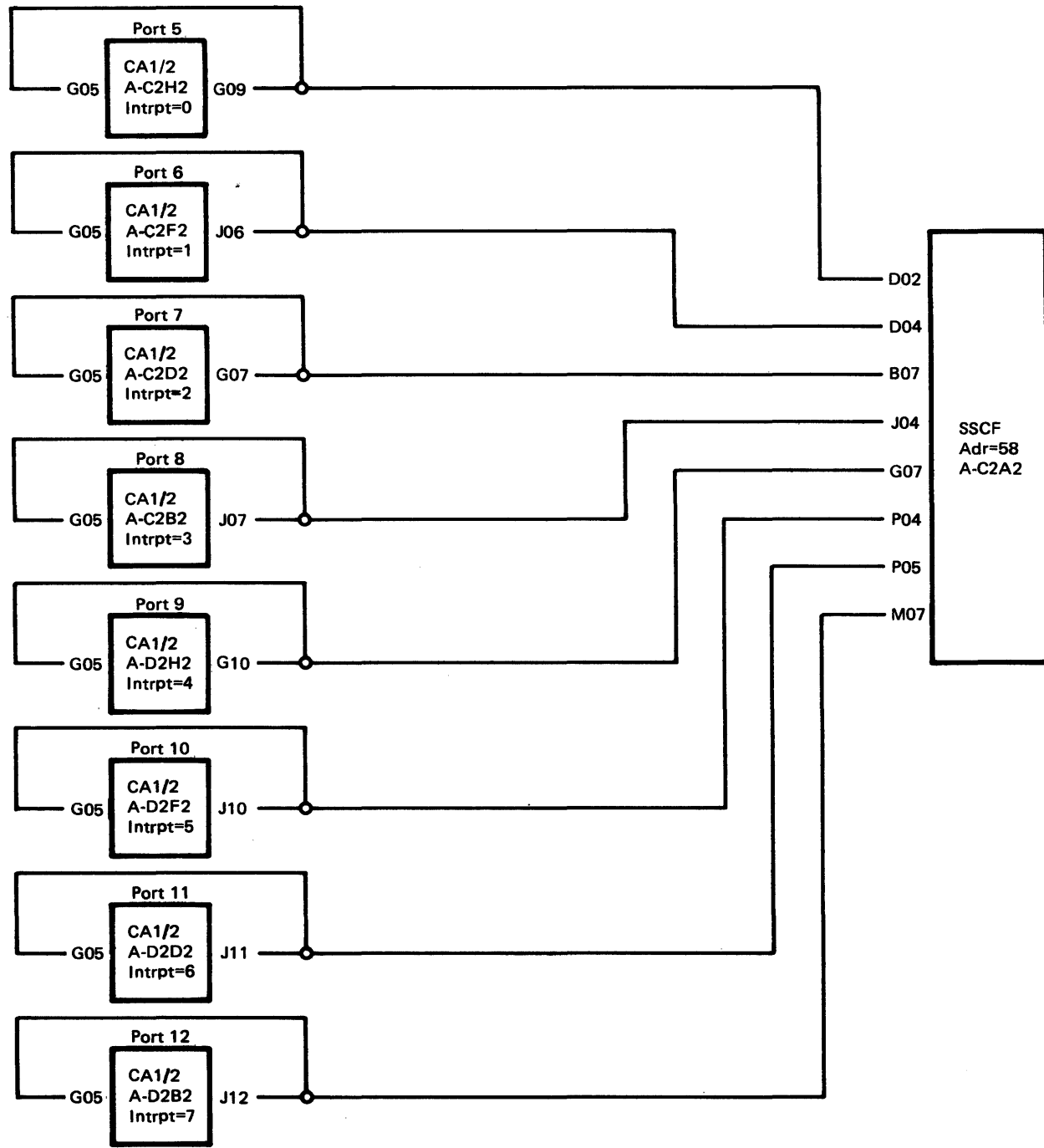


Figure ST440-31. Communications Adapters to 8140 Model BXX SSCF Address 58 Interrupt Request Wiring

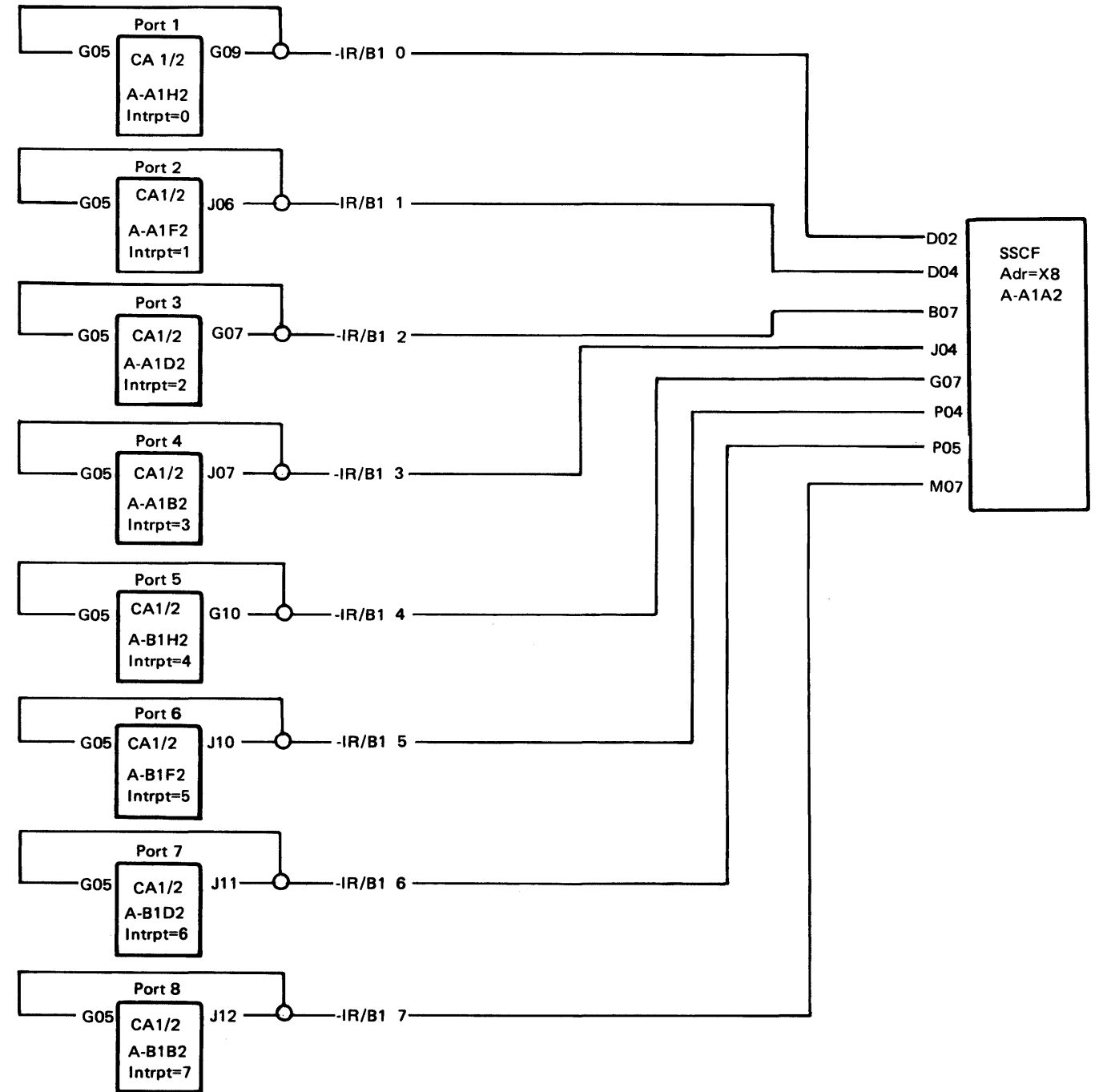


Figure ST440-33. Communications Adapter to 8101 SSCF Address Groups 1X, 2X, 3X, 4X Interrupt Request Wiring

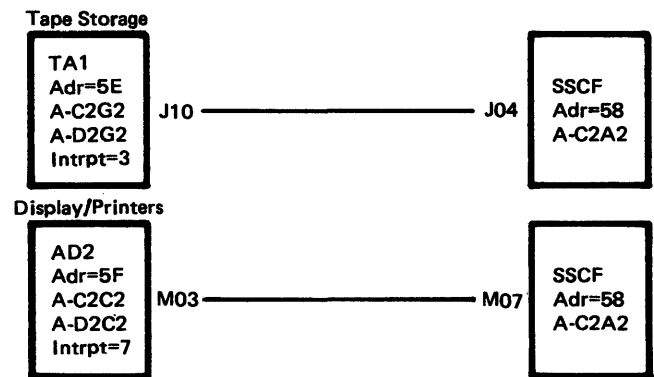
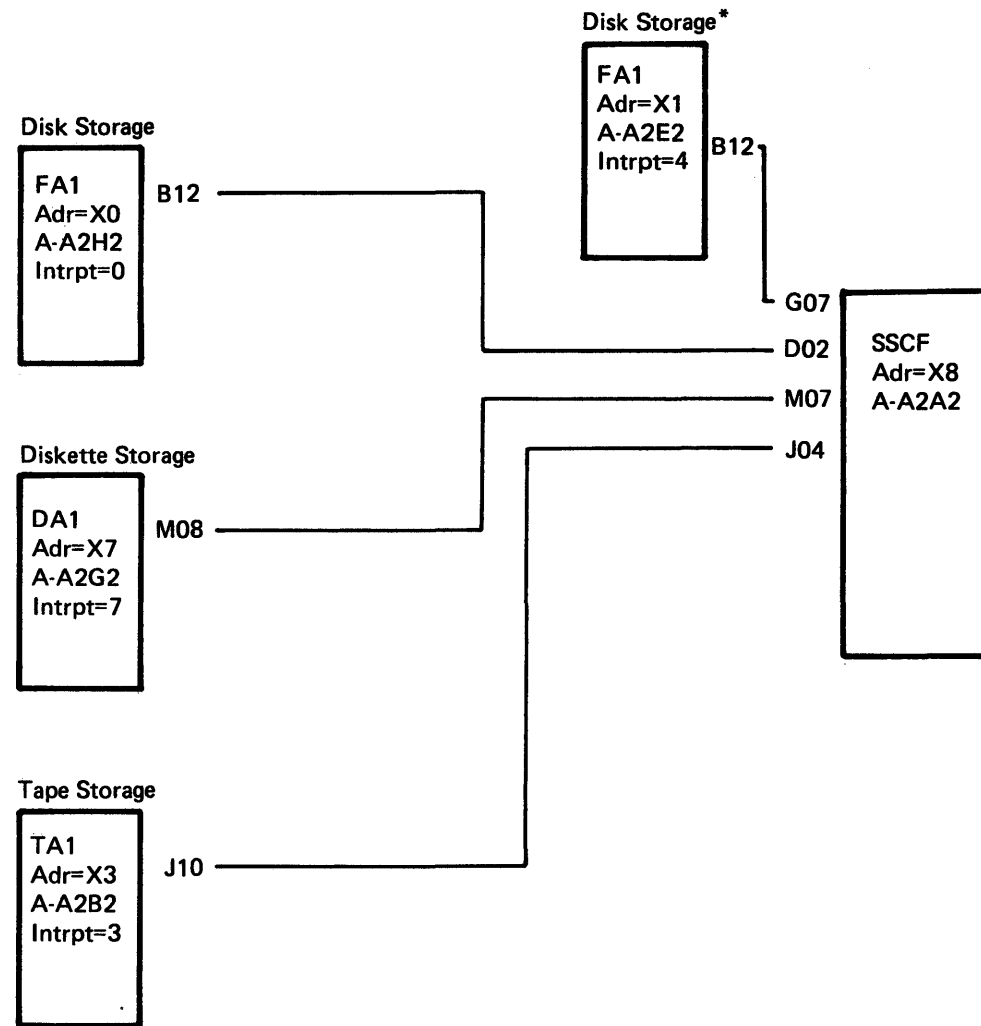


Figure ST440-32. Adapter to 8140 Model BXX SSCF Address 58 Interrupt Request Wiring

## Procedure 05. DPCX Processor Storage Standalone Dump



\*Second disk storage is for 8101 (Model A25).

Figure ST440-34. Disk, Diskette, and Tape Adapters to 8101 SSCF Address Groups X0, X3, and X7 Interrupt Request Wiring

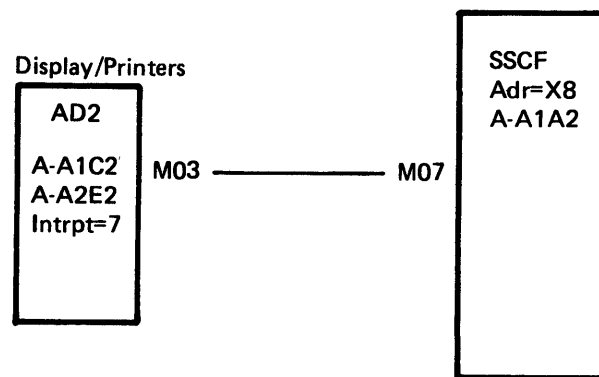


Figure ST440-35. Display and Printer Adapters to 8101 SSCF Address Groups 1X, 2X, 3X, 4X Interrupt Request Wiring

**Note:** This procedure, used to detect and isolate intermittent processor storage problems that cause a DPCX operating system abend or hang, is effective only if initiated immediately after the error.

While dumping processor storage, the operation halts on the storage location that contains bad parity and generates a D4EF message at the BOP, which indicates the storage block containing the error. Refer to Figure ST440-37.

If the failure occurs and the Service Representative is not present, the customer can initiate the standalone dump by using the procedures described in the *DPCX Diagnosis Guide*, SY38-3004. The customer should then record all halt messages and any additional fields presented, and make this information available to the Service Representative upon arrival.

Proceed as follows:

1. Obtain the DPCX standalone storage dump diskettes from the customer.
 

To use this procedure, you need a diskette containing the dump program and up to five blank diskettes:

  - Each DPCX installation package contains a diskette having the dump program. If not available, the DPCX Operating System can create one by using the SYSDKGEN Utility (2635), but only before the error occurs. Refer to the *DPCX Operations*, SC27-0492, for procedures.
  - The procedure also requires three blank Type-1 diskettes (PN 2305845) for the first 512K of processor storage and one for each additional 256K.
2. When the DPCX abend or hang occurs:
  - a. Insert the diskette containing the dump program into the 8130/8140 diskette drive.
  - b. Set the IPL switch to Manual and the keylock switch (if installed) to Enable and press the Reset/IPL pushbutton.
  - c. At BOP message 0200, enter 0187 and press Enter Function. Diskette IPL then begins.
  - d. At message D4BF, enter PA00 and press Enter Function, where PA is the address of the system-resident disk storage (normally 80 for Models AXX and 84 for 8140 Models BXX).

The dump then continues and BOP messages indicate dump progress.
3. At message D4A0 (first diskette full) insert a blank diskette (PN 2305845) and press Enter Function.
4. At message D4CC, enter 0100 and press Enter Function to dump all processor storage locations.
5. At message D4A0 (diskette full) insert another blank diskette and press Enter Function.
6. Messages D4CC or D4CD indicate that the dump completed without detecting a storage parity error. Save the dump diskettes for further problem determination and return to the Action Plan that sent you here. To transmit the diskettes to the host system, go to ST440 Procedure 09.
7. For D4EF messages, refer to Figure ST440-37.
8. For all other messages, go to Figure ST440-36 for description and action.

Message No.	Description	Action
D401 to D497	Progress messages that identify the component being dumped to diskette.	None. Other messages follow.
D4A0	Dump diskette full.	Mount Type-1 diskette (PN 2305845) and press Enter Function to continue.
D4A1 D4A2	Incorrect diskette mounted.	Mount correct diskette (PN 2305845) and press Enter Function to continue.
D4A7 D4A9 D4AA	Diskette storage not ready. Diskette storage read error.	1. Retry dump by mounting another diskette and pressing Enter Function.
D4AB D4AC D4AD	Diskette storage write error.	2. Go to ST430 Action Plan 27.
D4B1	An invalid disk storage address entered.	Enter the correct address (8000 for Models AXX or 8400 for 8140 Models BXX) and press Enter Function.
D4B4	The requested component could not be found on the system-resident disk storage. Requested component cannot be dumped.	To continue dump, press Enter Function; otherwise request aid.
D4B8	Data read from disk storage data set 15 was read successfully but data was not DSCB's. Hardware failure was not indicated.	Press Enter Function three times and record information displayed each time.  To retry the operation again, press Enter Function.  If problem persists, request aid.
D4B9	A disk storage read error occurred.	Press Enter Function three times and record information displayed each time.
D4BD	A disk storage write error occurred.	To retry the operation again, press Enter Function.  If problem persists, go to ST430 Action Plan 12.

Message No.	Description	Action
D4BF	Request for system-resident disk storage address.	Enter 8000 for Models AXX or 8400 for 8140 Models BXX, and press Enter Function.  If system-resident disk is not in 8130/8140, enter the address accordingly. If the system-resident disk is not available, enter DEAD and press Enter Function. The dump then does not use the system-resident disk and some data is lost.
D4C0 to D4C7	Progress messages that indicate the diskette bootstrap and the dump program initial setup progress. A hang indicates a possible defective or incorrectly generated dump diskette.	1. Retry IPL with another dump diskette.  2. Go to ST430 Action Plan 33.
D4CC	Dump program has completed its IPL setup and is waiting for a dump option selection.	Enter 0100 and press Enter Function. Dump of the translation table, register storage and all configured processor storage begins.  <i>Note: For a description of all options available, see DPCX Message Manual, SC27-0523.</i>
D4CD	The dump request completed with no storage errors detected.	Return to the Action Plan that sent you here.
D4D0	No valid entries were found in the translation table. Storage is not dumped. This is an invalid condition for DPCX.	Press Enter Function to continue with remainder of dump, then report this condition and request aid.
D4D1	An invalid entry was found in the translation table for the requested storage volume.	Press Enter Function and record the invalid entry displayed for possible further problem determination. Press Enter Function again to continue dump.
D4D2	No active poll areas were found on the system-resident disk storage.	Press Enter Function to continue dump.
D4DE	An invalid dump request option was entered at message D4CC.	Enter 0100 and press Enter Function.

Message No.	Description	Action
D4E0	The dump program prematurely terminated due to the previously displayed SMN. Probable dump program failure.	Request aid and report this condition.
D4E1	An invalid entry was found in the translation table.	Press Enter Function and record the invalid entry displayed for possible further problem determination. Press Enter Function again to continue dump.
D4E2	The module placement table could not be found on the system-resident disk storage.	Press Enter Function to continue dump.
D4E3	The dump program work area could not be found on the system-resident disk storage.	Press Enter Function to continue dump.
D4E4	The dump program could not find the format control table on the system-resident disk storage. The dump cannot be formatted.	Press Enter Function to continue dump.
D4E5	The dump program could not find the task logical storage addressing area.	Press Enter Function to continue dump.
D4EA	A dump program code problem was detected. No hardware failure indicated.	Press Enter Function and record the display. Request aid to repeat this condition.
D4ED	An invalid IPL parameter was entered at message 0200.	Enter 0187 as the IPL parameter.

Figure ST440-36 (Part 1 of 2) DPCX Processor Storage Standalone Dump Messages

Message No.	Description	Action														
D4EE	The Dump Program detected a program exception.	<p>Possible 8130/8140 parity error in the first 64K of processor storage, register storage or the translation table.</p> <p>1. Determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</p> <table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table> <p>2. If card replacement does not correct the problem, request aid.</p>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
8130/8140 Model	Cards															
A2X	A1A2, A1H2, A1L2, A1J2, A1Q2															
A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2															
A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2															
A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2															
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															

Message No.	Description	Action														
D4EF	A hardware system check (not a program exception) occurred. Possible storage parity error detected.	<p>1. Press the Enter Function push-button to display the hex value XXYY.</p> <p>2. Change the XX hex value (error interrupt request vector) to binary, which decodes into bits as follows:</p> <p><b>BIT</b>                      0=I/O parity check                      1=I/O timeout                      2=Storage parity error                      3=Program exception                      4=Channel check                      5=Pico ROS parity check                      6=Instruction address modifier                      7=Not used</p> <p>3. If bits 0, 1, or 4 are on, the YY value = the PA of the failing I/O device.</p> <p>4. If Bit 2 is set, press Enter Function to display the failing storage address block. Determine the storage card location from Figure ST440-37 and replace the failing card.</p> <p>5. If Bit 2 is not set, determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</p> <table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table> <p>6. If card replacement does not correct the problem, request aid.</p>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
8130/8140 Model	Cards															
A2X	A1A2, A1H2, A1L2, A1J2, A1Q2															
A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2															
A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2															
A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2															
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															

Message No.	Description	Action														
D4F2	Bootstrap progress message.	None. Other messages follow.														
D4F7 D4FA D4FB D4FC D4FD	Diskette storage not ready. Diskette storage seek error. Diskette storage write error. Diskette storage seek error. Diskette storage read error.	Go to ST430 Action Plan 27.														
D4FE	A program exception occurred in the bootstrap loader.	Possible parity error in the first 64K of processor storage, register storage, or the translation table.														
D4FF	A hardware system check (not a program exception) occurred.	<p>1. Determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</p> <table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table> <p>2. If card replacement does not correct the problem, request aid.</p>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
8130/8140 Model	Cards															
A2X	A1A2, A1H2, A1L2, A1J2, A1Q2															
A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2															
A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2															
A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2															
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															

Figure ST440-36 (Part 2 of 2), DPCX Processor Storage Standalone Dump Messages



Address Block in Hex	8130/8140 Board/Card Location					
	Mod A2X	Mod A3X	Mod A4X	Mod A5X	Mod A6X/A7X	Mod BXX
0000 – 007F	A1A2	A1P2	A1R2	A1N2	A2V2, A2U2	C1F2, C1K2
0080 – 00FF	A1A2	A1Q2	A1S2	A1P2	A2V2, A2U2	C1F2, C1K2
0100 – 017F	A1A2	A1R2	A1T2	A1Q2	A2V2, A2U2	C1F2, C1K2
0180 – 01FF	A1A2	A1S2	A1U2	A1R2	A2V2, A2U2	C1F2, C1K2
0200 – 027F	A1A2	A1T2	A1V2	A1S2	A2V2, A2U2	C1F2, C1K2
0280 – 02FF	A1A2	A1U2	A2V2	A1T2	A2V2, A2U2	C1F2, C1K2
0300 – 037F	A1A2	A1V2	A2U2	A1U2	A2V2, A2U2	C1F2, C1K2
0380 – 03FF	A1A2	A2V2	A2T2	A1V2	A2V2, A2U2	C1F2, C1K2
0400 – 047F	*	A2U2	A2S2	A2V2	A2S2, A2T2	C1E2, C1J2
0480 – 04FF	*	A2T2	A2R2	A2U2	A2S2, A2T2	C1E2, C1J2
0500 – 057F	*	A2S2		A2T2	A2S2, A2T2	C1E2, C1J2
0580 – 05FF	*	A2R2		A2S2	A2S2, A2T2	C1E2, C1J2
0600 – 067F	*			A2R2	A2S2, A2T2	C1E2, C1J2
0680 – 06FF	*			A2Q2	A2S2, A2T2	C1E2, C1J2
0700 – 077F	*			A2P2	A2S2, A2T2	C1E2, C1J2
0780 – 07FF	*			A2N2	A2S2, A2T2	C1E2, C1J2
0800 – 0BFF	A1C2				A2Q2, A2R2	C1H2, C1D2
0C00 – 0FFF	A1D2				A2N2, A2P2	C1C2, C1G2

\*Location A1C2 for 512K or less; A1B2 for more than 512K.

Figure ST440-37. 8130/8140 Storage Card Locations for D4EF DPCX Messages

**Procedure 06. Communications Problem with DPCX Installed and Operating**

Ensure that the customer has performed the problem determination procedures associated with the system message number as defined in the *DPCX Operations Guide*.

1. Determine the system status.

- a. If online, go to step 2.
- b. If offline, using MD diskette 02, select the CA MAP and perform offline basic checkout option A.

2. Determine the status of the failing communications port.

- a. If not operating (port closed, all terminals timed out), go to step 5.
- b. If operating (port open, some terminals timed out) with an intermittent problem, go to step 3.
- c. If operating (port open, some terminals timed out), your options are:

- Perform link level tests using the following routines for devices attached to the failing communications feature only for those features listed:

Feature	Required Routines
Data Link (all)	90, 91, 93, 94* (if primary)
Directly attached loop (single lobe)	90, 91, 93, 94*

\*Note: Devices must be ready before invoking the tests.

**Caution: Communications feature other than those specified do not have DPCX online test support and must be checked offline.**

Use the SYSTCM Utility (999) to invoke online testing. (See Chapter 2, CP820 for how to invoke SYSTCM, Chapter 5, CA201, for the communications test summary and invocation notes, and Chapter 5, CA202, for the unique communications test invocation procedures.) Step 4 explains the possible actions resulting from online communications testing.

- Examine the Condition/Incident Log (CIL) for the failing communications feature. (See Chapter 2, CP832, How to Invoke SYSLEERR.) Obtain the Error Matrix Table and all Type-2, Type-3, and Type-4 error records.
  - If there are no records found for the communications features, either no detectable communications failures occurred (possibly a DPCX program design error), or the CIL was cleared before inspection. Ask the customer to obtain the CIL when the next failure occurs.
  - If CIL records are obtained for the communications features, examine them for a possible failure indication (see Chapter 5, CA332) and then refer to CA342 to determine the action according to the records obtained.
- If the failure occurred on a secondary data link invoke the SYSHOST Utility (959) and select option 5. Refer to the *DPCX Operations Guide* to obtain link status. If link status specifies:
  - MODEM CONNECTED = YES, "Data Set Ready" was active at the proper time.
  - 3704/3705 CONNECTED = YES, the 8100 received the SNRM command from the 3704/3705.
  - HOST CONNECTED = YES, the host received the unnumbered acknowledgment (UA) from the 8100 in response to the SNRM command, and the 8100 accepted the "Activate Physical Unit" message.

- (1) If link connection was satisfactory, have Network Control restart the task, if not already done.
- (2) If link connection was not satisfactory, go to step 3.

3. You have the following options according to the availability of the system, terminal, or maintenance tools:

- Perform online testing using the following routines for devices attached to the failing communications feature only for those features listed.

Feature	Required Routines
Data Link (EIA or V.35)	1-16
Data Link (all)	53* (if primary) 71** (if secondary) 75* (if primary) 90, 91, 93, 94* (if primary)
Directly attached loop (single lobe)	1-15 51* 75* 76 88 90-94*

\*Note: Devices must be ready before invoking the tests.

\*\*Note: Use DPCX SDLC Link Test Procedure. (See Chapter 5, CA233.)

**Caution: Communications features other than those specified do not have DPCX online test support and must be checked offline.**

Use the SYSTCM Utility (999) to invoke online testing. (See Chapter 2, CP820, for how to invoke SYSTCM, Chapter 5, CA201, for the communications test summary and invocation notes, and Chapter 5, CA202, for the unique communications test invocation procedures.)

Step 4 explains the possible actions resulting from online communications testing.

- Examine the Condition/Incident Log (CIL) for the failing communications feature. (See Chapter 2, CP832, How to Invoke SYSLEERR.) Obtain the error Matrix Table and all Type-2, Type-3, and Type-4 error records.
  - If there are no records found for the communications features, either no detectable communications failures occurred (possibly a DPCX program design error), or the CIL was cleared before inspection. Ask the customer to obtain the CIL when the next failure occurs.
  - If CIL records are obtained for the communications features, examine them for a possible failure indication (see Chapter 5, CA332) and then refer to CA342 to determine the action according to the records obtained.
- If the failing communications feature uses an EIA external modem, you can use the Modem Interface Test Set (See Chapter 5, CA651) during either normal customer operations or a link test (see Chapter 5, CA590 Line Monitor Procedures) to monitor the data, clock, and control lines.

4. Perform the following action as indicated by the test message:

Test Message	Action
PA80 PA1E 01XX through PA1E 16XX	Obtain the system. Using MD diskette 02, select the CA MAP and perform offline basic checkout option A.
PAXE RRXX	Examine the test results using Chapter 5, CA212, for test description and CA240 for test messages. Go to CA165 and perform the required action as indicated.
PA00	Test ran successfully. Run the next test, or if all were completed, examine the CIL as instructed in the options under step 2 or 3, and perform the appropriate action.

Where:

PA = physical address  
 X or XX = any value  
 RR = routine number = 51, 53, 71, 75, 76, 88, 90, 91, 92, 93, 94

5. Obtain the system. Using MD diskette 02, select the CA MAP and perform offline basic checkout option A. The message = the PA of the failing communications adapter for any message generated.

*Procedure 07. 8809 Tape Problem with DPPX Installed and Operating*

1. Identify the tape physical address and the tape drive address. If an HDIXXXXXX tape failure system message occurred, the message text contains the addresses; otherwise the customer should identify the failing tape drive.
  - Valid tape adapter addresses (PAs) are:
    - 8809-1B = 73 (adapter in 8809)
    - 8809-1A = 93, A3, B3, and C3 (adapter in 8101; first digit on 8101 address label)
    - 8809-1A = 5E (8140 Model BXX)
  - Valid tape drive addresses (DAs) are:
    - 00, 01, 02, 03
2. Do any obvious symptoms exist, such as:
  - Drive cannot be powered on.
  - Tape cannot load.
  - Tape does not rewind or unload properly.
  - Tape drive cannot be made ready.
  - Drive indicated an invalid end-of-tape condition.
  - Tape motion did not stop at the end of tape.
  - Drive cannot run using all tape reel sizes.
  - Tape reels move when they should not.
  - Tape is broken or otherwise damaged.
  - Tape appears to run at the wrong speed.
  - Rewind operation only occurs using low speed.
  - Drive causes excessive data checks.
  - a. YES – Terminate this procedure and go to the 8809 Maintenance Manual START MAP.
  - b. NO – Using MD diskette 03, select the TA MAP and perform offline basic checkout option A.

**Procedure 08. DPPX Standalone Processor Storage Dump**

**Note:** This procedure, used to detect and isolate intermittent processor storage problems that cause a DPPX operating system abend or hang, is only effective if initiated immediately after the error.

While dumping processor storage, the operation halts on the storage location that contains bad parity and generates a D00A message at the BOP which indicates the storage block containing the error. Refer to Figure ST440-39.

If the failure occurs and the Service Representative is not present, the customer can initiate the standalone dump by using the procedures described in *DPPX/Base Operations*, SC27-0406. The customer should then record all messages, as well as any available additional fields, and make this information available to the Service Representative upon arrival.

Proceed as follows:

1. Obtain the DPPX standalone storage dump diskette(s) from the Customer.

The standalone storage dump diskettes have a dump program that resides on them, and are generated by the DPPX Operating System. If not available, they can be generated before the error occurs by using the procedures described in *DPPX/Base Operations*, SC27-0406.

This procedure requires one diskette for each 640K of storage to be dumped.

2. When the DPPX abend or hang occurs:

- a. Insert a standalone storage dump diskette into the 8130/8140 diskette drive.
- b. Set the IPL Switch to Manual, and the keylock switch (if installed) to Enable, and press the Reset/IPL pushbutton.
- c. At BOP message 0200, enter 0187 and press Enter Function. IPL then begins.
- d. At message D06A, enter any four unique dump identifier digits and press Enter Data.

Message D000 indicates that the storage dump is in progress.

3. At message D05A (dump diskette full), insert a new dump diskette to continue, and again IPL starting at step 2b.
4. Message D0CC indicates that the dump completed without detecting a storage parity error. Save the dump diskette(s) for further problem determination and return to the action plan that sent you here.
5. For D00A messages, refer to Figure ST440-39.
6. For all other messages, go to Figure ST440-38 for description and action.

Message No.	Description	Action
4900	DPPX diskette bootstrap initial hang condition. Possible defective or incorrectly generated dump diskette.	1. Retry IPL with another dump diskette. 2. Go to ST430 Action Plan 33.
4902	The diskette bootstrap code detected a diskette storage seek error while preparing for a write operation.	
4903	The diskette bootstrap detected an uncorrectable write error.	
4904	The diskette bootstrap detected a seek error while preparing for a read operation.	
4905	The diskette bootstrap detected an uncorrectable read error.	
4910	The diskette bootstrap detected a diskette drive not ready condition.	1. Check that the diskette drive door is closed. 2. Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A, including the manual intervention tests on the diskette storage.
49CC	Hang on transfer from bootstrap to dump program. Possible defective or incorrectly generated dump diskette.	1. Retry IPL with another dump diskette. 2. Go to ST430 Action Plan 33.

Figure ST440-38. (Part 1 of 4) DPPX Processor Storage Standalone Dump Messages

Message No.	Description	Action														
49EE	The Diskette Loader Code detected a system check.	Possible 8130/8140 parity error in the first 64K of processor storage, register storage, or the translation table.  1. Determine the possible failing cards from the following table and replace the storage and processor I/E unit cards in the order listed.														
49FF	The diskette loader code detected a program exception.															
		<table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
8130/8140 Model	Cards															
A2X	A1A2, A1H2, A1L2, A1J2, A1Q2															
A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2															
A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2															
A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2															
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															
		2. If card replacement does not correct the problem, request aid.														
D000	Storage dump is in progress.	None. Other messages follow.														
D002	The dump data set could not be located. Possible defective or incorrectly generated diskette.	1. Retry IPL with another dump diskette. 2. Go to ST430 Action Plan 33.														

Message No.	Description	Action
D003	A premature data set full indication occurred. Possible defective or incorrectly generated diskette.	1. Retry IPL with another dump diskette. 2. Go to ST430 Action Plan 33.
D004	A permanent diskette storage write error occurred.	
D00A	A storage parity error occurred while dumping.	1. Press the Enter Data pushbutton to display the failing storage address block. Determine the storage card location from Figure ST440-39 and replace the failing card.  2. If an operating system hang or abend again occurs, request aid.

Message No.	Description	Action														
D01A	A system check other than an isolated storage check occurred.	<p>1. Press the Enter Data pushbutton to display the error interrupt request vector (EIRV) byte.</p> <p>2. Change this hex value to binary, which decodes into bits as follows:</p> <p><b>BIT</b>  0=I/O parity check  1=I/O timeout  2=Storage parity error  3=Program exception  4=Channel check  5=Pico ROS parity check  6=Instruction address modifier  7=Not used</p> <p>3. If bits 0, 1, or 4 are set, go to ST430 Action Plan 33.</p> <p>4. If bits 2, 3, or 5 are set, determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</p> <table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table> <p>5. If card replacement does not correct the problem, request aid.</p>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
8130/8140 Model	Cards															
A2X	A1A2, A1H2, A1L2, A1J2, A1Q2															
A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2															
A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2															
A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2															
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															

Figure ST440-38. (Part 2 of 4) DPPX Processor Storage Standalone Dump Messages

Message No.	Description	Action
D05A	Dump partially complete. Present diskette is full. Another dump diskette is required to continue.	<ol style="list-style-type: none"> <li>Remove the present diskette and insert another dump diskette into the diskette drive.</li> <li>IPL again as follows:                             <ol style="list-style-type: none"> <li>Press Reset/IPL.</li> <li>At message 0200, enter 0187 and press Enter Function.</li> <li>Dump now continues using the new diskette.</li> </ol> </li> </ol>
D06A	Prompt for a unique dump ID during IPL of first dump diskette.	At the BOP, enter any four unique digits and press Enter Data.
D040	An I/O operation was requested on an invalid device type.	DPPX dump program operational error; not an 8100 hardware failure. Refer to <i>DPPX/Base Messages and Codes Manual, SC27-0407</i> for the message description and customer problem determination procedures.
D041	A function request block busy condition occurred while operating diskette storage. Failure normally indicates a programming code error. Occasionally, a hardware failure could cause a program error indication.	<ol style="list-style-type: none"> <li>Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A including the manual intervention routines.</li> <li>Report problem to Network Control for problem determination.</li> </ol>
D042 D043	A diskette storage not open condition occurred. Failure normally indicates a programming code error. Occasionally, a hardware failure could cause a program error indication.	

Message No.	Description	Action														
D044	A program exception occurred during a diskette operation.	Possible 8130/8140 parity error in the first 64K of processor storage, register storage, or the translation table.														
		<ol style="list-style-type: none"> <li>Determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</li> </ol>														
		<table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
		8130/8140 Model	Cards													
		A2X	A1A2, A1H2, A1L2, A1J2, A1Q2													
		A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2													
		A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2													
		A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2													
A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2															
BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2															
<ol style="list-style-type: none"> <li>If card replacement does not correct the problem, request aid.</li> </ol>																
D045	Diskette storage record not found. Possible diskette storage hardware, diskette media, or DPPX programming code error.	<ol style="list-style-type: none"> <li>Retry IPL with another dump diskette.</li> <li>Go to ST430 Action Plan 33.</li> </ol>														
D046 D047 D048 D049	A diskette storage data check occurred.															

Message No.	Description	Action														
D050	An incorrect I/O request was issued.	DPPX dump program operational error; not an 8100 hardware failure. Refer to <i>DPPX/Base Messages and Codes Manual, SC27-0407</i> for the message description and customer problem determination procedures.														
D051	Diskette drive programming component address not ready. Possible DPPX code error or diskette drive ready problem.	<ol style="list-style-type: none"> <li>Using MD diskette 03, select the DA MAP and perform off-line basic checkout option A including the manual intervention routines.</li> <li>Report problem to Network Control for problem determination.</li> </ol>														
D052	A system check occurred while using diskette storage.	Possible 8130/8140 parity error in the first 64K of processor storage, register storage, or the translation table.														
		<ol style="list-style-type: none"> <li>Determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.</li> </ol>														
		<table border="1"> <thead> <tr> <th>8130/8140 Model</th> <th>Cards</th> </tr> </thead> <tbody> <tr> <td>A2X</td> <td>A1A2, A1H2, A1L2, A1J2, A1Q2</td> </tr> <tr> <td>A3X</td> <td>A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A4X</td> <td>A1R2, A1S2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A5X</td> <td>A1N2, A1P2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>A6X, A7X</td> <td>A2U2, A2V2, A1G2, A1J2, A1L2, A1C2</td> </tr> <tr> <td>BXX</td> <td>C1F2, C1K2, A1K2, A1M2, A1P2, A1F2</td> </tr> </tbody> </table>	8130/8140 Model	Cards	A2X	A1A2, A1H2, A1L2, A1J2, A1Q2	A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2	A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2	A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2	A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2	BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
		8130/8140 Model	Cards													
		A2X	A1A2, A1H2, A1L2, A1J2, A1Q2													
		A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2													
		A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2													
		A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2													
		A6X, A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2													
		BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2													
<ol style="list-style-type: none"> <li>If card replacement does not correct the problem, request aid.</li> </ol>																

Figure ST440-38. (Part 3 of 4) DPPX Processor Storage Standalone Dump Messages

Message No.	Description	Action
D053	A diskette storage overrun/under-run condition occurred.	Go to ST430 Action Plan 33.
D054	A diskette storage adapter time-out occurred.	
D055	A diskette storage seek check occurred.	
D056 D057	A diskette storage equipment check occurred.	
D058	A diskette storage I/O machine check occurred.	
D059 D070 D080 D090	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
D099	An unknown adapter Return Code occurred from the FDM during a standalone I/O operation.	Go to ST430 Action Plan 37.
D0AA	Wrong diskette inserted.	Insert a correct dump diskette and again IPL.
D0B3	Time ID invalid.	DPPX operational error; not an 8100 hardware failure. Refer to <i>DPPX/Base Messages and Codes Manual, SC27-0407</i> for the message description and customer problem determination procedures.

Message No.	Description	Action
D0B4	An unexpected interrupt occurred.	If not already done, go to ST430 Action Plan 32.  If Action Plan 32 has been performed, report the problem to Network Control for further problem determination.
D0B5	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.
D0B6	A system check occurred while performing an I/O operation to the PSCF.	If not already done, go to ST430 Action Plan 32.  If Action Plan 32 has been performed, report the problem to Network Control for further problem determination.
D0B8	DPPX program error. Failures normally indicate a programming design problem.	Report problem to Network Control for further problem determination.
D0B9	DPPX operational error; not an 8130, 8140, or 8101 hardware failure indication.	Refer to <i>DPPX/Base Messages and Codes, SC27-0407</i> , for the Return Code description and customer problem determination procedures.  Verify that the customer performed the problem determination procedures.  If procedures were not performed, do them where possible; otherwise, report the problem to Network Control for further action.

Message No.	Description	Action	
D0CC	Storage dump completed successfully without detecting a storage parity error.	Save the dump diskette(s) for possible further problem determination and return to the action plan that sent you here.	
D0EE	An undefined system check occurred.	Possible 8130/8140 parity error in the first 64K of processor storage, register storage, or the translation table.  1. Determine the possible failing cards from the following table and replace these storage and processor I/E unit cards in the order listed.	
		<b>8130/8140 Model</b>	<b>Cards</b>
		A2X	A1A2, A1H2, A1L2, A1J2, A1Q2
		A3X	A1P2, A1Q2, A1G2, A1J2, A1L2, A1C2
		A4X	A1R2, A1S2, A1G2, A1J2, A1L2, A1C2
		A5X	A1N2, A1P2, A1G2, A1J2, A1L2, A1C2
		A6X A7X	A2U2, A2V2, A1G2, A1J2, A1L2, A1C2
		BXX	C1F2, C1K2, A1K2, A1M2, A1P2, A1F2
D0FF	An undefined program exception occurred.	2. If card replacement does not correct the problem, request aid.	

Figure ST440-38. (Part 4 of 4) DPPX Processor Storage Standalone Dump Messages

Address Block in Hex	8130/8140 Board/Card Location					
	Mod A2X	Mod A3X	Mod A4X	Mod A5X	Mod A6X/A7X	Mod BXX
0000 – 007F	A1A2	A1P2	A1R2	A1N2	A2V2, A2U2	C1F2, C1K2
0080 – 00FF	A1A2	A102	A1S2	A1P2	A2V2, A2U2	C1F2, C1K2
0100 – 017F	A1A2	A1R2	A1T2	A1Q2	A2V2, A2U2	C1F2, C1K2
0180 – 01FF	A1A2	A1S2	A1U2	A1R2	A2V2, A2U2	C1F2, C1K2
0200 – 027F	A1A2	A1T2	A1V2	A1S2	A2V2, A2U2	C1F2, C1K2
0280 – 02FF	A1A2	A1U2	A2V2	A1T2	A2V2, A2U2	C1F2, C1K2
0300 – 037F	A1A2	A1V2	A2U2	A1U2	A2V2, A2U2	C1F2, C1K2
0380 – 03FF	A1A2	A2V2	A2T2	A1V2	A2V2, A2U2	C1F2, C1K2
0400 – 047F	*	A2U2	A2S2	A2V2	A2S2, A2T2	C1E2, C1J2
0480 – 04FF	*	A2T2	A2R2	A2U2	A2S2, A2T2	C1E2, C1J2
0500 – 057F	*	A2S2		A2T2	A2S2, A2T2	C1E2, C1J2
0580 – 05FF	*	A2R2		A2S2	A2S2, A2T2	C1E2, C1J2
0600 – 067F	*			A2R2	A2S2, A2T2	C1E2, C1J2
0680 – 06FF	*			A2Q2	A2S2, A2T2	C1E2, C1J2
0700 – 077F	*			A2P2	A2S2, A2T2	C1E2, C1J2
0780 – 07FF	*			A2N2	A2S2, A2T2	C1E2, C1J2
0800 – 0BFF	A1C2				A2Q2, A2R2	C1H2, C1D2
0C00 – 0FFF	A1D2				A2N2, A2P2	C1C2, C1G2

\*Location A1C2 for 512K or less; A1B2 for more than 512K.

Figure ST440-39. 8130/8140 Storage Card Locations for D00A DPPX Messages



**Procedure 09. Transmitting DPCX Dump Diskettes to a Host System**

Use this procedure to transmit the DPCX dump diskettes, obtained from an SA dump of the 8100 to the customer's host system.

**Note:** The control operator must establish a link between the host system and the 8100, and the host location must request dump transmission.

1. Obtain the 8100 standalone dump diskettes used to record the 8100 system dump.

**Note:** A SYSPUTDD host request automatically invokes the program, which operates under Type 1 batch system service.

2. Perform the action indicated for the following messages, which appear at the BOP and prompt either the 8100 control operator or the service representative.

Message No.	Description	Action
D600	Prompt from SYSPUTDD to load the first or the next sequential dump data diskette.	Perform one of the following: <ul style="list-style-type: none"> <li>● Load the first or the next sequential dump data diskette, and press Enter Function.</li> <li>● Notify the host system that the last dump diskette was transmitted, by entering 1000 and pressing Enter Function.</li> <li>● End the dump data transmit operation by entering 2000 and pressing Enter Function.</li> </ul>
D601	Occurs after the D600 prompt if the: <ul style="list-style-type: none"> <li>● Diskette is not loaded before pressing Enter Function.</li> <li>● Diskette door is not closed.</li> </ul>	<ol style="list-style-type: none"> <li>1. Ensure that the diskette door is closed.</li> <li>2. Load the diskette into the drive and close the door before pressing Enter Function on the BOP.</li> </ol>
D602	Wrong diskette type was loaded during a dump data transmit (SYSPUTDD) operation.	Ensure that the first or next sequential dump data diskette has been loaded, and press Enter Function.
D603	The 8100/DPCX system is transmitting the dump data to the host system.	None.
D604	The 8100/DPCX dump data transmit operation completed successfully.	None.

Message No.	Description	Action
D606	An invalid operator response was made during a dump data transmit operation.	Retry the operation with the correct response.
D607	The last diskette loaded during the dump data transmit operation was out of sequence.	Ensure that the last dump data diskette has been loaded and press Enter Function.
D608	A Not Ready condition occurred from the diskette storage during the dump data transmit operation.	Go to ST430 Action Plan 27.
D609	A diskette read error occurred during the dump data transmit operation.	Go to ST430 Action Plan 27.
D60A	The host system terminated the batch session during a dump data transmit operation.	Report problem to Network Control for problem determination.

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**Chapter 2. Configuration and Maintenance Procedures  
(CP)**

## Introduction

This chapter contains eight major sections arranged as follows:

- CP100 through CP300 contain configuration-related information.
- CP400 through CP800 contain common procedures and information relating to the system and its maintenance.

Section 1 (CP100–CP180) illustrates and describes physical 8100 system configurations, the devices supported by IBM software, shows the models and features of devices in the 8100 Information System family, describes system hardware restrictions, and also describes the 8100 logic boards and cards used.

Section 2 (CP200–CP230) explains addressing, addressing levels, and methods of device attachment.

Section 3 (CP300–CP392) explains how to build, complete, or add entries to, the configuration table.

Section 4 (CP400–CP466) describes the Maintenance Device used on the 8100, including how to use it and what it can test. It also describes the utilities contained on the MD diskettes and how to use them.

Section 5 (CP500–CP523) discusses IPL and IPL modes, and those options available for testing when performing an IPL.

Section 6 (CP600–CP660) contains procedural information common to offline and online testing, and the Diskette Surface Analysis and Disk Surface Status and Format Utilities. It also describes how to run the 8809 DLS tests.

Section 7 (CP700–CP774) describes all test and maintenance information that relates to the DPPX operating system.

Section 8 (CP800–CP855) describes all test and maintenance information that relates to the DPCX operating system.

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**Abbreviations**

ACV	address control vector
BCLE	buffer control list element
BOP	basic operator panel
BSC	binary synchronous communications
CCITT	Consultative Committee of International Telephone & Telegraph Company
CDE	configuration data entry
CIL	condition/incident log
CRP	channel request priority
CSU	customer setup
CUDA	control unit device address
DLA	data link attachments
DLS	diagnostic link series
DPCX	Distributed Processing Control Executive
DPPX	Distributed Processing Programming Executive
EIA	Electronic Industries Association
EIRV	error interrupt request vector
ELDA	error log data analysis
EN	error number
FAC	Facilities for Attaching Communications
FRU	field-replaceable unit
hex	hexadecimal
ID	identification
I/O	input/output
IPL	initial program load
LA	logical address
LU	logical unit
MAP	Maintenance Analysis Procedure
MCL	machine configuration list
MD	maintenance device
MES	Miscellaneous Equipment Specification
MLC	machine level control
PA	physical address
PAV	program activation vector
PCA	primary communications adapter
PIRV	programmed interrupt request vector
PSCF	Primary System Control Facility
PSN	print sequence number
PU	physical unit
RH	response header
RR	routine number
RU	response unit
SCF	System Control Facility
SDLC	Synchronous Data Link Communications
SS	start-stop
SSCF	Secondary System Control Facility
TCM	test control monitor
TSD	tape statistical data
UT	unit type



# CP100 System Configuration Information

## CP110 System-Unique Configuration Charts

You can use the figures in CP111 through CP113 to maintain a hard-copy reference of each system's configuration. If completed and updated for all system changes, these charts can aid in readily determining the correct configuration and configuration table entries for each 8100.

### CP111 8130 Configuration

Complete Figures CP111-1 and CP111-2 to maintain a system-unique configuration reference for this 8130.

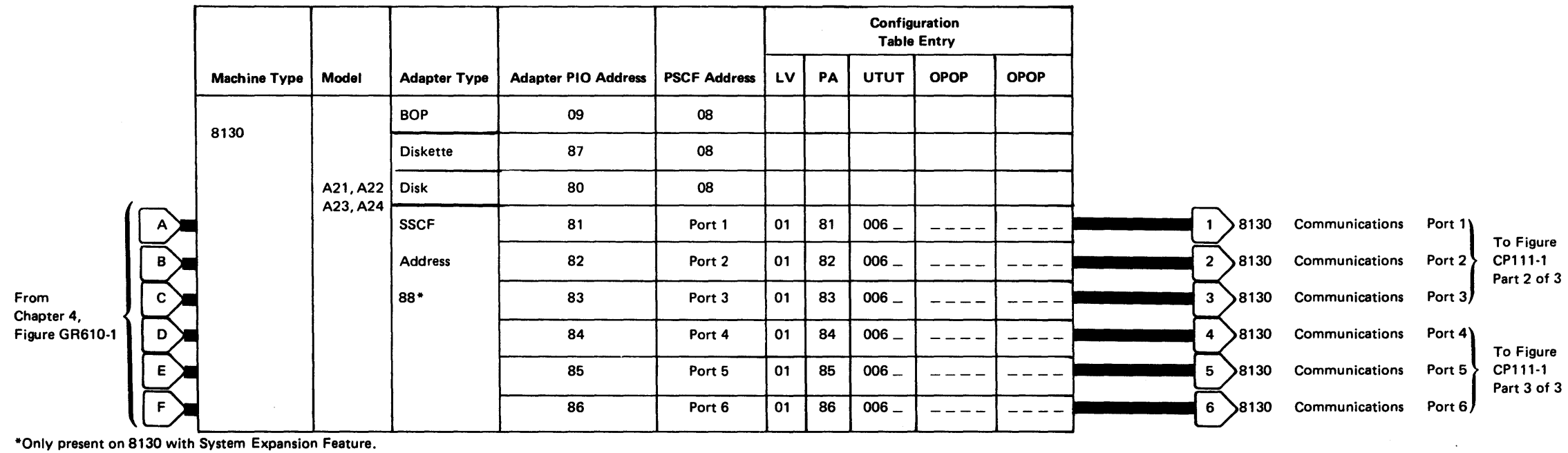


Figure CP111-1 (Part 1 of 3). 8130 Configuration Reference

From Figure CP111-1 Part 1 of 3

1

FAC No.		Specify Code		PA
<input type="text"/>		<input type="text"/>		<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="text"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="text"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed <input type="text"/> bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other <input type="text"/>			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Adapter Card Location <input type="text"/>		PN <input type="text"/>		
Driver Card Location <input type="text"/>		PN <input type="text"/>		

1

To Figure CP111-2 Part 1 of 2

From Figure CP111-1 Part 1 of 3

2

FAC No.		Specify Code		PA
<input type="text"/>		<input type="text"/>		<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="text"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="text"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed <input type="text"/> bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other <input type="text"/>			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Adapter Card Location <input type="text"/>		PN <input type="text"/>		
Driver Card Location <input type="text"/>		PN <input type="text"/>		

2

To Figure CP111-2 Part 1 of 2

From Figure CP111-1 Part 1 of 3

3

FAC No.		Specify Code		PA
<input type="text"/>		<input type="text"/>		<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="text"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="text"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed <input type="text"/> bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other <input type="text"/>			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Adapter Card Location <input type="text"/>		PN <input type="text"/>		
Driver Card Location <input type="text"/>		PN <input type="text"/>		

3

To Figure CP111-2 Part 1 of 2

Figure CP111-1 (Part 2 of 3). 8130 Configuration Reference

From Figure CP111-1 Part 1 of 3

4

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		Clocking Source
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Modem
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Adapter				
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

To Figure CP111-2 Part 2 of 2

From Figure CP111-1 Part 1 of 3

5

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		Clocking Source
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Modem
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Adapter				
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

To Figure CP111-2 Part 2 of 2

From Figure CP111-1 Part 1 of 3

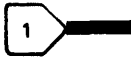
6

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		Clocking Source
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Modem
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Adapter				
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

To Figure CP111-2 Part 2 of 2

Figure CP111-1 (Part 3 of 3). 8130 Configuration Reference

From Figure CP111-1  
Part 2 of 3



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP111-1  
Part 2 of 3



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP111-1  
Part 2 of 3



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

PA = Physical Address of 8130 Port = Level 1  
CU = Control Unit Address (Control Unit Attached to Port) = Level 2  
DA = Device Address (Device Attached to the Control Unit) = Level 3

Figure CP111-2 (Part 1 of 2). 8130 Attached Terminal Configuration Reference

From Figure CP111-1  
Part 3 of 3

4

PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP111-1  
Part 3 of 3

5

PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP111-1  
Part 3 of 3

6

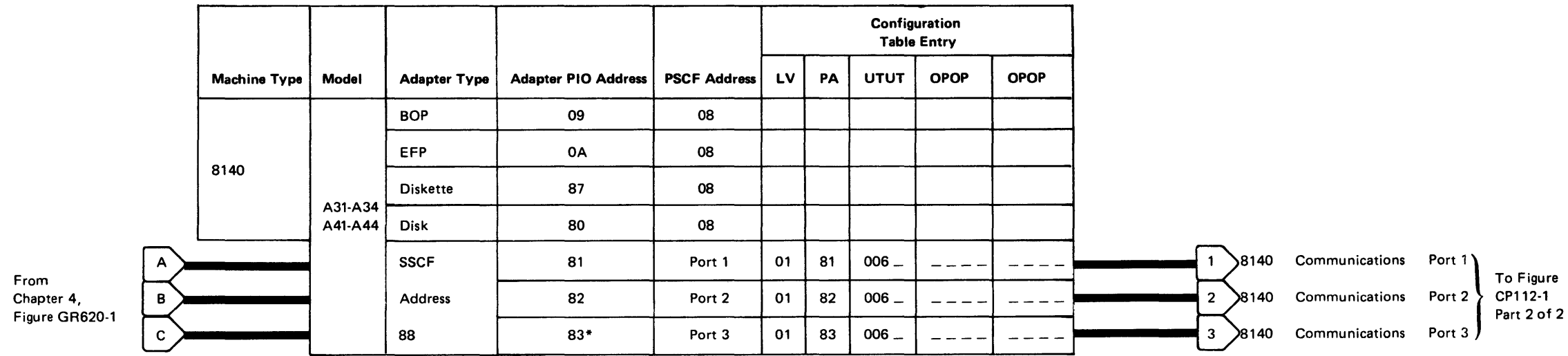
PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

PA = Physical Address of 8130 Port = Level 1  
 CU = Control Unit Address (Control Unit Attached to Port) = Level 2  
 DA = Device Address (Device Attached to the Control Unit) = Level 3

Figure CP111-2 (Part 2 of 2). 8130 Attached Terminal Configuration Reference

CP112 8140 Configuration

Complete Figures CP112-1 and CP112-2 to maintain a system-unique configuration reference for this 8140.



\*This communications port is not available on Models A41-A44.

Figure CP112-1 (Part 1 of 2). 8140 Configuration Reference

From Figure CP112-1 Part 1 of 2

1

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop	<input type="checkbox"/> 1 Lobe
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

1

To Figure CP112-2

From Figure CP112-1 Part 1 of 2

2

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop	<input type="checkbox"/> 1 Lobe
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

2

To Figure CP112-2

From Figure CP112-1 Part 1 of 2

3

FAC No.		Specify Code		PA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop	<input type="checkbox"/> 1 Lobe
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed ____ bps		<input type="checkbox"/> Clocking Source Modem
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____			<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Adapter
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____ PN _____				
Driver Card Location _____ PN _____				

3

To Figure CP112-2

Figure CP112-1 (Part 2 of 2). 8140 Configuration Reference

From Figure CP112-1  
Part 2 of 2

1

PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP112-1  
Part 2 of 2

2

PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP112-1  
Part 2 of 2

3

PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

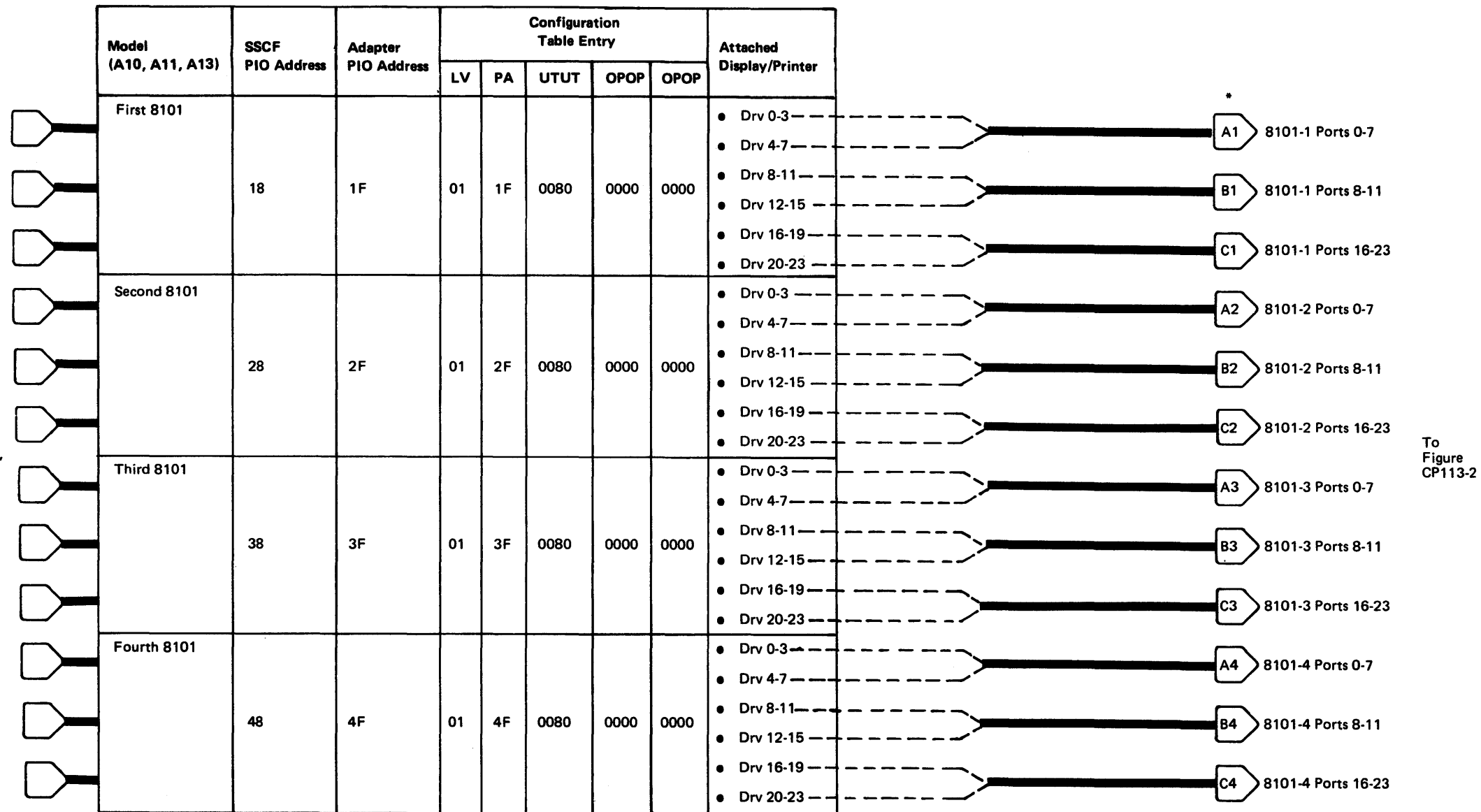
PA = Physical Address of 8140 Port = Level 1  
 CU = Control Unit Address (Control Unit Attached to Port) = Level 2  
 DA = Device Address (Device Attached to the Control Unit) = Level 3

Figure CP112-2. 8140 Attached Terminal Configuration Reference



CP113 8101 Configuration

To maintain a system-unique reference for all 8101s installed on this 8100 system, complete the figures in this section. Use Figures CP113-1 and CP113-2 for each installed display/printer adapter; use Figures CP113-3 and CP113-4 for each installed SDLC or BSC/S-S communications adapter.



From  
Chapter 4,  
Figure  
GR630-1

To  
Figure  
CP113-2

\*Use the numbers in this row to complete Figure CP113-2.

Figure CP113-1. 8101 Display/Printer Configuration Reference



Ports	Model (A10,A11, A13)	Adapter Type (SDLC or BSC/S-S)	SSCF PIO Address	Adapter PIO Address	Attachment Communications Adapters	Configuration Table Entry					
						LV	PA	UTUT	OPOP	OPOP	
1	First 8101		18	10	● Port 1	01	10	006 _	----	----	1
2				11	● Port 2	01	11	006 _	----	----	2
3				12	● Port 3	01	12	006 _	----	----	3
4				13	● Port 4	01	13	006 _	----	----	4
5				1C	● Port 5	01	1C	006 _	----	----	5
6				1D	● Port 6	01	1D	006 _	----	----	6
7				1E	● Port 7	01	1E	006 _	----	----	7
8				1F	● Port 8	01	1F	006 _	----	----	8
1	Second 8101		28	20	● Port 1	01	20	006 _	----	----	9
2				21	● Port 2	01	21	006 _	----	----	10
3				22	● Port 3	01	22	006 _	----	----	11
4				23	● Port 4	01	23	006 _	----	----	12
5				2C	● Port 5	01	2C	006 _	----	----	13
6				2D	● Port 6	01	2D	006 _	----	----	14
7				2E	● Port 7	01	2E	006 _	----	----	15
8				2F	● Port 8	01	2F	006 _	----	----	16
1	Third 8101		38	30	● Port 1	01	30	006 _	----	----	17
2				31	● Port 2	01	31	006 _	----	----	18
3				32	● Port 3	01	32	006 _	----	----	19
4				33	● Port 4	01	33	006 _	----	----	20
5				3C	● Port 5	01	3C	006 _	----	----	21
6				3D	● Port 6	01	3D	006 _	----	----	22
7				3E	● Port 7	01	3E	006 _	----	----	23
8				3F	● Port 8	01	3F	006 _	----	----	24
1	Fourth 8101		48	40	● Port 1	01	40	006 _	----	----	25
2				41	● Port 2	01	41	006 _	----	----	26
3				42	● Port 3	01	42	006 _	----	----	27
4				43	● Port 4	01	43	006 _	----	----	28
5				4C	● Port 5	01	4C	006 _	----	----	29
6				4D	● Port 6	01	4D	006 _	----	----	30
7				4E	● Port 7	01	4E	006 _	----	----	31
8				4F	● Port 8	01	4F	006 _	----	----	32

From Chapter 4, Figure GR630-1

To Figure CP113-3 (Parts 2, 3, and 4 of 4)

\*Use the numbers in this row to complete Figure CP113-3 Parts 2 through 4.

Figure CP113-3 (Part 1 of 4). 8101 Communications Configuration Reference

FAC No. <input style="width: 100%;" type="text"/>	Specify Code <input style="width: 100%;" type="text"/>	PA <input type="checkbox"/>												
<input type="checkbox"/> External IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	<input type="checkbox"/> Modem OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	<input type="checkbox"/> Integrated Modem Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	<input type="checkbox"/> Direct Connect V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	<input type="checkbox"/> Digital Data Service Adapter Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched										
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed _____ bps		<input type="checkbox"/> Clocking Source Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter										
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____	<input type="checkbox"/> NRZI												
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary													
Configuration Table Entry <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">LV</td> <td style="width: 10%;">PA</td> <td style="width: 10%;">UTUT</td> <td style="width: 10%;">OPOP</td> <td style="width: 10%;">OPOP</td> </tr> <tr> <td>01</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> </table>					LV	PA	UTUT	OPOP	OPOP	01	—	—	—	—
LV	PA	UTUT	OPOP	OPOP										
01	—	—	—	—										
Adapter Card Location _____ PN _____ Driver Card Location _____ PN _____														

FAC No. <input style="width: 100%;" type="text"/>	Specify Code <input style="width: 100%;" type="text"/>	PA <input type="checkbox"/>												
<input type="checkbox"/> External IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	<input type="checkbox"/> Modem OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	<input type="checkbox"/> Integrated Modem Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	<input type="checkbox"/> Direct Connect V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	<input type="checkbox"/> Digital Data Service Adapter Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched										
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed _____ bps		<input type="checkbox"/> Clocking Source Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter										
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____	<input type="checkbox"/> NRZI												
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary													
Configuration Table Entry <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">LV</td> <td style="width: 10%;">PA</td> <td style="width: 10%;">UTUT</td> <td style="width: 10%;">OPOP</td> <td style="width: 10%;">OPOP</td> </tr> <tr> <td>01</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> </table>					LV	PA	UTUT	OPOP	OPOP	01	—	—	—	—
LV	PA	UTUT	OPOP	OPOP										
01	—	—	—	—										
Adapter Card Location _____ PN _____ Driver Card Location _____ PN _____														

FAC No. <input style="width: 100%;" type="text"/>	Specify Code <input style="width: 100%;" type="text"/>	PA <input type="checkbox"/>												
<input type="checkbox"/> External IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	<input type="checkbox"/> Modem OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	<input type="checkbox"/> Integrated Modem Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	<input type="checkbox"/> Direct Connect V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	<input type="checkbox"/> Digital Data Service Adapter Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched										
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed _____ bps		<input type="checkbox"/> Clocking Source Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter										
<input type="checkbox"/> BSC	<input type="checkbox"/> Other _____	<input type="checkbox"/> NRZI												
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary													
Configuration Table Entry <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">LV</td> <td style="width: 10%;">PA</td> <td style="width: 10%;">UTUT</td> <td style="width: 10%;">OPOP</td> <td style="width: 10%;">OPOP</td> </tr> <tr> <td>01</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> </tr> </table>					LV	PA	UTUT	OPOP	OPOP	01	—	—	—	—
LV	PA	UTUT	OPOP	OPOP										
01	—	—	—	—										
Adapter Card Location _____ PN _____ Driver Card Location _____ PN _____														

\*Also complete these references according to the communications adapters specified in Figure CP111-3 (Part 1)

Figure CP113-3 (Part 2 of 4). 8101 Communications Configuration Reference

From Figure CP-113-3 Part 1 of 4 \*

From Figure CP113-3 Part 1 of 4 \*

From Figure CP113-3 Part 1 of 4 \*

FAC No.		Specify Code		PA
<input type="text"/>		<input type="text"/>		<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="text"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="text"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed <input type="text"/> bps		Clocking Source
<input type="checkbox"/> BSC	<input type="checkbox"/> Other <input type="text"/>			<input type="checkbox"/> Modem
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Adapter				
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location <input type="text"/>		PN <input type="text"/>		
Driver Card Location <input type="text"/>		PN <input type="text"/>		

To Figure CP113-4 \*

To Figure CP113-4 \*

To Figure CP113-4 \*

FAC No.		Specify Code		PA
<input type="text"/>		<input type="text"/>		<input type="checkbox"/>
External	Modem	Integrated Modem	Direct Connect	Digital Data Service Adapter
<input type="checkbox"/> IBM	<input type="checkbox"/> OEM	<input type="checkbox"/> Switched	<input type="checkbox"/> V.24 Interface	<input type="checkbox"/> Point-to-Point Non-Switched
<input type="checkbox"/> Switched	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Leased	<input type="checkbox"/> V.35 Interface	<input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> Leased	<input type="checkbox"/> Multi-point	<input type="checkbox"/> Point-to-Point	<input type="checkbox"/> Loop <input type="text"/> 1 Lobe	
		<input type="checkbox"/> Multipoint	<input type="checkbox"/> Loop <input type="text"/> 2 Lobe	
<input type="checkbox"/> SDLC	<input type="checkbox"/> S-S	Line Speed <input type="text"/> bps		Clocking Source
<input type="checkbox"/> BSC	<input type="checkbox"/> Other <input type="text"/>			<input type="checkbox"/> Modem
<input type="checkbox"/> Primary	<input type="checkbox"/> Secondary	<input type="checkbox"/> NRZI		<input type="checkbox"/> Multispeed Clk Cd
<input type="checkbox"/> Adapter				
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location <input type="text"/>		PN <input type="text"/>		
Driver Card Location <input type="text"/>		PN <input type="text"/>		

\*Also complete these references according to the communications adapters specified in Figure CP113-3 (Part 1).

Figure CP113-3 (Part 3 of 4). 8101 Communications Configuration Reference

From Figure CP113-3 Part 1 of 4 \*

From Figure CP113-3 Part 1 of 4 \*

From Figure CP113-3 Part 1 of 4 \*

FAC No. <input type="text"/>		Specify Code <input type="text"/>		PA <input type="checkbox"/>
External <input type="checkbox"/> IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	Modem <input type="checkbox"/> OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	Integrated Modem <input type="checkbox"/> Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	Direct Connect <input type="checkbox"/> V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	Digital Data Service Adapter <input type="checkbox"/> Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> SDLC <input type="checkbox"/> BSC <input type="checkbox"/> Primary	<input type="checkbox"/> S-S <input type="checkbox"/> Other _____ <input type="checkbox"/> Secondary	Line Speed _____ bps <input type="checkbox"/> NRZI	Clocking Source <input type="checkbox"/> Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter	
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____		PN _____		
Driver Card Location _____		PN _____		

FAC No. <input type="text"/>		Specify Code <input type="text"/>		PA <input type="checkbox"/>
External <input type="checkbox"/> IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	Modem <input type="checkbox"/> OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	Integrated Modem <input type="checkbox"/> Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	Direct Connect <input type="checkbox"/> V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	Digital Data Service Adapter <input type="checkbox"/> Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> SDLC <input type="checkbox"/> BSC <input type="checkbox"/> Primary	<input type="checkbox"/> S-S <input type="checkbox"/> Other _____ <input type="checkbox"/> Secondary	Line Speed _____ bps <input type="checkbox"/> NRZI	Clocking Source <input type="checkbox"/> Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter	
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____		PN _____		
Driver Card Location _____		PN _____		

FAC No. <input type="text"/>		Specify Code <input type="text"/>		PA <input type="checkbox"/>
External <input type="checkbox"/> IBM <input type="checkbox"/> Switched <input type="checkbox"/> Leased	Modem <input type="checkbox"/> OEM <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multi-point	Integrated Modem <input type="checkbox"/> Switched <input type="checkbox"/> Leased <input type="checkbox"/> Point-to-Point <input type="checkbox"/> Multipoint	Direct Connect <input type="checkbox"/> V.24 Interface <input type="checkbox"/> V.35 Interface <input type="checkbox"/> Loop <input type="checkbox"/> 1 Lobe <input type="checkbox"/> 2 Lobe	Digital Data Service Adapter <input type="checkbox"/> Point-to-Point Non-Switched <input type="checkbox"/> Multipoint Non-Switched
<input type="checkbox"/> SDLC <input type="checkbox"/> BSC <input type="checkbox"/> Primary	<input type="checkbox"/> S-S <input type="checkbox"/> Other _____ <input type="checkbox"/> Secondary	Line Speed _____ bps <input type="checkbox"/> NRZI	Clocking Source <input type="checkbox"/> Modem <input type="checkbox"/> Multispeed Clk Cd <input type="checkbox"/> Adapter	
Configuration Table Entry				
LV	PA	UTUT	OPOP	OPOP
01	—	—	—	—
Adapter Card Location _____		PN _____		
Driver Card Location _____		PN _____		

\*Also complete these references according to the communications adapters specified in Figure CP113-3 (Part 1).

Figure CP113-3 (Part 4 of 4). 8101 Communications Configuration Reference







From Figure CP113-3  
Part 4 of 4



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP113-3  
Part 4 of 4



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

From Figure CP113-3  
Part 4 of 4



PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number	PA	CU	DA	Machine Type	Configuration Table Entry LV PA UTUT OPOP OPOP	Machine Location	Loop Devices Lobe Number

PA = Physical Address of 8101 Port = Level 1  
CU = Control Unit Address (Control Unit Attached to Port) = Level 2  
DA = Device Address (Device Attached to the Control Unit) = Level 3

\*Also complete these references according to those numbers specified in Figure CP113-3 (Part 4).

Figure CP113-4 (Part 3 of 3). 8101 Attached Communications Terminal Configuration References

CP120 General System Configuration

Figure CP120-1 shows the machine types and how they attach to the 8100. See Chapter 4, GR300, for a description of these devices.

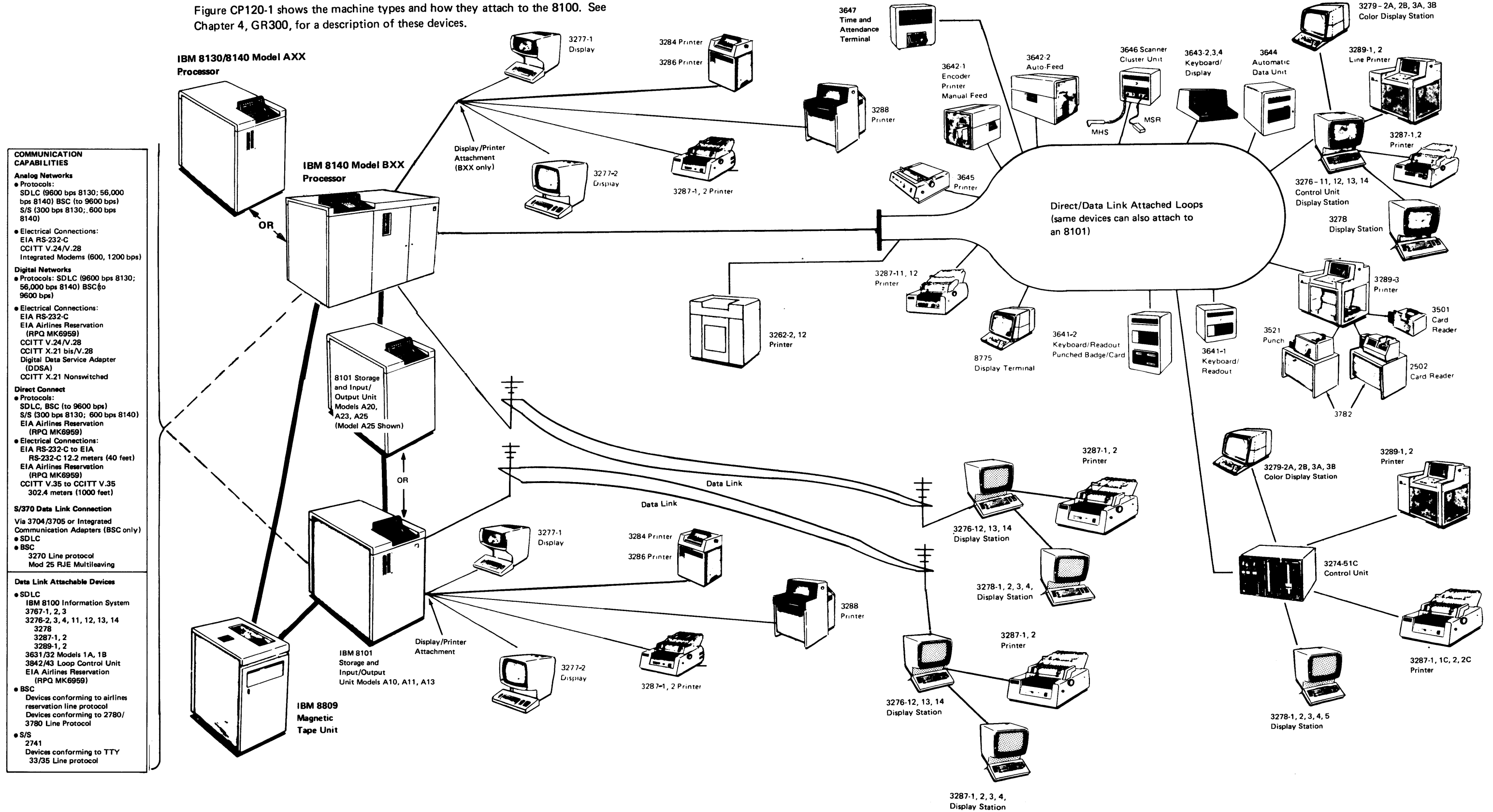


Figure CP120-1. System Configuration by Machine Type

## CP130 DPPX Device Support and Restrictions

The following lists, in machine-type order, the 8100 Information System devices supported by DPPX:

- 2502-A1 Card Reader
- 2741 Communications Terminal
- 3262-2, 12 Printer
- 3274-51C Control Unit
- 3276-11, 12, 13, 14 Control Unit/Display Station
- 3277-1, 2 Display Station
- 3278-1, 2, 3, 4 Display Station
- 3279 2A, 2B, 3A, 3B Color Display Station
- 3283-52 Printer
- 3284-1, 2 Printer
- 3286-1, 2 Printer
- 3287-1, 2, 11, 12, 1C, 2C Printer
- 3288-2 Line Printer
- 3289-1, 2, 3 Line Printer
- 3501 Card Reader
- 3521 Card Punch
- 3631/3632 Plant Communication Controller
- 3641-1, 2 Reporting Terminal
- 3642-1, 2 Encoder Printer
- 3643-2, 3, 4 Keyboard Display
- 3644 Automatic Data Unit
- 3645 Printer
- 3646 Scanner Control Unit
- 3647 Time and Attendance Terminal
- 3767-1, 2, 3 Communication Terminal
- 3782-1, 2 Card Attachment Unit
- 3842/3843 Loop Control Unit
- 3872/3874/3875/3876 Modem
- 3976 Modem
- 8101 Storage and Input Output Unit, all models
- 8130 Processor Unit, all models
- 8140 Processor Unit, all models
- 8775 Display Terminal
- 8909 Magnetic Tape Unit, all models
- Attachment to System/370-3704/3705 SDLC and BSC Communication Links
- Attachment to 2703 BSC Communication Link
- Terminals conforming to the 2780/3780 BSC line protocol
- Terminals conforming to the ASR/TTY 33/35 S-S line protocol

DPPX restrictions concerning the maximum number and types of devices are the same as the hardware maximums (see CP160).

## CP140 DPCX Device Support and Restrictions

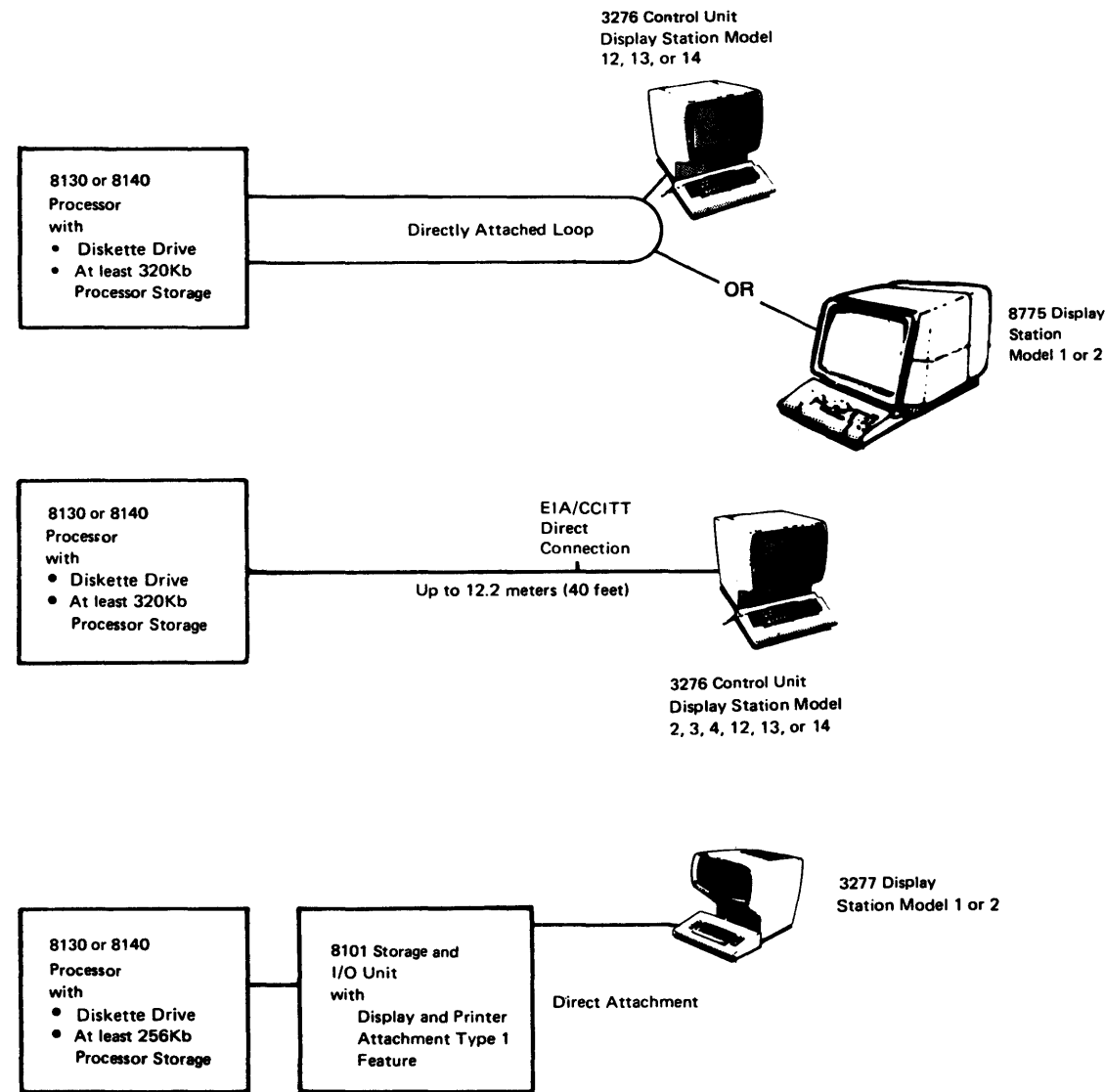
DPCX supports the following 8100 Information System devices or features:

- 129 Card Data Recorder (RPO MK6956)
- 3262 Printer Models 2, 12
- 3274-Control Unit Model 51C
- 3276-2, 3, 4, 12, 13, 14 Control Unit/Display Station
  - Models 2, 3, and 4 must be equipped with the BSC/SDLC Switch Feature; the switch must be in the SDLC position while DPCX is operating.
  - Models 3, 4, 13, and 14 can only have a screen size of 1920 characters.
- 3277-1, 2 Display Station but the Selector Pen feature only for full-screen processing.
- 3278-2, 3, 4 Display Station
  - Models 3 and 4 can only have a screen size of 1920 characters.
- 3279-2A, 2B, 3A, 3B Color Display Station
- 3284-1, 2 Printer
- 3286-1, 2 Printer
- 3287-1, 2, 1C, 2C Printer
- 3288-2 Line Printer
- 3289-1, 2, 3 Line Printer
- 3732 Text Display Station
- 3736 Printer
- 8101 Storage and Input Output Unit, all models but not the diskette drive
- 8130 Processor Unit Models A21, A23
- 8140 Processor Unit Models A31, A33, A34, A41, A43, A44, A51, A53, A61-A64, A71-A74, B51-B52, B61-B62, B71-B72, but not floating-point.
- 8140 basic operator panel but not the expanded function panel
- 8775-1, 2 Display Terminal only with a screen size of 1920 characters
- 8809 Magnetic Tape Unit, all models
- System/370-3704/3705 SDLC Communication Link
- A maximum of eight disk storage devices but not with fixed heads.

Sections CP141 through CP145 show the maximum number and types of devices supported by DPCX, and also describe any restrictions concerning their attachment.

**CP141 DPCX Minimum System Configurations**

DPCX requires one 8130 or 8140 Processor and at least one display station. The diagrams below show these minimum configurations, which depend on processor storage size and also the display station used and how it attaches.



**CP142 DPCX Processor and Communications Support and Restrictions**

DPCX supports:

- 8140 Processor Models A31, A33, A34, A41, A43, A44, A51, and A53, A6X, A7X, and BXX, but not floating-point. BXX, but not floating-point.
- The 8130/8140 Basic Operator Panel, but not the 8140 Expanded Function Panel.
- Features for Attaching Communications (FACs), as tabulated below:

**DPCX Host Communications Support**

Type	Description	FAC No.
Point-to-Point	FAC Numbers 12, 13, 18, 19, 20, 30 (see below), and the following:	
	Digital Data Service (attached to 8140 only) 56,000 (nonswitched)	21
	External Modem (attached to 8140 only) 56,000 bps (nonswitched)*	29
	48,000 bps (nonswitched)**	29
	CCITT X.21 (attached to 8140 only) 48,000 bps (nonswitched)***	31

**DPCX Downstream Communications Support**

Type	Description	FAC No.
Directly Attached Loop	Single Lobe 9,600 bps 38.4 KBPS	10 8/9
	Data Link Attachments	EIA-RS-232-C/CCITT V.24/V.28 External Modem 600, 1200 bps To 9600 bps
Direct Connect with Clock 600, 1200, 2400 bps (no modem) 4800, 9600 (no modem)		15 16
Direct Connect without Clock To 9600 bps (no modem)		17
Integrated Modems 600, 1200 bps (nonswitched) 600, 1200 bps (switched)		18 19
Digital Data Service 2400, 4800, 9600 bps (nonswitched)		20
CCITT V.35 Direct Connect with Clock 600, 1200, 2400 bps (no modem) 4800, 9600 bps (no modem)		24 25
Direct Connect without Clock To 9600 bps (no modem)		27
CCITT X.21 (nonswitched) external modem DCE without clock, 2400, 4800, 9600 bps***		30

\*Available in U.S. and Canada only.

\*\*Available in countries outside the U.S. and Canada.

\*\*\*Available in Japan only.

**CP143 DPCX 8101 Support and Restrictions**

DPCX supports all models of the 8101 and places no restrictions on the 8101 adapters, but does not support the 8101 diskette drive or provide default addresses. See CP142 for communications support and CP145 for display/printer support.

**CP144 DPCX 8809 Support and Restrictions**

DPCX imposes no restriction on 8809 Magnetic Tape Units other than those described in the *8100 Information System Configurator, GA27-2876*.

**CP145 DPCX Display/Printer Support and Restrictions**

DPCX supports attachment of up to 304 display stations and printers in a range of models.

**8101 Directly Attached Devices**

DPCX supports direct attachment of the following device types to an 8101 in any combination, through the 8101 display/printer adapter, with a system maximum of 24 devices:

- 129 Card Data Recorder (RPQ MK6956)
- 3277 Display Station Models 1, 2
- 3284 Printer Models 1, 2
- 3286 Printer Models 1, 2
- 3287 Printer Models 1, 2
- 3288 Line Printer Model 2
- 3732 Text Display Station
- 3736 Printer

**Note:** DPCX can support seven additional devices through the second display/printer adapter (RPQ ML3071)

**FAC-Attached Devices**

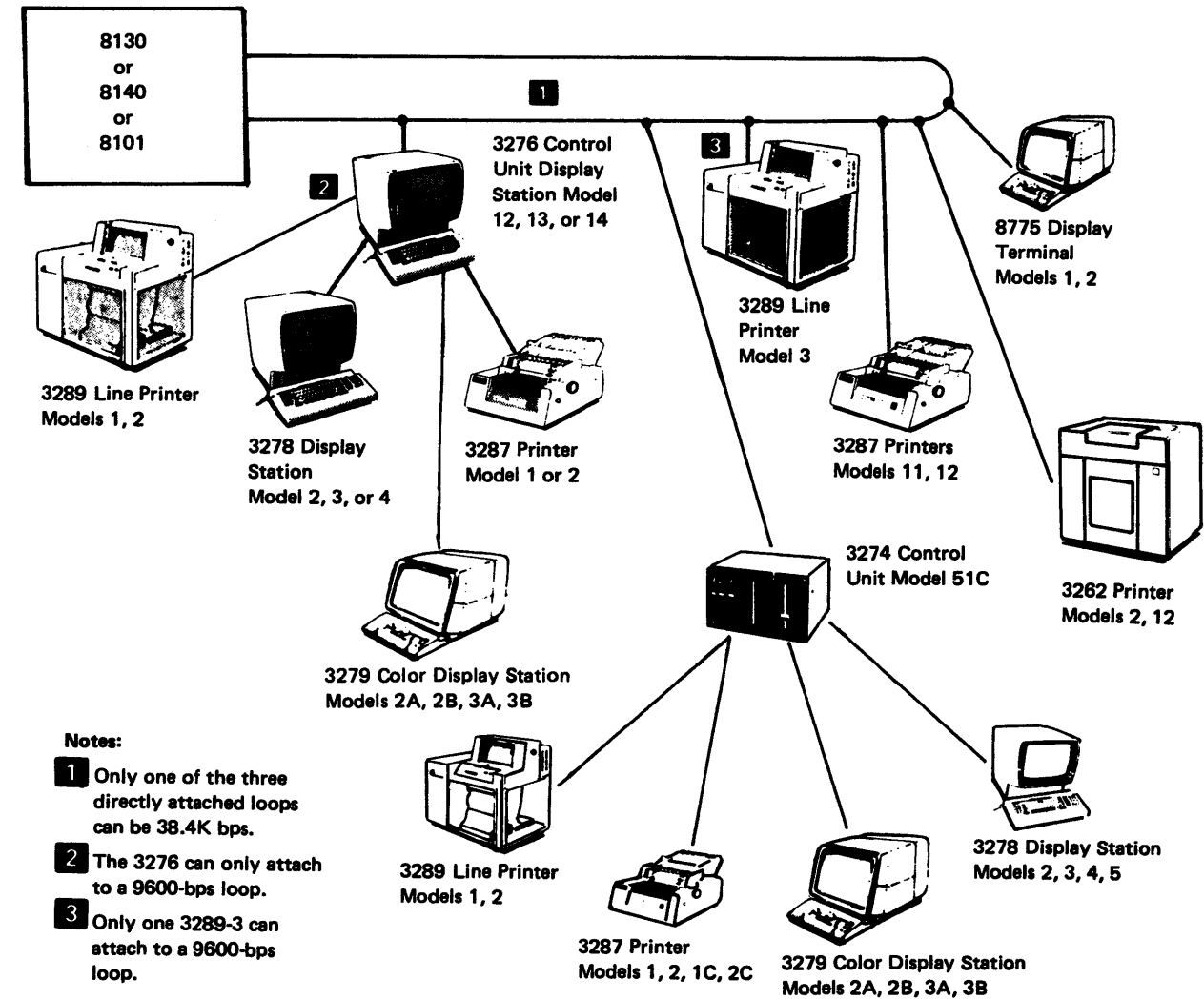
DPCX supports attachment of downstream devices using directly attached loops and data link attachments. These downstream FACs can attach to the 8101, 8130, and 8140 units, with a system maximum of nine FACs.

**Directly Attached Loops.** DPCX supports up to three directly attached loops, one of which can run at 38.4 Kbps; each loop can support attachment of 20 devices plus one\* 3289 Printer Model 3. The following lists and illustrates the device types and loop maximums:

- 3262 Printer Models 2, 12. Maximum: 20 per loop
- 3274 Control Unit Model 51C\*\*. Maximum: five 3274 devices per loop. Each 3274 Model 51C can support attachment of up to four of the following devices in any combination, and up to eight with the Type A terminal adapter installed:
  - 3278 Models 2, 3, 4, 5
  - 3279 Models 2A, 3A, 2B, 3B
  - 3287 Models 1, 2, 1C, 2C
  - 3289 Models 1, 2

\*9600-bps loop only.

\*\*Each loop can have a maximum of five 3274s or 3276s in any combination.



**Notes:**

- 1 Only one of the three directly attached loops can be 38.4K bps.
- 2 The 3276 can only attach to a 9600-bps loop.
- 3 Only one 3289-3 can attach to a 9600-bps loop.

- 3276 Control Unit Display Station Models 12, 13, 14\*\*. Maximum: five\* 3276 devices per loop. Functioning as a control unit, each 3276 can support attachment of up to seven of the following devices in any combination:

- 3278 Models 2, 3, 4
- 3279 Models 2A, 2B, 3A, 3B
- 3287 Models 1, 2
- 3289 Models 1, 2

- 3287 Printer Models 11, 12. Maximum: 20 per loop
- 3289 Printer Model 3, maximum: one\* per directly attached loop.
- 8775 Display Terminal Models 1, 2. Maximum: 20 per loop

\*9600-bps loop only.

\*\*Each loop can have a maximum of five 3274s or 3276s in any combination.

**Data Link Attachments (DLA).** DPCX supports up to five downstream data links and EIA/CCITT connections in any combination (see figure below), with speeds up to 9600 bps.

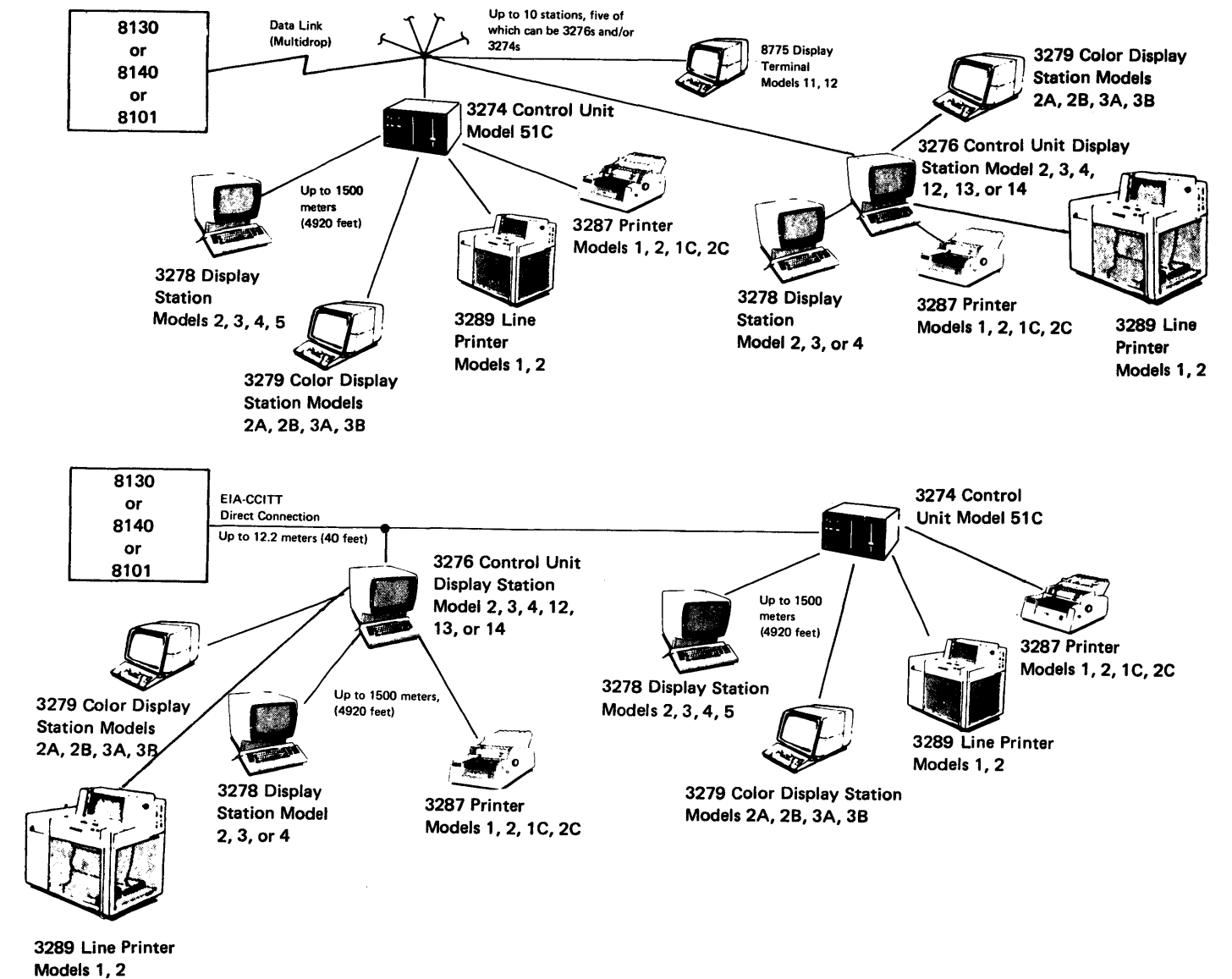
- Each data link may be multidrop and can support attachment of 3274 Control Units, 3276 Control Unit Display Stations, and 8775 Display Terminals.
- The EIA/CCITT data link connection can be point-to-point also, and supports one 3276 Control Unit Display Station, one 3274 Control Unit, or one 8775 Display Terminal.

DPCX supports the 3274 Control Unit Model 51C. Each 3274 can support attachment of up to eight of the following devices in any combination:

- 3278 Models 2, 3, 4, 5
- 3279 Models 2A, 3A, 2B, 3B
- 3287 Models 1, 2, 1C, 2C
- 3289 Models 1, 2

DPCX supports the 3276 Control Unit Display Station Models 2, 3, 4, 12, 13, and 14. Functioning as a control unit, each 3276 can support attachment of up to seven of the following devices in any combination:

- 3278 Models 2, 3, 4
- 3279 Models 2A, 3A, 2B, 3B
- 3287 Models 1, 2, 1C, 2C
- 3289 Models 1, 2

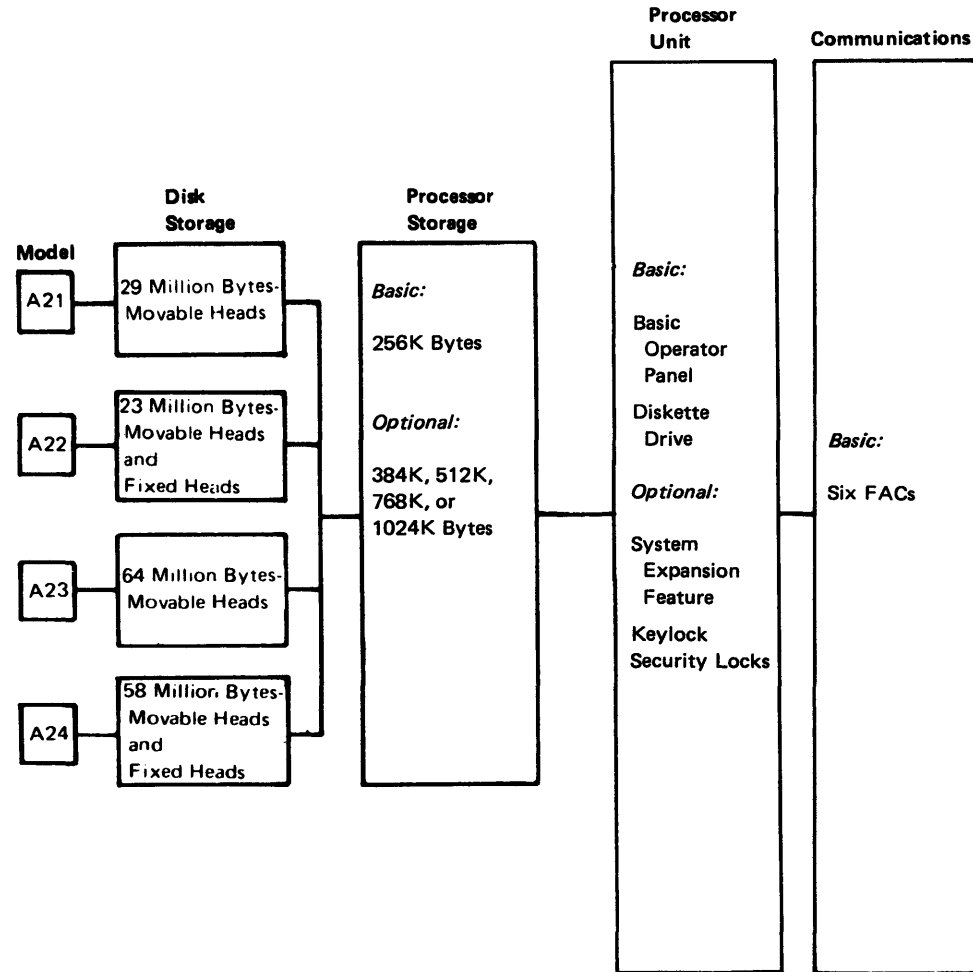


**CP150 8130/8140/8101/8809 Models and Options**

Sections CP151 through CP154 show the models and options available for the 8130, 8140, and 8101; CP155 describes the 8809 models.

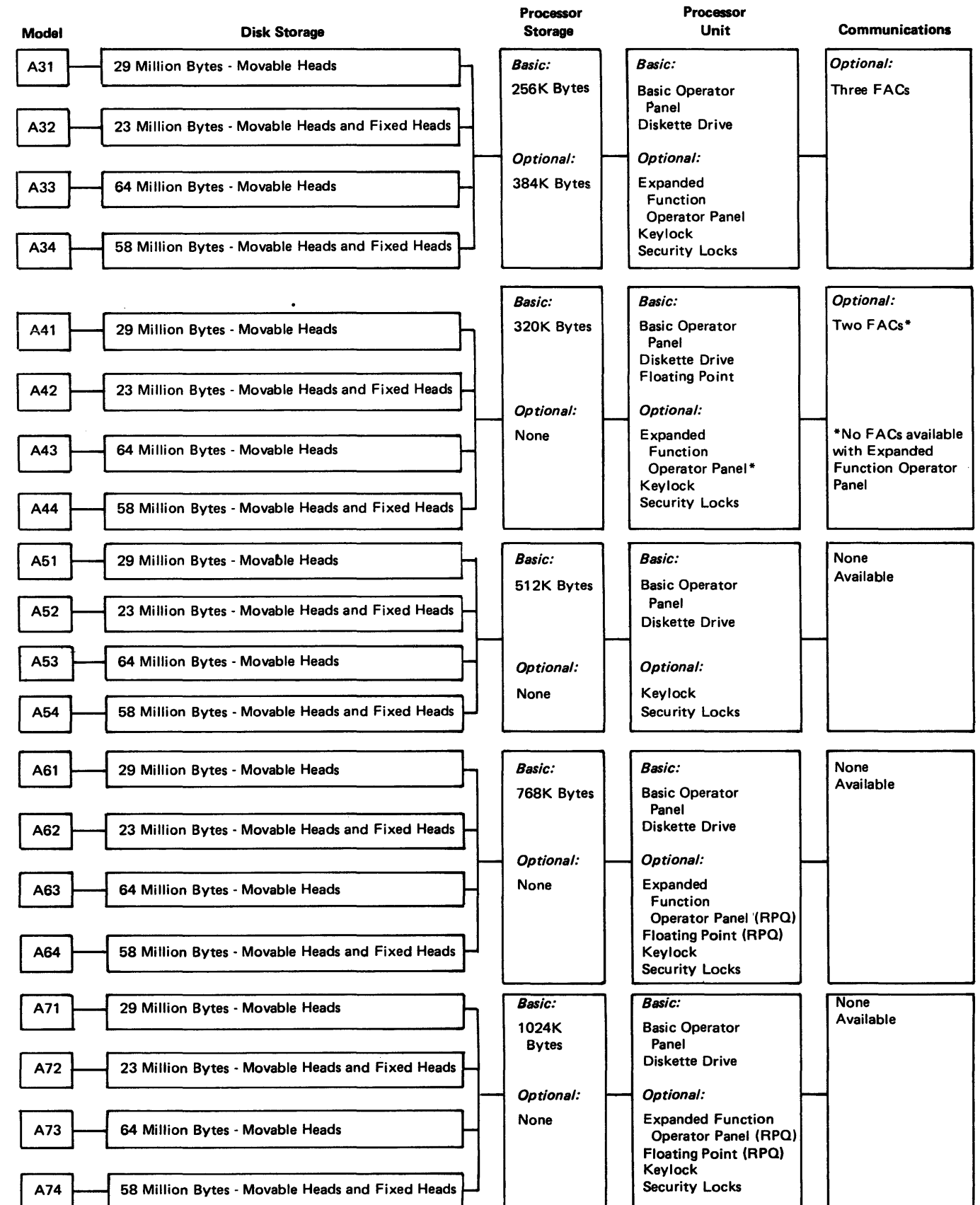
**CP151 8130 Models and Options**

The following block diagram shows the 8130 Processor models and their associated basic and optional components.



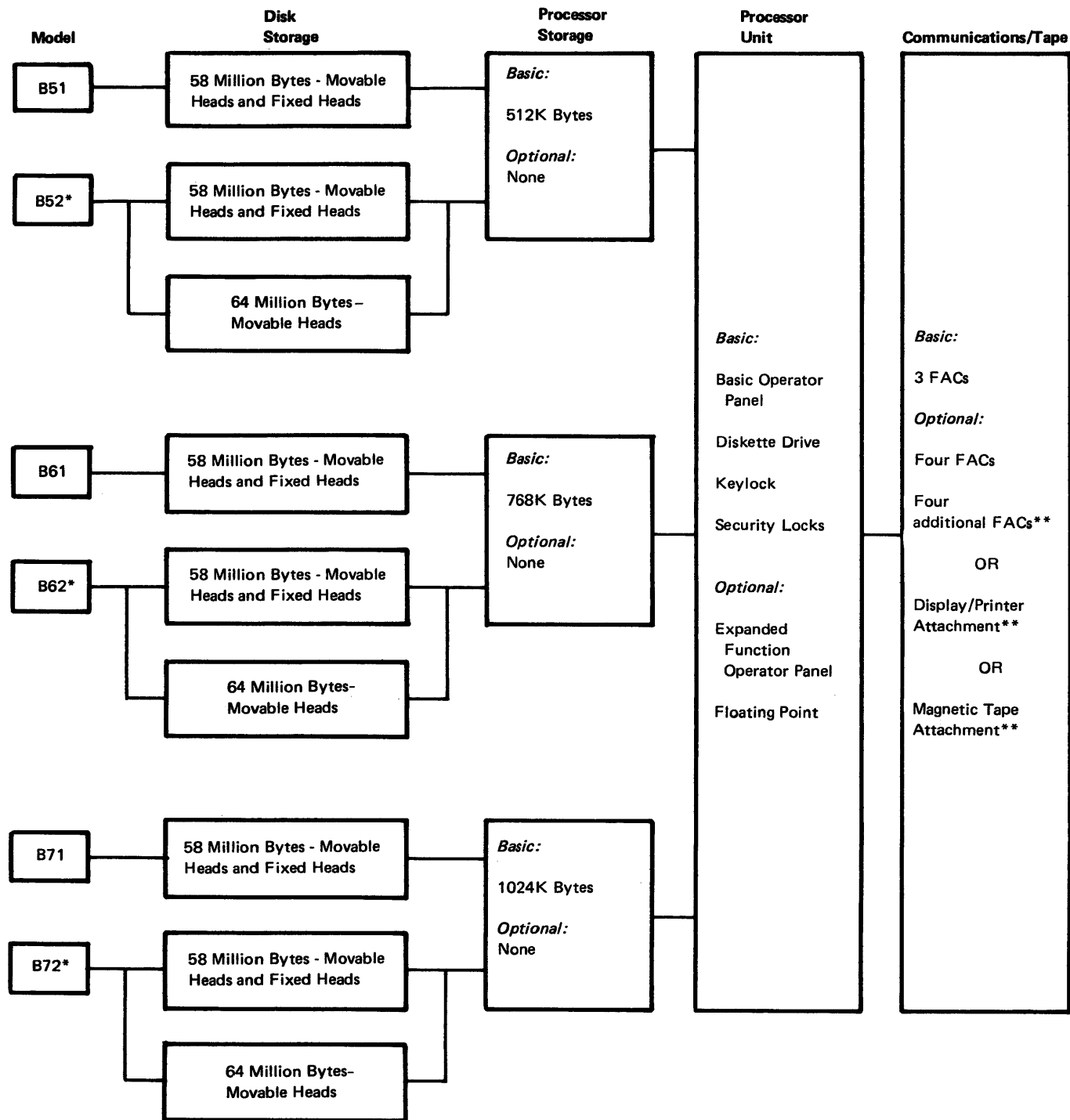
**CP152 8140 AXX Models and Options**

The following block diagram shows the 8140 Processor AXX models and their associated basic and optional components.



CP153 8140 BXX Models and Options

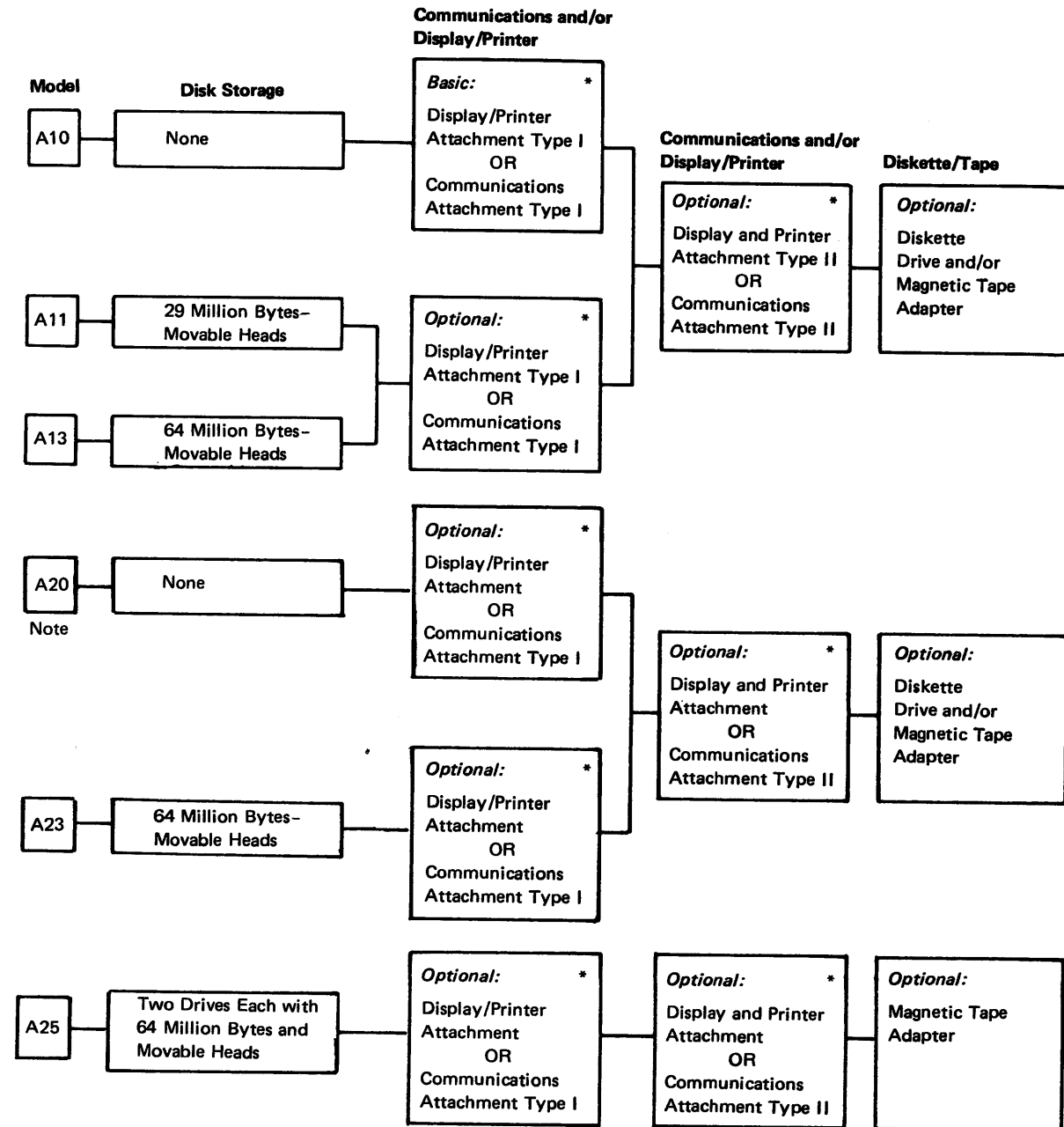
The following block diagram shows the 8140 Processor BXX models and their associated basic and optional components.



\*These models have two disk storage drives.  
 \*\*Not available with floating point.

CP154 8101 Models and Options

The following block diagram shows the 8101 Storage and I/O Unit models and their associated basic and optional components.



\*Each Display and Printer Attachment Types I and II provides for attachment of up to four 3277 Displays Model 1 or 2, 3287 Printers Model 1 or 2, 3284, 3286, 3288, or 3736 Printers, 3732 Text Display Stations, or 129 Card Data Recorders (RPQ MK6956) in any combination. Attachment Type I must be installed first, and up to five Type IIs can be added to provide attachment for a maximum of 24 devices.

Note: The second display/printer adapter (RPQ ML3071) supports seven additional devices.

Communications Attachment Type I provides for the attachment of the first four FACs, and Type II provides for the next (last) four.

Note: Although all 8101 Model A20 components are optional, at least one option (display/printer, communications, or diskette and magnetic tape) must be installed.



The following list describes the 8809 Magnetic Tape Unit models:

- Model 1A attaches only to and has its adapter in an 8101 or an 8140 Model BXX.
- Model 1B attaches to either the 8130, 8140, or 8101. It has its own adapter, permits attachment of up to three more 8809s, and provides power for any 8809 Model 2 attached to it.
- Model 2 attaches to all other 8809 models. It can only be the second or fourth drive because it has no logic power source, and receives power either from Model 1A, 1B, or 3. It does, however, provide logic signal regeneration for the third drive, if attached.
- Model 3 attaches only to the Model 2, has its own power, and provides logic signal and power regeneration to the fourth drive, if attached.

### CP160 8100 System Hardware Maximums and Restrictions

**8130 Hardware Maximums.** The 8130 Processor can have an attached maximum of two 8101 Storage and Input/Output Units and four 8809 Magnetic Tape Units. The 8101s connect to the 8130, while the 8809s can connect to either the 8130 or the 8101. With the System Expansion Feature, the maximum number of communications ports (FACs) permitted on an 8100 with an 8130 Processor is 14; six reside in the 8130 and eight in the 8101(s).

Refer to the last paragraph for loop maximums and restrictions.

**8140 Hardware Maximums.** The 8140 Processor can have an attached maximum of four 8101 Storage and Input/Output Units and four 8809 Magnetic Tape Units. The 8101s connect to the 8140, while the 8809s can connect to either the 8140 or 8101. Because of physical board limitations, the number of communications ports (FACs) available on the 8140 depends on processor model and installed features.

- 8140 Models A31-A34 have a three-port maximum, but capability for only two second lobe adapters.
- 8140 Models A41-A44 have a two-port maximum, capability for two second lobe adapters, but no ports available when having the expanded function panel.
- 8140 Models A5X-A7X have no ports available.
- 8140 Models BXX have a 12-port maximum, but capability for only three second lobe adapters.
- One diskette adapter and drive
- Two disk adapters and drives
- One tape adapter, which permits attachment of one 8809 Model 1A drive.
- One display/printer adapter.
- Up to 12 data link attachments, but only eight if display/printer or tape is installed.

Refer to the last paragraph for loop maximums and restrictions.

**8101 Hardware Maximums.** The following describes the 8101 hardware limitations on an 8100 system:

- Two 8101s can be installed on an 8130, but only one can have FACs.
- Four 8101s can be installed on an 8140, but only two can have FACs.
- If the system has an 8809 Model 1B, an 8130 can have only one 8101 and an 8140 can have only three.

Each 8101 can have:

- One diskette adapter and drive (Models A10, A11, A13, or A20)
- One disk adapter and drive (Models A11, A13, or A23)
- Two disk adapters and two drives (Model A25)
- One tape adapter, which permits attachment of one 8809 Model 1A drive.
- One display/printer adapter.
- Up to eight data link attachments, but only four if the display/printer adapter is installed.

Refer to the last paragraph for loop maximums and restrictions.

**8809 Hardware Maximums.** The following describes the 8809 hardware limitations on an 8100 system:

- Only one 8809 Model 1A, or one 8809 Model 1B.
- Three additional 8809s; two 8809 Model 2s and one 8809 Model 3.

**Communications Maximums and Restrictions.** The following describes the communications port (FAC) maximums on an 8100 system:

- An 8130 can have up to 14 FACs.
- An 8140 can have either 16, 18, or 19 FACs, depending on model. (See "8140 Hardware Maximums").

**Loop Maximums and Restrictions.** The following restrictions apply to each 9600 bps or 38.4K bps loop on an 8100:

- 9600 bps loop
  - 8 loop wiring concentrators
  - 64 loop station connectors
  - 80 I/O devices, when using a second lobe feature
- 38.4K bps loop
  - 4 loop wiring concentrators
  - 32 loop station connectors
  - 40 I/O devices, when using a second lobe feature.

The total number of attachable devices and loops supported by an 8100 is also affected by program limitations and performance considerations.

## CP170 8100 System Logic Card Descriptions

The following briefly describes the logic cards used in the 8100. If the cards are not present in all three machine types, it is so noted. The pseudo number designations are indicated in parentheses.

- BOP Adapter Card (8130 and 8140 only): A 4-wide by 3-high FRU (01B-B1 card) that mounts on the 01B gate. It permits panel information transfer between the panel and the processor and PSCF, and also provides the logical signal attachment for the MD.
- Processor Instruction/Execution Cards (BU1-BU9): In the 8130 and 8140 nine different cards, each 4-wide by 3-high, that provide processor functions for the 8130/8140, and are used for:
  - Instruction execution.
  - Processor addressing capability and to permit the addition of the storage expansion feature on all 8130 models and 8140 Models A31-34.
  - Logically performing processor storage dynamic address translation and relocation. It permits logical addressing for up to 4Mb of information and provides storage access protection by using access codes for each 2K storage block.
- 8130 Storage Card: A 4-wide by 3-high FRU that contains 256K of read/write storage. The 4K ROS area resides on the 8130 storage control card.
- 8140 Model AXX Storage Cards.
  - Read-only storage card: A 4-wide by 3-high FRU containing 4K ROS and 28K read/write storage, and which is always the first card in any 8140 storage configuration.
  - Read/write storage cards: 4-wide by 3-high FRUs, each having a capacity of 32K. Their quantity and location depend on the processor model.
- 8140 Model BXX Storage Cards.
  - Read-only storage card: A 4-wide by 3-high FRU containing either 4K or 16K ROS, no read/write storage, and which is always the first card in any 8140 storage configuration.
  - Read/write storage cards: 4-wide by 3-high FRUs, each having a capacity of 128K.
  - ECC (error correction coding) cards: Two 4-wide by 3-high FRUs, used to correct single bit failures and detect double bit failures.
- 8130 Storage Addition: A 4-wide by 3-high card that contains either 128K or 256K and which expands the basic 8130 storage capacity from 256K to either 384K, 512K, 768K, or 1024K.
- 8140 Model AXX Storage Addition: Four 4-wide by 3-high cards and expand the storage capacity of 8140 models A31-34 from 256K to 384K.
- 8140 Model BXX Storage Addition: 4-wide by 3-high cards, of which Model:
  - B5X uses four (512K)
  - B6X uses six (768K)
  - B7X uses eight (1024K)
- Floating-Point: Two 4-wide by 3-high FRUs that provide floating-point capability on 8140 Model A4X (standard), A6X and A7X (RPQ only) or BXX (feature).

**Note:** Certain features are mutually exclusive with floating-point. See CP152 and CP153.

- System Control Facility (SCF) (8130 = SC1-SC6, 8140 = SC1-SC5): Logically connects signals from the processor to all adapters, and also provides certain system and device control functions. The number of cards used depends on the processor type and, if an 8130, whether it has the system expansion feature.
  - The 8140 Model AXX uses five 4-wide cards: one resides in the 01A-A1 board and the others in the 01A-A2 board.
  - The 8140 Models BXX use six 4-wide cards: four reside in the 01A-A1 board and one each in the 01A-A2 and 01A-C2 boards.
  - The 8130 with the System Expansion Feature uses five 4-wide by 6-high cards and one 4-wide by 3-high card, one of which functions only as a terminator, and all reside in the 01A-A2 board.
  - The 8130 without the System Expansion Feature uses one 4-wide by 3-high card and one 4-wide by 3-high feed through card, both of which reside in the 01A-A2 board.
- Disk Storage (FA1-FA2): Two 4-wide by 6-high cards that permit logical attachment of the disk storage drive.
- Diskette Drive (DA1-DA2): Two 4-wide by 3-high cards that permit logical attachment of the diskette drive.
- Magnetic Tape: Two 4-wide by 3-high adapter cards (TA1-TA2) and a 4-wide by 3-high driver/receiver card (TA3) that permit attachment of an 8809 Model 1A to an 8101 or an 8140 Model BXX at a cable distance of up to 10 meters (32.7 ft). The Model 1A, in turn, attaches up to three additional 8809s, but only one tape can be selected at any given time.

**Note:** When an 8809 Model 1B connects to either an 8130 or 8140, the 8809 contains these cards.

- Expanded Function Panel: One 4-wide by 5-high card that permits logical attachment of the 8140 expanded function panel.

**Note:** Communications features are mutually exclusive with the expanded function panel on floating-point 8140 Models A41–A44.

- SDLC Communications Adapter (CA1): Two different cards, both 4-wide by 3-high, that provide a method of attachment for devices using SDLC protocol. One card type supplies either a 600, 1200, or 2400-bps clock for use with asynchronous communication equipment, while the other has no clock and is used with synchronous equipment.
- BSC/SS Communications Adapter (CA2): Two different cards, both 4-wide by 3-high, that provide a method of attachment for devices using BSC and start-stop protocol. One card type supplies clocking for use with asynchronous communications equipment or directly connected devices, while the other has no clock and is used with synchronous equipment.
- \*Loop Card (CA3): One 2-wide by 3-high card that contains a clock and the additional logic necessary to connect the SDLC adapter card (without clock) to a double-twisted pair loop. This loop can have a cable length of up to 3.2 kilometers (2 miles) and provide data transmission speeds of up to 38,400 bps.
- Loop Card-Second Lobe (CA4): One 2-wide by 3-high card that contains the logic necessary for system attachment to a second physical loop cable (lobe), which functions as a logical part of the first lobe and increases the loop physical distance from 3.2 to 6.4 kilometers (2 to 4 miles). This permits the customer to physically bypass one lobe while the other remains operational.
- \*EIA RS-232 Driver/Receiver (CA5): One 2-wide by 3-high card that converts the EIA/CCITT interface levels to the VTL interface levels required by certain SDLC and BSC/SS communication logic.
- EIA Airlines Reservation (RPQ MK6959) Driver/Receiver (CZ5): One 2-wide by 3-high card that converts the EIA airlines reservation interface levels to the VTL levels required by the communication logic.

- \*CCITT V.35 Driver/Receiver (CA6): One 2-wide by 3-high card that converts the CCITT V.35 interface levels to the VTL interface levels required by certain SDLC and BSC/SS communication logic.
- \*Integrated Modem: Two different cards, both 2-wide by 3-high, that provide modem facilities to permit communication over networks using either SDLC, BSC, or start-stop protocol at speeds of up to 1200 bps. One card (CA9) is used for switched line applications, and the other (CA8) for nonswitched lines. Line speeds and protocols depend on the communication logic used in conjunction with the modem.
- \*Digital Data Service Card (CA7): One 2-wide by 3-high card that permits connection of IBM devices to AT&T's Data-Phone\*\* Digital Service Network through their Channel Service Unit. These devices can operate at speeds of either 2400, 4800, or 9600 bps.
- Multi-Speed Clock Card (CA10): One 2-wide by 3-high card that provides clocking for either a terminal or the processor when using speeds above 2400 bps (SDLC only). This card operates in conjunction with other communications cards to allow direct system connection to either a terminal or a processor, and can provide multiple speeds simultaneously.
- \*CCITT X.21 (Nonswitched) Driver/Receiver (CA11): One 2-wide by 3-high card that converts the CCITT X.21 interface levels to the VTL interface levels required by the SDLC communication logic.
- Display/Printer Adapter (AD1-AD6): Six 4-wide by 3-high cards that provide the logic necessary to control a maximum of 24 (see Note) 3277 Displays, 3284, 3286, 3287, 3288, or 3736 Printers, 129 Card Data Recorders (RPQ MK6956), or 3732 Text Display Stations in any combination. Driver/receiver cards (AD7-AD12) transfer information between the adapter and the attached devices, and each 2-wide by 3-high card can drive four devices through a wire length of 604.7 meters (2000 feet). Only an 8101 or an 8140 Model BXX uses this adapter.

**Note:** *The second display/printer feature (RPQ ML3071) allows attachment of an additional seven devices. It cannot reside in the same 8101 or 8140 Model BXX that has the first display/printer adapter.*

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\*These cards are pin-compatible.

\*\*Trademark of American Telephone and Telegraph Co.

## CP180 8100 System Logic Board Descriptions

The 8100 uses two different size logic boards, depending on the machine type, model, and the features installed:

- The 8130s use two full boards (01A-A1 and 01A-A2): the A1 board has mostly processor I/E unit and storage cards, while the A2 board contains communications and System Expansion Feature cards.
- 8140 Models AXX also use two full boards; the A1 board has mostly processor I/E unit cards, while the A2 board contains most of the storage cards and feature cards.
- 8140 Models BXX use one full board (01A-A1) and six one-half boards; the A1 board has mostly processor I/E unit cards, while the one-half boards are used as follows, depending on the features installed:
  - A2 = communications adapters
  - B2 = disk and diskette adapters
  - C1 = storage and ECC cards
  - C2 = communications, tape, or display/printer adapters
  - D1 = storage addition cards
  - D2 = communications, tape, or display/printer adapters

Refer to Chapter 3 for specific card locations.

- The 8101 can contain a maximum of three boards, all of which are one-half boards and reside in locations 01A-A1, 01A-A2, and 01A-B1. Three board types are used, depending on the devices that attach to the 8101.
  - The display/printer board (01A-A1 or 01A-B1) provides for the attachment of displays and printers. When installed without an 01A-B1 board present, it includes an SSCF card; if the feature is installed in a 01A-B1 board, the board does not contain an SSCF. In either case, only one display/printer board can exist on each 8101, and it contains six display/printer adapter cards and up to six driver/receiver cards.
  - The communications board (01A-A1) provides for the attachment of up to four communications facilities or loops in any combination, and always has an SSCF card. Communications features can be in the 01A-A1 board, in the 01A-B1 expansion board, or in both. When communications features are in both boards, only the 01A-A1 board contains the SSCF.

Each board can contain up to five communications cards that can be any combination of SDLC, BSC/S-S, or airlines reservation (RPQ) adapter cards and any five of the following:

- Integrated modem card
- EIA RS-232 driver/receiver card
- EIA airlines reservation (RPQ) driver/receiver card
- CCITT X.21 (nonswitched) driver/receiver card
- CCITT V.35 driver/receiver card
- Digital data service card
- Loop adapter card for use with directly attached single-lobe SDLC loops
- Loop adapter second lobe card to provide second lobe capability for one of the four possible loops.

The disk/diskette/tape board (01A-A2) always contains an SSCF card and provides for the attachment of devices according to 8101 model as follows:

- Models A10 and A20 have no disk storage, so the A2 board can contain only the diskette and tape adapter cards and the tape driver/receiver card.
- Models A11, A13, and A23 have one disk, so the A2 board contains one disk adapter and can also contain the diskette and tape adapter cards and the tape driver/receiver card.
- Model A25 has two disks, so the A2 board contains two disk adapters and can also contain the tape adapter cards and driver/receiver card, but not the diskette adapter.

## CP200 Addressing and Device Attachment

### CP210 Addressing Levels

One fault isolation procedure uses the address path to a device, which defines the physical address of each level that is necessary to specify the device. The least complex physical address path is an adapter that transfers information with only one device. Diskette storage, for example, specifies only one level, as the physical address and the device address are the same. As another example, three levels are necessary to specify the device if it is a 3277. The first specifies the adapter physical address, the second specifies the port physical address, and the third specifies the 3277 physical address.

The system configuration determines the number of physical address levels needed to specify a particular device or adapter. The most complex physical address path occurs when the adapter has multiple groups each having multiple station adapters, and each station has multiple I/O devices. This example specifies four physical address levels; adapter, group, station, and device.

As shown in Figure CP210-1, the addressing level does not depend on device type, but rather on how the device connects to the 8100 system. For example, a 3276 connected by a data link is a level 02, but a 3276 connected to a loop is a level 03. These levels are specified when building the system configuration table, and are the parameters that specify the path to the device when running tests. The last level specified becomes the level under test.

After specifying the last entry in a test level request, the single character entry immediately following specifies whether: (1) the hardware associated with the last physical address level entry is tested, (2) all devices associated with that physical address level are tested, or (3) the initial test entry message is displayed to select another physical address path.

**Note:** *Online operation permits testing only one physical address path for each test entry. Concurrent analysis occurs only when using offline tests.*

Specific areas contain the physical address path configuration information:

- The configuration tables on the MD diskettes contain the path information when using the MD.
- The environment profile contains the path information when using DPPX online tests.
- The test control monitor configuration table contains the path information when using DPCX.

The path information on the MD diskettes must be identical to that contained in the assigned path information area for the operating system. If the customer performs hardware configuration changes, you must update the configuration tables on the MD diskettes to agree with these changes, or test errors could result.

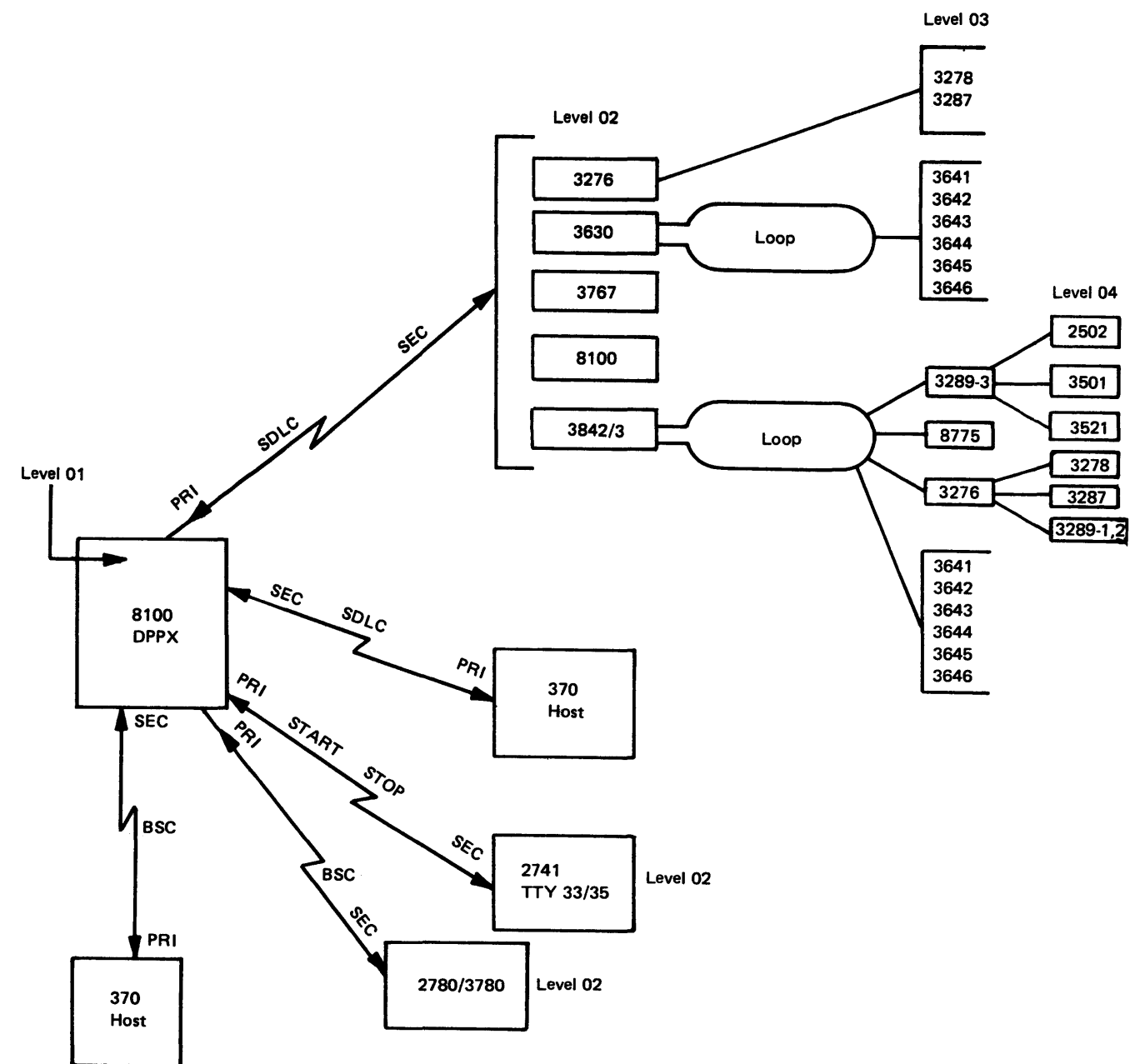


Figure CP210-1. 8100/DPPX Configuration Address Path Levels

**CP220 Fixed Addressing Assignments**

This section describes the fixed addressing assignments on the 8100, which are used for:

- All adapters.
- All communications ports.
- The primary and secondary system control facilities.
- Channel request priorities (feature-dependent).
- Programmed I/O operations.

Also, this section enables you to:

- Convert any DPCX logical address (LA) or primary communications adapter (PCA) address to a physical address.
- Relate any physical address to its associated hardware component and location, MAP and corresponding reference material designation, and MD diskette used for testing.

**CP221 SSCF Address Switches**

Each SSCF (SC5) card contains hardware switches whose binary setting specifies a hexadecimal address used for programmed I/O operations. These address assignments are the same as the physical addresses (PAs) used for system information transfer (see CP223). As in physical addressing, this value defines the SSCF and the device attached to it. For example (see CP222), to transfer information with communications port 1 on the first 8101, the PIO address, as well as the physical address is 10. The first digit specifies the first 8101(1) and the second digit specifies the first communications port (0).

**CP222 PIO Hexadecimal Address Assignments**

Hardware	PIO Address					
	8130/8140 Models AXX	8140 Models BXX	First 8101	Second 8101	Third 8101*	Fourth 8101*
PSCF	08	08	—	—	—	—
BOP	09	09	—	—	—	—
EFP	0A	0A	—	—	—	—
First SSCF	88	88	18	28	38	48
Second SSCF		58	98	A8	B8	C8
First Disk	80	84	90	A0	B0	C0
Second Disk		85	91	A1	B1	C1
Diskette	87	87	97	A7	B7	C7
Tape Adapter		5E	93	A3	B3	C3
Display/Printers		5F	1F	2F	3F	4F
Comm Port 1	81	80	10	20	30	40
Comm Port 2	82	81	11	21	31	41
Comm Port 3	83	82	12	22	32	42
Comm Port 4	84	83	13	23	33	43
Comm Port 5	85	50	1C	2C	3C	4C
Comm Port 6	86	51	1D	2D	3D	4D
Comm Port 7		52	1E	2E	3E	4E
Comm Port 8		53	1F	2F	3F	4F
Comm Port 9		5C	—	—	—	—
Comm Port 10		5D	—	—	—	—
Comm Port 11		5E	—	—	—	—
Comm Port 12		5F	—	—	—	—

Hardware	PIO Address
	8809 Model 1B Tape
SSCF	78
Tape Adapter	73

\*Available on 8140 only.

CP223 Physical Address Assignments and MAP/MD  
Diskette Reference

The following table shows the physical addresses used for the 8100. It also lists the MAP identification number used on the MD diskette and associated reference information, the MD diskette number on which the MAP and tests are contained, and the adapter physical location.

PA	Hardware Component	MAP ID	MD Diskette Number	Location
08	PSCF	SC	01	8130/8140
0A	Expanded Function Panel	SP	01	8140
10	Communications	CA	02	First 8101 Port 1
11	Communications	CA	02	First 8101 Port 2
12	Communications	CA	02	First 8101 Port 3
13	Communications	CA	02	First 8101 Port 4
18	Communications and Display/Printer SSCF	SC	01	First 8101
1C	Communications	CA	02	First 8101 Port 5
1D	Communications	CA	02	First 8101 Port 6
1E	Communications	CA	02	First 8101 Port 7
*1F	Communications	CA	02	First 8101 Port 8
*1F	Display/Printer Adapter	AD	03	First 8101
20	Communications	CA	02	Second 8101 Port 1
21	Communications	CA	02	Second 8101 Port 2
22	Communications	CA	02	Second 8101 Port 3
23	Communications	CA	02	Second 8101 Port 4
28	Communications and Display/Printer SSCF	SC	01	Second 8101
2C	Communications	CA	02	Second 8101 Port 5
2D	Communications	CA	02	Second 8101 Port 6
2E	Communications	CA	02	Second 8101 Port 7
*2F	Communications	CA	02	Second 8101 Port 8
*2F	Display/Printer Adapter	AD	03	Second 8101
30	Communications	CA	02	Third 8101 Port 1
31	Communications	CA	02	Third 8101 Port 2
32	Communications	CA	02	Third 8101 Port 3
33	Communications	CA	02	Third 8101 Port 4
38	Communications and Display/Printer SSCF	SC	01	Third 8101
3C	Communications	CA	02	Third 8101 Port 5
3D	Communications	CA	02	Third 8101 Port 6
3E	Communications	CA	02	Third 8101 Port 7
*3F	Communications	CA	02	Third 8101 Port 8
*3F	Display/Printer Adapter	AD	03	Third 8101
40	Communications	CA	02	Fourth 8101 Port 1
41	Communications	CA	02	Fourth 8101 Port 2
42	Communications	CA	02	Fourth 8101 Port 3
43	Communications	CA	02	Fourth 8101 Port 4
48	Communications and Display/Printer SSCF	SC	01	Fourth 8101
4C	Communications	CA	02	Fourth 8101 Port 5
4D	Communications	CA	02	Fourth 8101 Port 6
4E	Communications	CA	02	Fourth 8101 Port 7
*4F	Communications	CA	02	Fourth 8101 Port 8
*4F	Display/Printer Adapter	AD	03	Fourth 8101

PA	Hardware Component	MAP ID	MD Diskette Number	Location
50	Communications	CA	02	8140 Model BXX Port 5
51	Communications	CA	02	8140 Model BXX Port 6
52	Communications	CA	02	8140 Model BXX Port 7
53	Communications	CA	02	8140 Model BXX Port 8
58	Comm., Display/Printer, and Tape SSCF	SC	01	8140 Model BXX
**5C	Communications	CA	02	8140 Model BXX Port 9
**5D	Communications	CA	02	8140 Model BXX Port 10
**5E	Communications	CA	02	8140 Model BXX Port 11
**5E	Tape Adapter	TA	03	8140 Model BXX
**5F	Communications	CA	02	8140 Model BXX Port 12
**5F	Display/Printer Adapter	AD	03	8140 Model BXX
73	8809 Model 1B Tape	TA	03	8809
78	8809 Model 1B SSCF	TA	03	8809
80	Disk Storage	FA	03	8130/8140 Model AXX
80	Communications	CA	02	8140 Model BXX Port 1
81	Communications	CA	02	8130/40 Model AXX Port 1
81	Communications	CA	02	8140 Model BXX Port 2
82	Communications	CA	02	8130/40 Model AXX Port 2
82	Communications	CA	02	8140 Model BXX Port 3
83	Communications	CA	02	8130/40 Model AXX Port 3
83	Communications	CA	02	8140 Model BXX Port 4
84	Disk Storage	FA	03	8140 Model BXX
84	Communications	CA	02	8130 Port 4
85	Disk Storage	FA	03	8140 Model BXX second disk
85	Communications	CA	02	8130 Port 5
86	Communications	CA	02	8130 Port 6
87	Diskette Storage	DA	03	8130/8140
88	SSCF	SC	01	8130/8140
90	Disk Storage	FA	03	First 8101
91	Disk Storage	FA	03	First 8101 Model A25 second disk
93	Tape Adapter	TA	03	First 8101
97	Diskette Storage	DA	03	First 8101***
98	Disk, Diskette, and Tape SSCF	SC	01	First 8101
A0	Disk Storage	FA	03	Second 8101
A1	Disk Storage	FA	03	Second 8101 Model A25 second disk
A3	Tape Adapter	TA	03	Second 8101
A7	Diskette Storage	DA	03	Second 8101***
A8	Disk, Diskette, and Tape SSCF	SC	01	Second 8101
B0	Disk Storage	FA	03	Third 8101
B1	Disk Storage	FA	03	Third 8101 Model A25 second disk
B3	Tape Adapter	TA	03	Third 8101
B7	Diskette Storage	DA	03	Third 8101***
B8	Disk, Diskette, and Tape SSCF	SC	01	Third 8101
C0	Disk Storage	FA	03	Fourth 8101
C1	Disk Storage	FA	03	Fourth 8101 Model A25 second disk
C3	Tape Adapter	TA	03	Fourth 8101
C7	Diskette Storage	DA	03	Fourth 8101***
C8	Disk, Diskette, and Tape SSCF	SC	01	Fourth 8101

\*The display/printer adapter and the last physical 8101 communications port (8) are mutually exclusive; therefore this address applies to either the port or the display/printer adapter.

\*\*The display/printer adapter, communications ports 9, 10, 11, and 12 and the tape adapter are mutually exclusive in 8140 Models BXX.

\*\*\*Not present on Model A25.

SY27-2521-3  
REA 06-88481

**CP224 DPCX Addressing Conversion Reference**

DPCX system messages identify the failing component as either a logical address (LA) or a primary communications adapter (PCA) address. In some cases, the LA or PCA equals the physical address (PA); in others the LA or PCA must be converted to a PA.

Use the DPCX SYSLDEV Utility (see CP851) to identify the devices listed in the DPCX configuration table area. Use it also to identify the adapter address of an 8809 tape drive, as well as which 32XX device is attached to a downstream control unit.

The following chart lists the PA values for any DPCX LA or PCA.

LA or PCA	PA	Description
04 05 06 07	00 01 02 03	8809 Tape drive Tape drive address = DA = set in switches on the 8809 card.
09	09	Basic operator panel
10 11 12 13	10 11 12 13	Host or PCA address – first 8101
14 15 16 19 1A 1B	00 01 02 03 04 05	Devices connected to the 8101 display/printer adapter PA = the port number to which the device attaches. <b>Note: The next six PAs for this adapter are 06-11.</b>
1C 1D 1E 1F	1C 1D 1E 1F	Host or PCA address – first 8101
1F	1F	Display/printer adapter address – first 8101
20 21 22 23	20 21 22 23	Host or PCA address – second 8101
24 25 26 29 2A 2B	06 07 08 09 10 11	Devices connected to the 8101 display/printer adapter PA = port number to which device attaches The next six PAs for this adapter are 12-17.
2C 2D 2E 2F	2C 2D 2E 2F	Host or PCA address – second 8101
2F	2F	Display/printer adapter address – second 8101
30 31 32 33	30 31 32 33	Host or PCA address – third 8101
34 35 36 39 3A 3B	12 13 14 15 16 17	Devices connected to the 8101 display/printer adapter PA = port number to which device attaches The next six PAs for this adapter are 18-23.
3C 3D 3E 3F	3C 3D 3E 3F	Host or PCA address – third 8101
3F	3F	Display/printer adapter address – third 8101

LA or PCA	PA	Description
40 41 42 43	40 41 42 43	Host or PCA address – fourth 8101
44 45 46 49 4A 4B	18 19 20 21 22 23	Devices connected to the 8101 display/printer adapter PA = port number to which device attaches
4C 4D 4E 4F	4C 4D 4E 4F	Host or PCA address – fourth 8101
4F	4F	Display/printer adapter address – fourth 8101
50 51 52 53	50 51 52 53	Host or PCA address – 8140 Models BXX
54 55 56 57 59	00 01 02 03 04	Devices connected to the second display/printer adapter (RPQ) PA = port number to which device attaches The last two PAs for this adapter are 05 and 06 (LAs 9A and 9B)
5C 5D 5E	5C 5D 5E	Host or PCA address – 8140 Models BXX
5E	5E	Tape adapter – 8140 Model BXX
5F	5F	Host or PCA address – 8140 Model BXX
5F	5F	Display/printer adapter address – 8140 Models BXX
73	73	8809 Model 1B tape adapter address
80 80 81 82 83	80 80 81 82 83	Disk storage – 8130/8140 Models AXX Host or PCA address – 8140 Models BXX
84 85	84 85	Disk storage – 8140 Models BXX
81 82 83 84 85 86	81 82 83 84 85 86	Host or PCA address – 8130/8140
87	87	Diskette storage – 8130/8140
90	90	Disk storage – first 8101
91	91	Disk storage – first 8101 Model A25 (second disk)

LA or PCA	PA	Description
93	93	Tape adapter – first 8101
9A 9B	05 06	Devices connected to the second display/printer adapter (RPQ) PA = Port number to which device attaches
A0	A0	Disk storage – second 8101
A1	A1	Disk storage – second 8101 Model A25 (second disk)
A3	A3	Tape adapter – second 8101
B0	B0	Disk storage – third 8101
B1	B1	Disk storage – third 8101 Model A25 (second disk)
B3	B3	Tape adapter – third 8101
C0	C0	Disk storage – fourth 8101
C1	C1	Disk storage – fourth 8101 Model A25 (second disk)
C3	C3	Tape adapter – fourth 8101
01XX 02XX 03XX 04XX 05XX	01 02 03 04 05	Control unit attached to first data link PCA PA = Control unit data link address
11XX 12XX 13XX 14XX 15XX	11 12 13 14 15	Control unit attached to second data link PCA PA = Control unit data link address
21XX 22XX 23XX 24XX 25XX	21 22 23 24 25	Control unit attached to third data link PCA PA = Control unit data link address
31XX 32XX 33XX 34XX 35XX	31 32 33 34 35	Control unit attached to fourth data link PCA PA = Control unit data link address
41XX 42XX 43XX 44XX 45XX	41 42 43 44 45	Control unit attached to fifth data link PCA PA = Control unit data link address
51XX 52XX 53XX 54XX 55XX 56XX	51 52 53 54 55 56	3289 Model 3 attached to first loop PCA PA = 3289 loop address
61XX 62XX 63XX 64XX 65XX 66XX	61 62 63 64 65 66	3289 Model 3 attached to second loop PCA PA = 3289 loop address
71XX 72XX 73XX 74XX 75XX 76XX	71 72 73 74 75 76	3289 Model 3 attached to third loop PCA PA = 3289 loop address



**CP225 Hardware-Related Physical Addresses**

The following table lists the 8100 physical addresses by hardware type. As some features are mutually exclusive, refer to CP223, which lists the PAs in alphameric order and explains those features that cannot be installed together. Refer to CP224 to convert DPCX logical addresses and primary communications addresses to physical addresses.

Hardware Component	Location	PA
Basic operator panel	8130/8140	09
Expanded function panel (feature)	8140	0A
PSCF	8130/8140	08
SSCF	8130/8140	88
SSCF	8809 Model 1B	78
Communications, display/printer and tape SSCF	8140 Model BXX	58
Communications and display/printer SSCF	First 8101	18
	Second 8101	28
	Third 8101	38
	Fourth 8101	48
Disk, diskette and tape SSCF	First 8101	98
	Second 8101	A8
	Third 8101	B8
	Fourth 8101	C8
Disk adapter (first drive)	8130/8140 Model AXX	80
	8140 Model BXX	84
	First 8101	90
	Second 8101	A0
	Third 8101	B0
Disk adapter (second drive)	8140 Model BXX	85
	First 8101 Model A25	91
	Second 8101 Model A25	A1
	Third 8101 Model A25	B1
	Fourth 8101 Model A25	C1
Diskette adapter	8130/8140	87
	First 8101	97
	Second 8101	A7
	Third 8101	B7
	Fourth 8101	C7
Tape adapter (Model 1A)	8140 Model BXX	5E
	First 8101	93
	Second 8101	A3
	Third 8101	B3
	Fourth 8101	C3
Tape adapter (Model 1B)	8809	73
Communications port 1	8130/8140 Model AXX	81
	8140 Model BXX	80
	First 8101	10
	Second 8101	20
	Third 8101	30
Communications port 2	8130/8140 Model AXX	82
	8140 Model BXX	81
	First 8101	11
	Second 8101	21
	Third 8101	31
Communications port 3	8130/8140 Model AXX	83
	8140 Model BXX	82
	First 8101	12
	Second 8101	22
	Third 8101	32
Communications port 4	8130	84
	8140 Model BXX	83
	First 8101	13
	Second 8101	23
	Third 8101	33
Communications port 5	8130	85
	8140 Model BXX	50
	First 8101	1C
	Second 8101	2C
	Third 8101	3C
Communications port 6	8130	86
	8140 Model BXX	51
	First 8101	1D
	Second 8101	2D
	Third 8101	3D
Communications port 7	8140 Model BXX	52
	First 8101	1E
	Second 8101	2E
	Third 8101	3E
	Fourth 8101	4E
Communications port 8	8140 Model BXX	53
	First 8101	1F
	Second 8101	2F
	Third 8101	3F
	Fourth 8101	4F
Communications port 9	8140 Model BXX	5C
Communications port 10	8140 Model BXX	5D
Communications port 11	8140 Model BXX	5E
Communications port 12	8140 Model BXX	5F
Display/printer adapter	8140 Model BXX	5F
	First 8101	1F
	Second 8101	2F
	Third 8101	3F
	Fourth 8101	4F

Hardware Component	Location	PA
Communications port 3	8130/8140 Model AXX	83
	8140 Model BXX	82
	First 8101	12
	Second 8101	22
	Third 8101	32
Communications port 4	8130	84
	8140 Model BXX	83
	First 8101	13
	Second 8101	23
	Third 8101	33
Communications port 5	8130	85
	8140 Model BXX	50
	First 8101	1C
	Second 8101	2C
	Third 8101	3C
Communications port 6	8130	86
	8140 Model BXX	51
	First 8101	1D
	Second 8101	2D
	Third 8101	3D
Communications port 7	8140 Model BXX	52
	First 8101	1E
	Second 8101	2E
	Third 8101	3E
	Fourth 8101	4E
Communications port 8	8140 Model BXX	53
	First 8101	1F
	Second 8101	2F
	Third 8101	3F
	Fourth 8101	4F
Communications port 9	8140 Model BXX	5C
Communications port 10	8140 Model BXX	5D
Communications port 11	8140 Model BXX	5E
Communications port 12	8140 Model BXX	5F
Display/printer adapter	8140 Model BXX	5F
	First 8101	1F
	Second 8101	2F
	Third 8101	3F
	Fourth 8101	4F

**CP230 How Devices Attach to the 8100**

IBM machine types attach to an 8130, 8140, or 8101 by using either a Facility for Attaching Communications (FAC) number group, or another IBM machine type attached to a FAC. For example, the 2502-A1 attaches only to a 3782-2, which can attach only to a 3289-3. The 3289-3, in turn, can attach only through FACs 10 or 11. Refer to the chart below for the methods of device attachment for an 8100 system.

**Note:** This chart does not attempt to show the features needed for device attachment. Refer to Chapter 4, GR220, for such information.

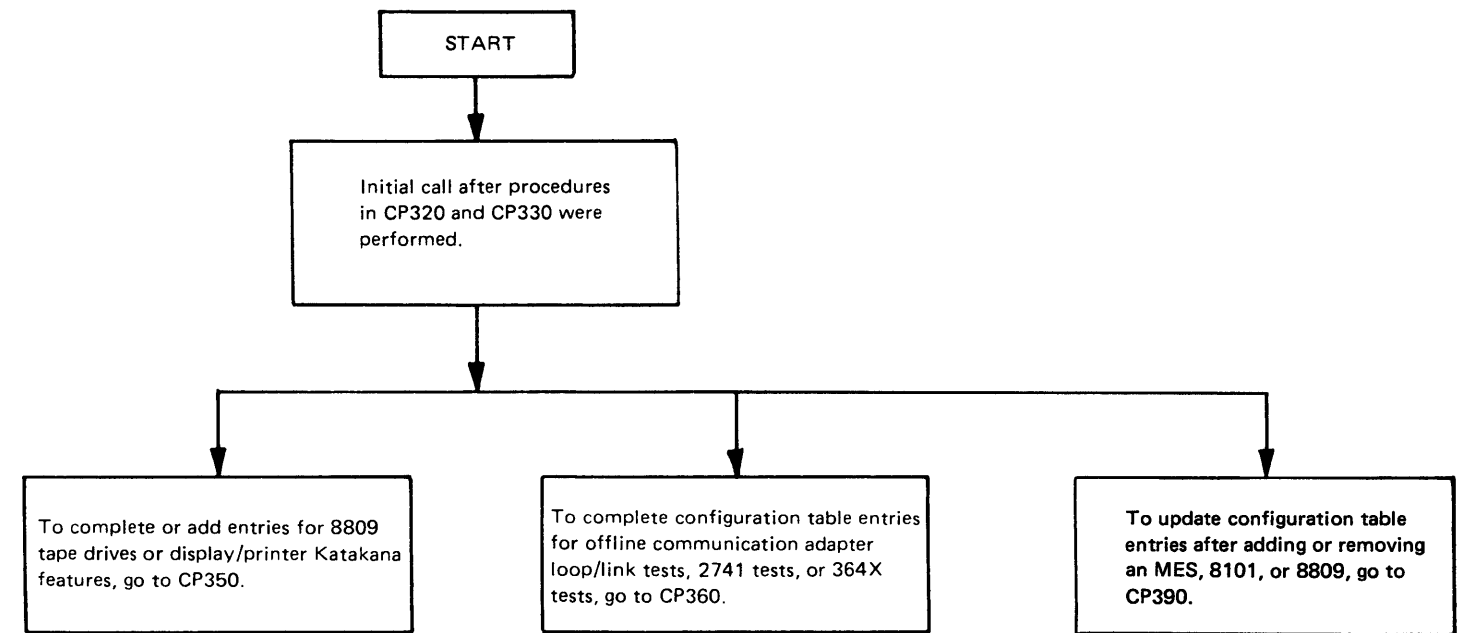
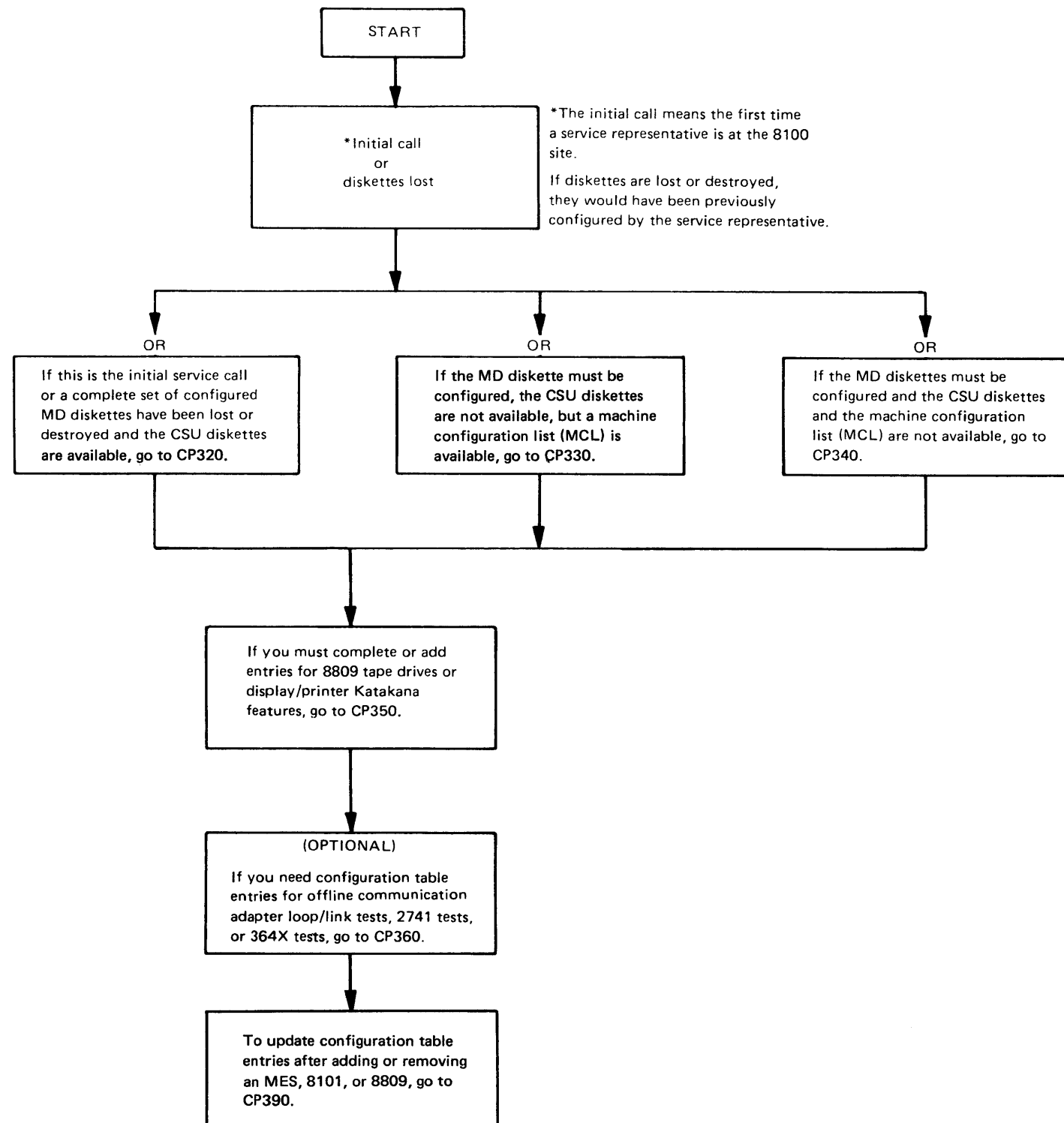
Machine Type	Attaches Using	
	FAC Nos	or Machine Type
129 (RPQ MK6956)	None	8101
*2502-A1	None	3782-2 to 3289-3
2741	60,61	
2780 Protocol Devices	40,41,43,44,45,47	
3101-10	60,61	
3262-2,12	8,9,10,11	
3274-1C	30	
3274-51C,52C	8,9,10,11,12,13,15,16,18,20	
3276-2,3,4	10,11,12,13,15,16,18,20	
3276-11,12,13,14	10,11,12,13,15,18,20,30	
3277-1,2	None	8101
3278-1,2,3,4	None	3276-11,12,13,14
3284-1,2	None	8101
3286-1,2	None	8101
3287-1,2	None	3276-11,12,13,14,8101
3287-11,12	8,9,10,11	
3288-2	None	8101
3289-1,2	None	3276-11,12,13,14
3289-3	10,11	
*3501	None	3289-3
*3521	None	3782-1 to 3289-3
3601-1,2A,2B,3A,3B	30	
3602-1A,1B	30	
3631/32-1A,1B	12,13,18,20	
3641-1,2	10,11	3631/3632

\*The 2502, 3501, and 3521 with Card Read/Punch Checking feature are mutually exclusive on the same 3289-3.

Machine Type	Attaches Using	
	FAC Nos	or Machine Type
3642-1,2	10,11	3631/3632
3643-2,3,4	10,11	3631/3632
3644-1	10,11	3631/3632
3645	10,11	3631/3632
3646	10,11	3631/3632
3647	10,11	
3684-1,2	30,31	
3705-2	30,31	
3750 (WT)	40,41	
3767-1,2,3	12,13,15,18,20,30	
3771	30	
3774	30	
3775	30	
3776-1,2,3,4	30	
3777-1,3	30	
3780 Protocol Devices	40,41,43,44,45,47	
3782-1,2	None	3289-3
3842	13	
3843 (WT)	13	
3872/74/75/76		
3976-1,3		
4331	30,31	
8101, all models	12,13,15,16,17,18,20,24,25,27	
8130, all models	12,13,15,16,17,18,20,24,25,27	
8140, all models	12,13,15,16,17,18,20,24,25,27	
8775	8,9,10,11,12,13,15,16,18,20	
ASR/TTY Protocol Devices	60	
SYS/370-3704/05	12,13,18,19,20,40,41,45,47	
SYS/370-ICA	40,41,45,47	

# CP300 MD Diskette Configuration Procedures

## CP310 Configuration Procedure Start MAP



**CP320 Building a Configuration Table Using Customer Setup Diskettes**

Use this procedure on the initial service call or when a complete set of configured MD diskettes have been lost or destroyed. It enables you to use the preconfigured CSU diskettes and the Append Utility to combine each CSU diskette configuration table into one configuration table located on MD diskette 01.

1. Obtain the CSU and MD diskettes.
2. Using MD diskette 01, select the Append Utility. Append the CSU diskette configuration tables to MD diskette 01. Refer to "Append Utility" (CP465) if necessary.

**Notes:**

1. *When initially shipped with the 8130/8140, MD diskette 01 has been preconfigured with the 8130/8140 configuration information. Only the 8101 CSU diskettes need to be appended.*
2. *After completing step 2, the configuration table contains the information required to repair the hardware within the 8130/8140/8101 enclosures. If your problem is within the enclosures, you may postpone the remaining configuration procedures.*
3. Using the Copy Utility, copy the configuration table from MD diskette 01 to MD diskettes 02 and 03.
4. Using MD diskette 01, select the Configuration Utility and go to CP350. See CP466 for detailed Configuration Utility operation, if necessary. The following hints could be helpful:

- The Configuration Utility options are selected from the PF Menu. Display the PF Menu by pressing the PF key.
- The "file-to-diskette" and "terminate" options are selected from the RST menu. Display the RST menu by pressing the RESET key.
- Adds are done by first displaying the location preceding the add start point using any display option, then pressing PF and selecting the ADD option. You can add up to 16 sequential entries before requesting a configuration table assembly. You do not need to enter trailing zeroes in an entry option field (OP).
- Make changes to an entry by displaying the entry to be changed using any display option, then pressing PF and selecting the CHANGE option. Only digits entered are changed.

**CP330 Building a Configuration Table Using the Machine Configuration List**

Use this procedure when the MD diskettes must be configured and the CSU diskettes are not available. It enables you to use the Machine Configuration List (MCL) that is attached to the machine history and shipped with each 8130, 8140, and 8101. The MCL contains a description of each hardware element and its configuration data entry (CDE). These CDEs are identical to the entries in the CSU configuration tables. The procedure consists of identifying the required CDEs and entering them in the proper order using the Configuration Utility.

1. Obtain the MD diskettes and the MCLs for the 8130/8140 and each 8101.
2. Using MD diskette 01, select the Configuration Utility. The Utility is used in the following steps. See CP466 for detailed Configuration Utility operation, if necessary. The following hints could be helpful:

- The Configuration Utility options are selected from the PF Menu. Display the PF menu by pressing the PF key.
- The "file-to-diskette" and "terminate" options are selected from the RST menu. Display the RST menu by pressing the RESET key.
- Adds are done by first displaying the location preceding the add start point, using any display option, then pressing PF and selecting the ADD option. You can add up to 16 sequential entries before requesting a configuration table assembly. You do not need to enter trailing zeroes in an entry option field (OP).
- Make the changes to an entry by displaying the entry to be changed, using any display option, then pressing PF and selecting the CHANGE option. Only digits entered are changed.

3. Delete any previous entries from the configuration table in storage as follows:
  - a. Press PF.
  - b. Select the DEL option (A).
  - c. At message 710A, enter DB (Table Delete).
  - d. Press PF.

**Note:** *When inputting configuration table entries, do not use spaces (blanks). Also, trailing zeroes must be specified only for the CHANGE option, not the ADD.*

4. Using the 8130/8140 MCL, locate the 8130/8140 Processor entry. The table below shows the format.

CDE Description	Required or Optional	CDE Format							Comments
		LV	PA	UTUT	OP	OP	OP	OP	
8130 or 8140	Required	0C	99	0F00	OP	OP	OP	OP	Processor entry

Enter the entry as follows:

- a. At the PF menu, select the 1st option (5) to display the first configuration table entry (all Fs).
- b. Press PF.
- c. Select the CHANGE option (7).
- d. Enter the complete processor CDE including trailing zeroes.

5. Add the following entries after the processor entry:
  - a. At the PF menu, select the ADD option (8).
  - b. Add the following entries:

Required or Optional	Configuration Entry							Comments
	LV	PA	UTUT	OP	OP	OP	OP	
Required	0C	60	0F30	00	00	00	00	Format Utility
Required	0C	69	00F0	00	00	00	00	SCF SYS Entry

Note: Do not assemble the configuration table at this time.

6. Using the 8130/8140 MCL, locate the following CDEs. Add the entries after the SCF SYS entry.

CDE Description	Required or Optional	CDE Format							Comments
		LV	PA	UTUT	OP	OP	OP	OP	
Pri Sys Cntl	Required	01	08	00F0	10	00	OP	OP	
Sec Sys Cntl (SSCF)	See Comments	02	88	00F0	OP	OP	OP	OP	Required for 8140; optional for 8130.
Sec Sys Cntl (SSCF)	See Comments	02	58	00F0	OP	OP	OP	OP	Optional for 8140 Model BXX; does not apply for 8130.
Exp Func Panel	See Comments	02	0A	00F1	00	00	00	00	Optional for 8140; does not apply for 8130.
Disk Storage	Required	01	PA	0020	OP	OP	OP	OP	Maximum 2
Diskette Storage	Required	01	87	0002	00	00	00	00	
Tape Adapter	Optional	01	5E	0040					
Display/Printer Adapter	Optional	01	5F	0080					
Driver/Rec X-7	Optional	02	PT	0080	00	00	00	00	LV 02 = Display/Printer Adapter Port; LV 03 = Driver/Receiver for that port. Maximum: 6 groups of 8 entries (4 ports), or 24 ports (see CP145 and CP180)
		03	PT	0100	00	00	00	00	
		02	PT	0080	00	00	00	00	
		03	PT	0100	00	00	00	00	
		02	PT	0800	00	00	00	00	
		03	PT	0100	00	00	00	00	
		02	PT	0800	00	00	00	00	
Comm Feature	Optional	01	PA	UTUT	OP	OP	OP	OP	Maximum: 12 on an 8140; 6 on an 8130.

To add entries:

- a. Continue adding entries after the PSCF entry, using the ADD option (8).
  - b. Assemble the configuration table after the last addition.
7. Continue with step 8 if 8101s are present; if none are present, go to CP350.
  8. Using the 8101 MCL, locate up to two "Sec Sys Cntl" entries.

CDE Description	Required or Optional	CDE Format							Comments
		LV	PA	UTUT	OP	OP	OP	OP	
See Sys Cntl (SSCF)	Required	02	P8	00F0	OP	OP	OP	OP	Maximum: 2 on each 8101.

Add the entries as follows:

- a. At the PF menu, select the PA option (2).

- b. Enter 0888 (displays first SSCF Entry 02 88 00F0).
- c. Press PF.
- d. Select the ADD option (8).
- e. Add the Sec Sys Cntl entry or entries.
- f. Assemble the configuration table.

9. Using the same 8101 MCL, locate the following CDEs. Add the entries at the end of the configuration table.

Note: The start of the 8101 MCL identifies the "P" in the CDE entry.

CDE Description	Required or Optional	CDE Format							Comments
		LV	PA	UTUT	OP	OP	OP	OP	
Disk Storage	Optional	01	PA	0020	OP	OP	OP	OP	
Diskette Storage	Optional	01	P7	0002	00	00	00	00	
Tape Adapter	Optional	01	PA	0040	00	00	00	00	
Display/Printer Adapter	Optional	01	PF	0080	00	00	00	00	
Driver/Rec X-7	Optional	02	PT	0080	00	00	00	00	LV 02 = Display/Printer Adapter Port; LV 03 = Driver/Receiver for that port. Maximum: 6 groups of 8 entries (4 ports), or 24 ports (see CP145 and CP180)
		03	PT	0100	00	00	00	00	
		02	PT	0080	00	00	00	00	
		03	PT	0100	00	00	00	00	
		02	PT	0800	00	00	00	00	
		03	PT	0100	00	00	00	00	
		02	PT	0800	00	00	00	00	
Comm Feature	Optional	01	PA	UTUT	OP	OP	OP	OP	Maximum: 8 on an 8101

To add entries:

- a. At the PF menu, select the LST option (6), which displays the last configuration table entry.
  - b. Press PF.
  - c. Select the ADD option (8).
  - d. Add the above entries to the configuration table.
  - e. Assemble the table after the last addition or as required by the number of entries.
10. (OPTIONAL) Record the entries on diskette as follows:
    - a. Press RESET.
    - b. At the RST menu, select the FILE option (2).
    - c. After completing the FILE option, select the Configuration Utility for use in the remaining steps.
  11. To input the entries for another 8101, repeat steps 8, 9, and 10.

Note: After inputting the CDEs for the 8101s, the configuration table contains the information required to repair the hardware within the 8130/8140/8101 enclosures. If your problem is within the enclosures, you may postpone the remainder of the procedures; if not within the 8130/8140/8101, go to step 12.

12. To complete the configuration table, go to CP350.
13. Using the Copy Utility, copy the system configuration table from MD diskette 01 to MD diskettes 02, 03 and 09. Refer to CP463 "Copy Utility" if necessary.

**CP340 Building a Configuration Table Without CSU Diskettes or the MCL**

The configuration procedures in CP320 and CP330 are the preferred method for MD diskette configuration. Use this procedure only when all configuration information has been lost and you must generate the configuration table by hardware examination.

Steps 1 through 16 first enable you to determine and list the entries for the 8130/8140 Processor. You then use step 20 to determine and list the processor communications features. Next, you determine and list the configuration entries for an 8101; and again use step 20 for the 8101 communication features. Finally you repeat steps 9 through 14 for each additional 8101. After listing entries, you then input the total list to the MD by using the Configuration Utility, which builds the configuration table. If necessary to complete the tape and the display/printer adapter Katakana entries, you must use the procedure in CP350. Proceed as follows:

1. Use the 8130/8140 model number and the following charts to determine and list the 8130/8140 processor entry:

*Note: Obtain the model number from the label on the operator panel.*

8130 Model	Entry Determination	Configuration Entry	Description
A2X	Are storage cards in 8130 sockets A1B2 or A1D2? YES. If B2 only, list →	0C990F00S2182XA0*	768K storage installed
	If B2 and D2, list →	0C990F00S2202XA0*	1024K storage installed
	NO. Is a card in 8130 socket A1C2? If NO, list →	0C990F00S2082XA0*	256K storage installed
	If YES, does C2 card physically look like card in socket A1A2? If YES, list →	0C990F00S2102XA0*	512K storage installed
	If NO, list →	0C990F00S2082XA0*	384K storage installed
		Where: S = 0 = No ECC S = 1 = ECC X = Last digit of model number	

8140 Model	Entry Determination	Configuration Entry	Description
A3X	Is a storage card installed in 8140 socket A2U2? If YES, list → If NO, list →	0C990F00020C3XA0* 0C990F0002083XA0*	384K storage installed 256K storage installed
A4X	None needed. List →	0C990F00030A4XA0*	320K storage and floating point installed
A5X	None needed. List →	0C990F0002105XA0*	512K storage installed
A6X	None needed. List →	0C990F0002186XA0*	768K storage installed
A7X	None needed. List →	0C990F0002207XA0*	1024K storage installed
B5X	Is a card installed in 8140 socket A1R2? If YES, list → If NO, list →	0C990F0013105XB0* 0C990F0012105XB0*	512K storage and floating point installed 512K storage installed
B6X	Is a card installed in 8140 socket A1R2? If YES, list → If NO, list →	0C990F0013186XB0* 0C990F0012186XB0*	768K storage and floating point installed 768K storage installed
B7X	Is a card installed in 8140 socket A1R2? If YES, list → If NO, list →	0C990F0013207XB0* 0C990F0012207XB0*	1024K storage and floating point installed 1024K storage installed

\*X = last digit of the model number.

2. a. List the following Disk Storage Utility and SCF entries:

Configuration Entry	Description
0C600F30	Disk Storage Utility
0C6900F0	SCF Sys Entry

b. Using the 8130/8140 model number, list the appropriate PSCF entry as follows:

8130/8140 Model	Configuration Entry	Description
AXX	010800F010004380	PSCF
BXX	010800F010004384	PSCF

3. Using the machine type and model number, list the appropriate processor SSCF entry or entries as follows:

Machine/Model	Entry Determination	Configuration Entry	Description
8130 All models	Is a card in 8130 socket A2C2? If YES, list → If NO, entry not needed.	028800F054	SSCF address=88
8140 Model AXX	None needed. List →	028800F054	SSCF address=88
8140 Model BXX	Is a board installed in 01A-C2? If YES, list → two entries → If NO, list →	028800F054 025800F06C 028800F054	SSCF address=88 SSCF address=58 SSCF address=88

4. Determine if an 8140 expanded function panel is installed by examining the area to the left of the 8140 basic operator panel. If installed, list 020A00F1.

5. Use the 8130/8140 model number to list the appropriate disk storage entry as follows:

Machine/Model	Entry Determination	Configuration Entry	Description
A21, A31, A41, A51, A61, A71	None needed. List →	0180002010	29M byte disk storage installed.
A22, A32, A42, A52, A62, A72	Non needed. List →	0180002030	23M byte disk storage with fixed heads installed.
A23, A33, A43, A53, A63, A73	None needed. List →	0180002020	64M byte disk storage installed.
A24, A34, A44, A54, A64, A74	None needed. List →	0180002040	58M byte disk storage with fixed heads installed.
B51, B61, B71	None needed. List →	0184002040	58M byte disk storage with fixed heads installed.
B52, B62, B72	None needed. List → two entries →	0184002040 0185002020	58M byte disk with fixed heads and 64M byte disk installed.

6. List the following diskette storage entry → 01870002.

7. Go to step 20 to determine and list the processor communication features.

8. Is an 8140 Model AXX being configured?

If YES, go to step 11.

If NO, you are configuring a Model BXX. Is a board present in position C2?

If NO, go to step 11.

If YES, go to step 9.

9. Determine if an 8140 Model BXX tape adapter is present as follows:

Machine/Model	Entry Determination	Configuration Entry	Description
8140 Model BXX	Is there a 4-wide card in 01A-C2J2 or 01A-D2J2? If YES, list → If NO, go to step 10.	015E0040	8809 Model 1A tape adapter installed. 8809 Model 1A tape adapter not installed.

10. Determine if an 8140 Model BXX display/printer adapter is present as follows:

Machine/Model	Entry Determination	Configuration Entry	Description
8140 Model BXX	Is there a 4-wide card in 01A-C2C2 or 01A-D2C2? If NO, go to step 11. If YES, →	Use the following chart and Figure CP340-1 to determine and list the entries that apply.	Display/printer adapter not installed. Display/printer adapter installed.

Driver/Receiver Card	Used For Port Numbers
H2	0-3
J2	4-7
H4	8-11
J4	12-15
K2	16-19
K4	20-23

11. Perform steps 12 through 17 for each attached 8101. If no 8101s are attached or all configuration entries have been listed go to step 18.

12. Obtain the model number from the address group label on the 8101 operator panel to determine and list the optional disk storage entry as follows:

8101 Model	Entry Determination	Configuration Entry	Description
A10, A20	Entry not needed	None	No disk installed
A11	Obtain the "P" value from the address group label. (This can be 9, A, B, or C.) Substitute this value for P when you list _____ →	01P0002010	29M byte disk storage installed
A13, A23	Obtain the "P" value from the address group label. (This can be 9, A, B, or C.) Substitute this value for P when you list _____ →	01P0002020	64M byte disk storage installed
A25	Obtain the "P" value from the address group label. (This can be 9, A, B or C.) Substitute this value for P when you list 2 entries _____ → _____ →	01P0002020 01P1002020	Two 64M byte disks installed

13. Determine if a diskette storage is installed by examining the 8101 unit. If installed, list the following entry:

Entry Determination	Configuration Entry	Description
Obtain the "P" value from the address group label. (This can be 9, A, B, or C.) Substitute this value for P when you list _____ →	01P70002	Diskette storage installed

14. If a tape adapter has previously been listed, go to step 15. Otherwise, determine if a Model 1A tape adapter is installed by examining the 8101 for cards in positions 01A-A2B2, 01A-A2C2, and 01A-A2D2. If the board and cards are installed, list the following entry:

Entry Determination	Configuration Entry	Description
Obtain the "P" value from the address group label. (This can be 9, A, B, or C.) Substitute this value for P when you list _____ →	01P30040	8809 Model 1A tape adapter installed

15. If a display/printer adapter has previously been listed, go to step 16. Otherwise, determine if an 8101 display/printer adapter is installed as follows:

- a. Examine the 8101 for boards installed in positions A1 and B1. Are both boards missing?

If YES, a display/printer adapter is not installed. Go to step 16.

If NO, is there a 4-wide card installed in either 01A-A1G2 or 01A-B1G2?

If NO, a display/printer adapter is not installed. Go to step 16.

If YES, a display/printer adapter is installed. Determine the location of the driver/receiver cards installed in the board containing the adapter (see the following table) and go to step b.

**Note:** A second display/printer adapter (RPQ) could be installed in another 8101 with the driver/receiver cards in positions H2 and J2.

Driver/Receiver Card	Used For Port Numbers
H2	0-3
J2	4-7
H4	8-11
J4	12-15
K2	16-19
K4	20-23



- b. Using the cards installed as determined in step a, list the entries that apply (see Figure CP340-1).

Configuration Entry	Entry Determination	Description
01PF0080	Obtain the "P" value from the address group label. (This can be 1, 2, 3, 4, or 5.) Substitute this value for P when you list the entry.	Display/printer adapter installed.
02000080 03000100 02010080 03010100 02020080 03020100 02030080 03030100	Card in socket H2	Display/printer ports 0-3 installed.
02040080 03040100 02050080 03050100 02060080 03060100 02070080 03070100	Card in socket J2	Display/printer ports 4-7 installed.
02080080 03080100 02090080 03090100 02100080 03100100 02110080 03110100	Card in socket H4	Display/printer ports 8-11 installed.
02120080 03120100 02130080 03130100 02140080 03140100 02150080 03150100	Card in socket J4	Display/printer ports 12-15 installed.
02160080 03160100 02170080 03170100 02180080 03180100 02190080 03190100	Card in socket K2	Display/printer ports 16-19 installed.
02200080 03200100 02210080 03210100 02220080 03220100 02230080 03230100	Card in socket K4	Display/printer ports 20-23 installed.

Figure CP340-1. Display/Printer Configuration Table Entries

16. Determine and list the 8101 SSCF entries as follows:

- a. Is a board installed in the 8101 A1 position?  
If YES, go to step b.  
If NO, go to step e.
- b. Determine the SSCF address group by examining the 8101 operator panel address group label. The address group number is either 1, 2, 3, or 4.
- c. Determine if a display/printer adapter was installed according to step 15 for the 8101 being configured.
- d. Using the information from steps b and c, select one SSCF configuration table entry from the following chart and list it immediately under the PSCF entry listed in step 2. For example, the following SSCF entry specified an 8101 having a display/printer adapter on address group 1.

PSCF Entry 010800F010

SSCF Entry 021800F074

8101 Display/Printer Adapter Installed	SSCF Configuration Entry			
	Address Group 1	Address Group 2	Address Group 3	Address Group 4
No	021800F01C	022800F014	023800F00C	024800F004
Yes	021800F074	022800F074	023800F074	024800F074

- e. Is a board installed in the 8101 A2 position?  
If YES, go to step f.  
If NO, go to step 17.
- f. Determine the SSCF address group by examining the 8101 operator panel address group label. The address group number is either 9, A, B, or C.
- g. Was either a disk storage, diskette storage, or tape adapter installed in the 8101 being configured as determined in steps 12, 13, and 14 respectively?
- h. Using the information from steps f and g, select one SSCF configuration table entry from the following chart and list it immediately under the PSCF entry listed in step 2. For example, the following SSCF entry specifies an 8101 having disk storage but no diskette storage or tape adapter.

PSCF Entry 010800F010

SSCF Entry 029800F03C

8101 Adapter Installed			SSCF Configuration Entry			
Tape	Diskette	Disk	Address Group 9	Address Group A	Address Group B	Address Group C
Yes	*	*	029800F05C	02A800F05C	02B800F05C	02C800F05C
No	Yes	*	029800F04C	02A800F04C	02B800F04C	02C800F04C
No	No	Yes	029800F03C	02A800F034	02B800F02C	02C800F024

\*Information not required.

17. Go to step 20 to determine and list the 8101 communications features.

18. Configure the MD diskettes as follows:

a. Obtain the MD diskettes.

b. Using MD diskette 01, select the Configuration Utility. This utility is used in the following steps. Refer to "Configuration Utility" in CP466 for detailed operation if necessary.

The following Configuration Utility hints could be helpful:

- The Configuration Utility options are selected from the PF menu. Display the PF menu by pressing the PF key.
- The "file-to-diskette" and "terminate" options are selected from the RST menu. Display the RST menu by pressing the RESET key.
- Adds are done by first displaying the location preceding the add start point using any display option, the pressing PF and selecting the ADD option. You can add up to 16 sequential entries before requesting a configuration table assembly. You do not need to enter trailing zeroes in an entry option field (OP).
- Make changes to an entry by displaying the entry to be changed using any display option, then pressing PF and selecting the CHANGE option. Only digits entered are changed.

c. Delete any previous entries from the configuration table in storage as follows:

- (1) Press PF.
- (2) Select the DEL option (A).
- (3) At message 710A, enter DB (Table Delete).
- (4) Press PF.

**Note:** When inputting configuration table entries, do not use spaces (blanks). Also, trailing zeros must be specified only for the CHANGE option, not the ADD.

d. Enter the first entry (Processor Entry) that you listed as follows:

Processor entry example 0C 99 0F00 OP OP OP

- (1) At the PF menu, select the 1st option (5) to display the first configuration table entry (all Fs).
- (2) Press PF.
- (3) Select the CHANGE option (7).
- (4) Enter the complete processor entry including trailing zeros.

e. Add the remaining listed entries after the processor entry as follows:

- (1) At the PF menu, select the ADD option (8).
- (2) Enter each entry sequentially. After every 16 entries, reassemble the configuration table, then continue adding the remaining entries.
- (3) Assemble the configuration table after the last entry added.

f. Record the entries on the diskette as follows:

- (1) Press RESET.
- (2) Select the FILE option (2).
- (3) After completing the FILE option, select the Configuration Utility for use in the remaining steps.

**Note:** At the completion of this step, the configuration table contains the information required to repair the hardware within the 8103/8140/8101 enclosures. If your problem is within the enclosures, you may postpone the remainder of the procedures. Using the copy utility, copy the system configurations table from MD diskette 01 to MD diskettes 02 and 03. Refer to CP463 "Copy Utility" if necessary.

19. To complete the configuration table, go to CP350.

20. Each communication port uses one adapter card (CA1 or CA2) and a driver/receiver card (CA3, 5, 6, 7, 8, 9, or 11) or CZ5 (RPQ). In addition, some ports that use the CA3 (loop) card could have a CA4 card installed for the second lobe loop. (See Figures CP340-3 through CP340-6.) Each communications port has an associated I/O connector, which has an external cable identifier A through K positioned to the right of it. (See Figures CP340-7 through CP340-10.) This cable ID identifies a group of communication FAC numbers that can use that cable. The following procedure identifies the correct FAC number from that FAC group.

a. Using Figures CP340-7 through CP340-10, examine the communications I/O connector area. Record the port number, cable ID, and physical address of the first or next communications port to be configured.

**Note:** If no IDs are present, go to step 8 if performing processor communications configuration or to step 11 for an 8101.

b. Using the cable ID, PA, port number, and Figure CP340-2, determine and list the communications adapter FAC number and configuration entry. Use the FAC number in CP360 to complete communications adapter configuration entries. You might need to examine the port adapter and driver/receiver cards for type, port option wires, and card jumpers to determine FAC numbers. Use Figures CP340-3 through CP340-6 for port socket identification; use CP380 for card type identification.

c. To configure another communications port repeat this step. If all communication ports for the machine being configured have been listed, return to step 8 if performing processor communications configuration or to step 11 for an 8101.

Cable ID	Can Be FAC(s)	FAC Determination	FAC Number	Configuration Table Entry																																
A	18, 19, or 45	If CA8 and CA1 cards are installed, list → If CA8 and CA2 cards are installed, list → If CA9 card is installed, list →	18 45 19	01PA00600101 01PA00612101 01PA0060011110																																
B	18 or 45	If CA1 card is installed, list → If CA2 card is installed, list →	18 45	01PA00600101 01PA00612101																																
C	12, 13, 40, 41, 60 or A2	If CA1 card with clock is installed, list → If CA1 card without clock is installed, list → If CA2 card without clock is installed, list → If CA2 card without clock is installed for airlines RPQ, list → If CA2 card with clock is installed, is there a wire between CA2 socket pins M13 and P08? If YES, list → If NO, list →	12 13 41 A2 60 40	01PA00600001 01PA00600000 01PA00612001 01PA006FFF00 01PA00611001 01PA00612001																																
D	19	None required. List →	19	01PA0060011110																																
E	8, 9, 10, 11	<ul style="list-style-type: none"> <li>If 8130 ports 1, 2, or 3 are being configured, check CA3 card of port being configured for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list →</li> <li>If 8130 ports 4, 5, or 6 or 8140 Model AXX ports 1 or 2, are being configured, is there a CA4 card in the socket associated with the port being configured?</li> </ul> <table border="1"> <thead> <tr> <th>8130 Port</th> <th>CA4 Socket</th> <th>8140 Port</th> <th>CA4 Socket</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>A2Q2</td> <td>1</td> <td>A2F4</td> </tr> <tr> <td>5</td> <td>A2S2</td> <td>2</td> <td>A2H4</td> </tr> <tr> <td>6</td> <td>A2U2</td> <td></td> <td></td> </tr> </tbody> </table> <p>If YES, check CA4 card for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list →</p> <p>If NO, check the CA3 card on the same port for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list →</p> <ul style="list-style-type: none"> <li>If 8140 Model BXX, or 8101, is there a CA4 card installed on the board of the port being configured?</li> </ul> <table border="1"> <thead> <tr> <th>8140 Port</th> <th>CA4 Socket</th> <th>8101 Port</th> <th>CA4 Socket</th> </tr> </thead> <tbody> <tr> <td>2-4</td> <td>A2J4</td> <td>1-4</td> <td>A1J4</td> </tr> <tr> <td>5-8</td> <td>C2J4</td> <td>5-8</td> <td>B1J4</td> </tr> <tr> <td>9-12</td> <td>D2J4</td> <td></td> <td></td> </tr> </tbody> </table>	8130 Port	CA4 Socket	8140 Port	CA4 Socket	4	A2Q2	1	A2F4	5	A2S2	2	A2H4	6	A2U2			8140 Port	CA4 Socket	8101 Port	CA4 Socket	2-4	A2J4	1-4	A1J4	5-8	C2J4	5-8	B1J4	9-12	D2J4			10 8 11 9 10 8	01PA00600203 01PA0060020301 01PA00600213 01PA0060021301 01PA00600203 01PA0060020301
8130 Port	CA4 Socket	8140 Port	CA4 Socket																																	
4	A2Q2	1	A2F4																																	
5	A2S2	2	A2H4																																	
6	A2U2																																			
8140 Port	CA4 Socket	8101 Port	CA4 Socket																																	
2-4	A2J4	1-4	A1J4																																	
5-8	C2J4	5-8	B1J4																																	
9-12	D2J4																																			

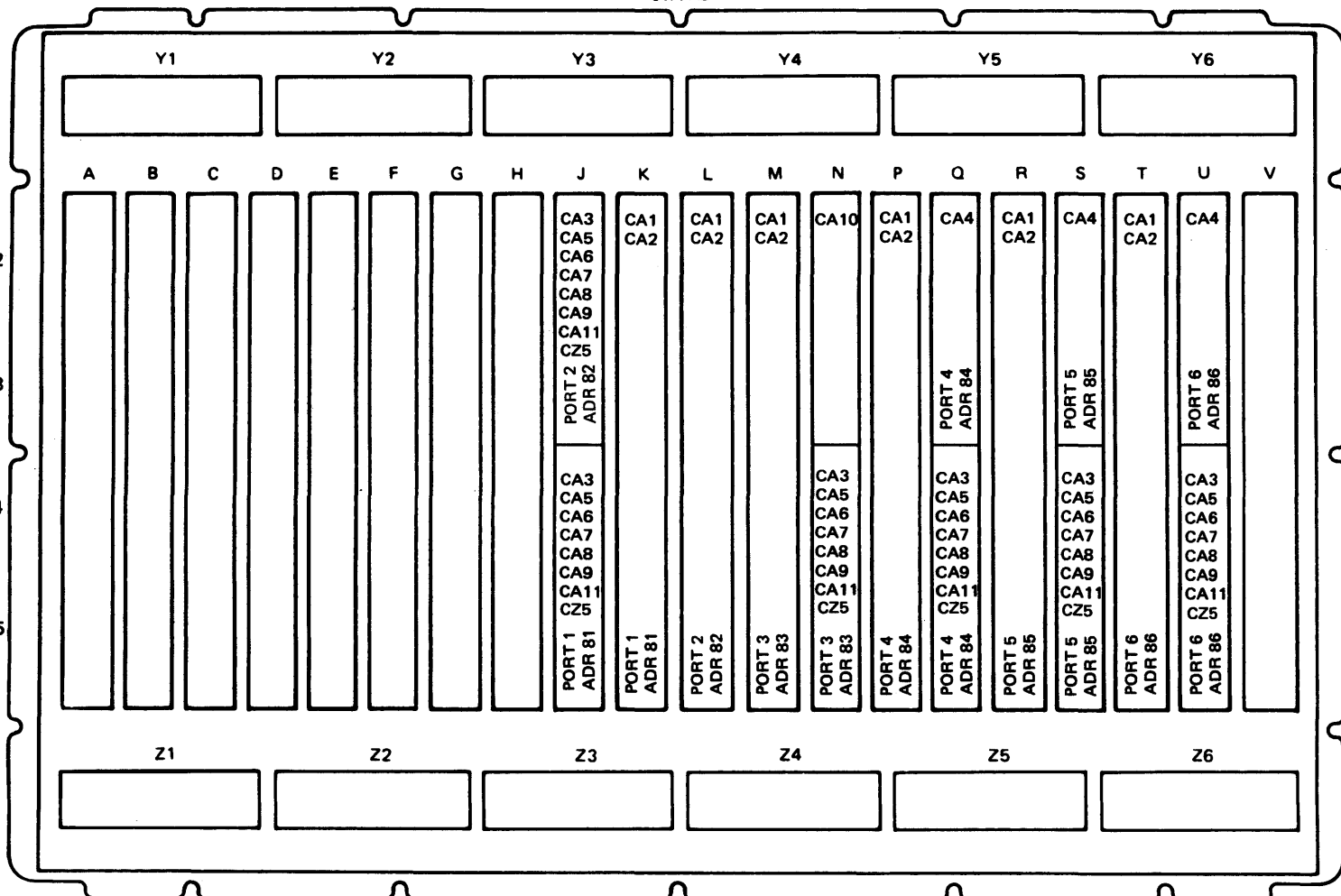
Cable ID	Can Be FAC(s)	FAC Determination	FAC Number	Configuration Table Entry
		If YES, is there a wire between CA4-B10 and CA3-B10 for the port being configured? If YES, check CA4 card for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list → If NO, check the CA3 card on the same port for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list → If NO, check the CA3 card on the same port for speed setting. Use CP380. If speed is 9.6K bps, list → If speed is 38.4K bps, list →	11 9 10 8 10 8	01PA00600213 01PA0060021301 01PA00600203 01PA0060020301 01PA00600203 01PA0060020301
F	20, 21 or 47	If CA2 card is installed, list → If CA1 card is installed, check the CA7 card on the same port for speed setting. Use CP380. If speed is 2.4K bps, 4.8K bps, or 9.6K bps, list → If speed is 56K bps, list →	47 20 21	01PA00612403 01PA00600403 01PA0060040311
G	29	None required. List →	29	01PA0060030001
H	15, 16, 17, 43, 44, 61 or A3	If CA1 card with clock is installed, list → If CA2 card without clock is installed, list → If CA2 card without clock is installed for airlines RPQ, list → If CA2 card with clock is installed, is there a wire between CA2 socket pins M13 and P08? If YES, list → If NO, list → If CA1 card without clock is installed, is the jumper on CA5 card set for 8100 clock? (see CA563) If YES, list → If NO, list →	15 44 A3 61 43 16 17	01PA00600011 01PA0061201220 01PA006FFF0020 01PA00611011 01PA0061201120 01PA00600012 01PA0060001010

Cable ID	Can Be FAC(s)	FAC Determination	FAC Number	Configuration Table Entry
J	24, 25 or 26	If CA1 card with clock is installed, list → If CA1 card without clock is installed and the adapter is in an 8130, 8140 Model AXX, or an 8101 attached to an 8130, list → If CA1 card without clock is installed and the adapter is in an 8140 Model BXX or an 8101 attached to an 8140, is there a wire between CA1 socket pin M13 and channel priority socket (G4) pins B12, B13, D11, or D13? If NO, list → If YES, list →	24 25 25 26	01PA00600311 01PA00600312 01PA00600312 01PA0060031011
K	27 or 28	Is the adapter being configured installed in an 8130, an 8140 Model AXX, or an 8101 attached to an 8130? If YES, list → If NO, is there a wire between CA1 socket pin M13 and channel priority socket (G4) pins B12, B13, D11, or D13? If YES, list → If NO, list →	27 28 27	01PA00600300 01PA0060031011 01PA00600300
P	30 or 31	If adapter is in 8130, list → If adapter is in an 8140 or 8101, is there a wire between the CA1 socket pin M13 and the channel priority socket pins listed below?	30 30 31	01PA006005 01PA006005 01PA0060050001

Machine	Socket	Priority Pins
8140 AXX	L2	D07, D08, or D09
8140 BXX	G4	B12, B13, D11, or D13
8101	G4	B12, B13, D11, or D13

Figure CP340-2. Communications Configuration Table Entries

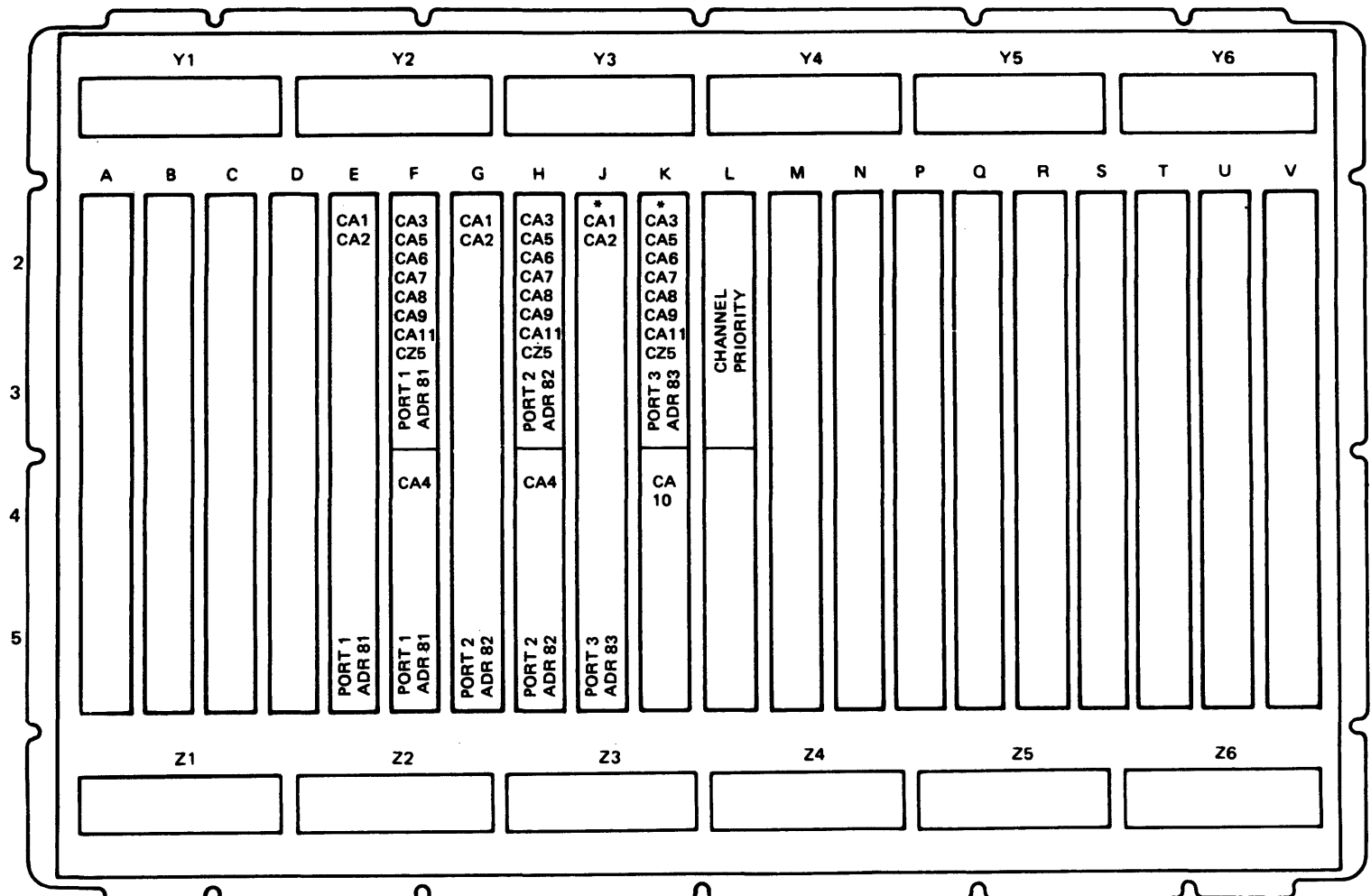
01A-A2



Note: CZ5 = Airlines Reservation RPQ

Figure CP340-3. 8130 Communications Port Card Location and Type

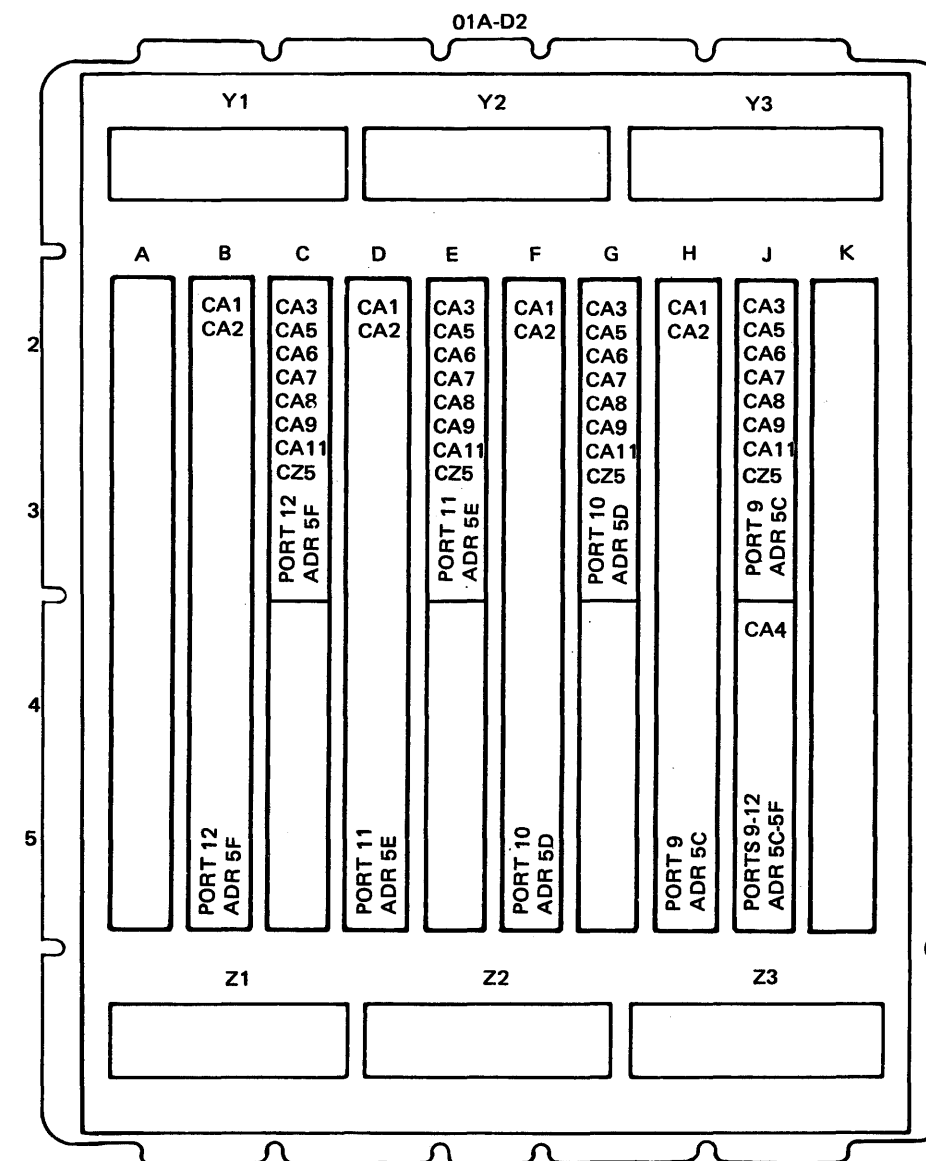
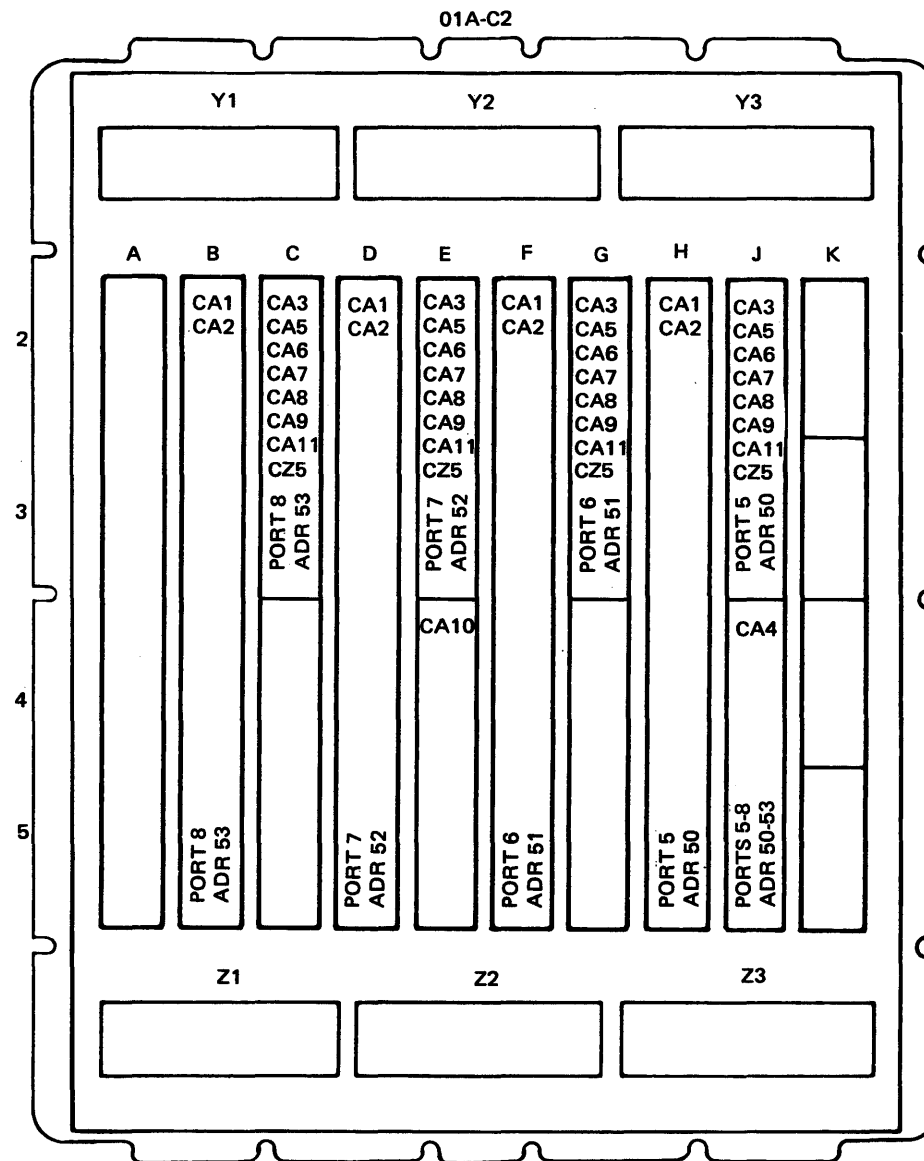
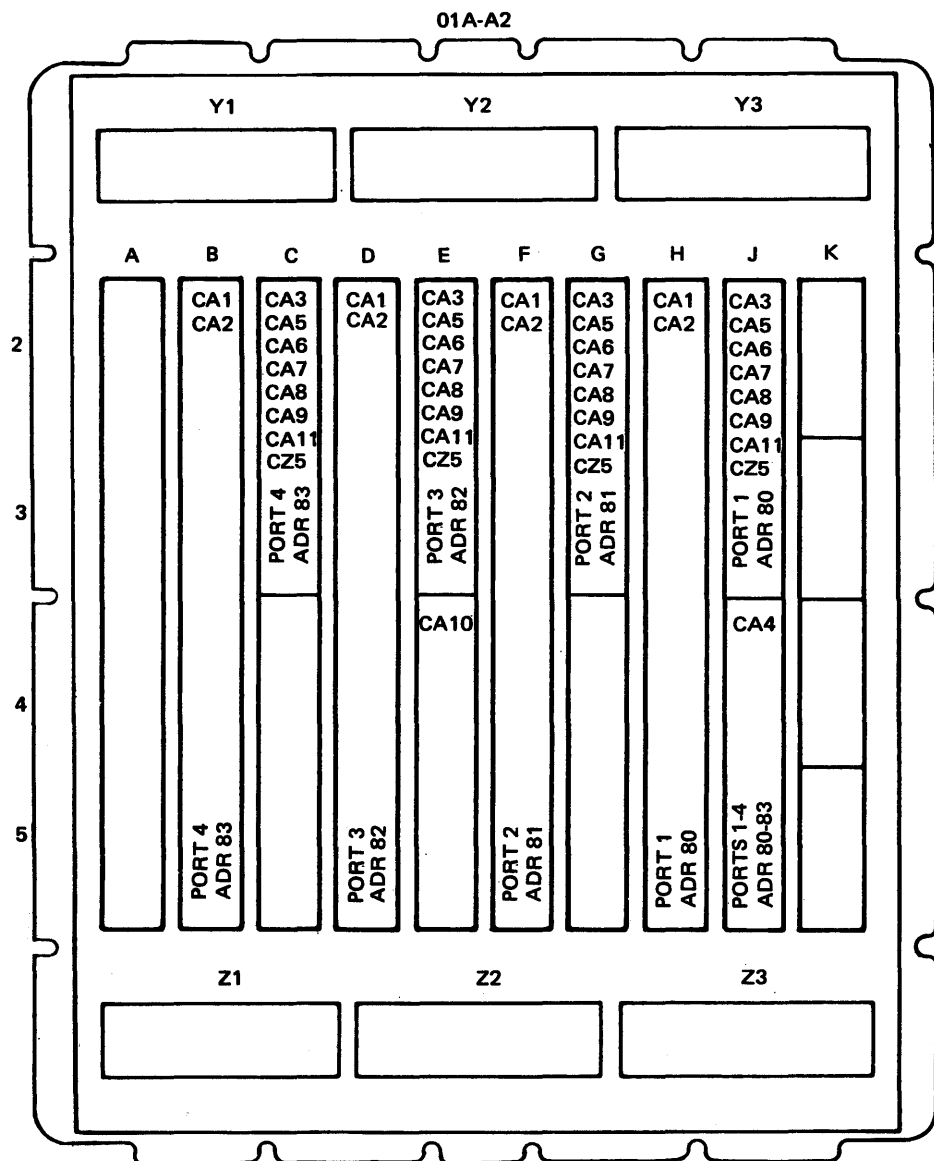
01A-A2



\*Not available on models A41-A44.

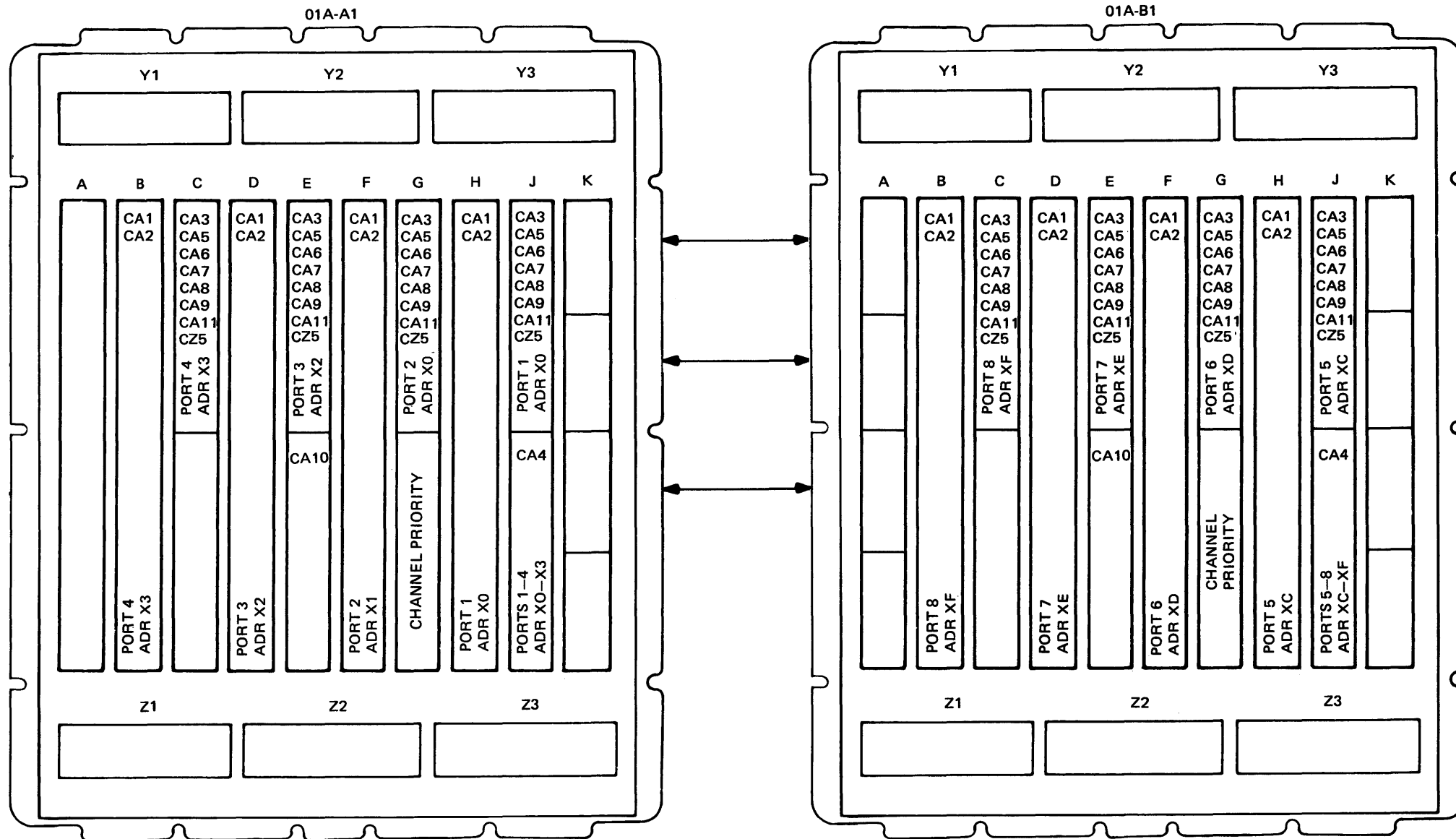
Note: CZ5 = Airlines Reservation RPQ

Figure CP340-4. 8140 Model AXX Communications Port Card Location and Type



Note: CZ5 = Airlines Reservation RPQ

Figure CP340-5. 8140 Model BXX Communications Port Card Location and Type



Note: CZ5 = Airlines Reservation RPQ

Addresses:

- X = 1 = First 8101
- X = 2 = Second 8101
- X = 3 = Third 8101
- X = 4 = Fourth 8101

Figure CP340-6. 8101 Communications Port Card Location and Type

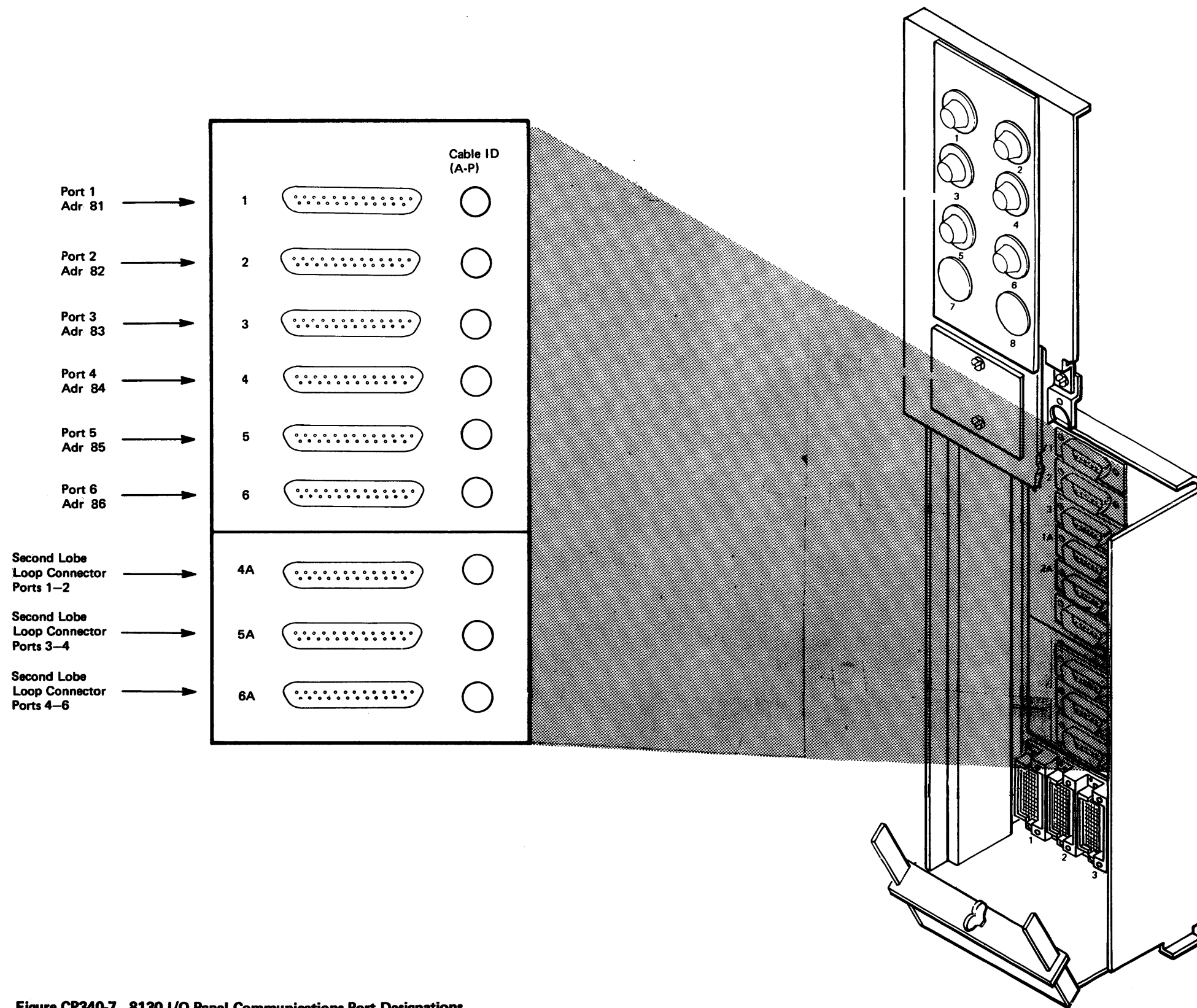


Figure CP340-7. 8130 I/O Panel Communications Port Designations

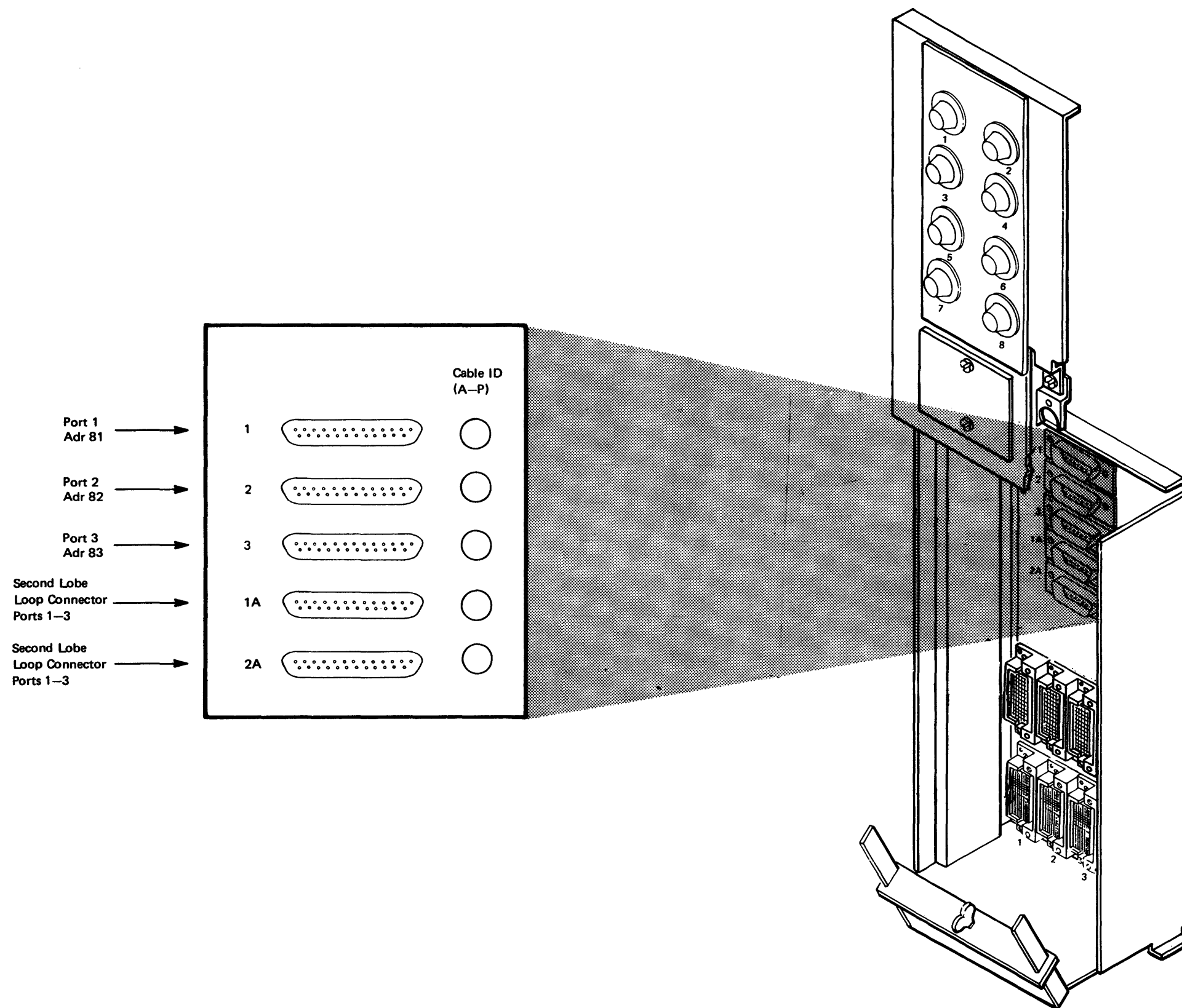


Figure CP340-8. 8140 Model AXX I/O Panel Communications Port Designations



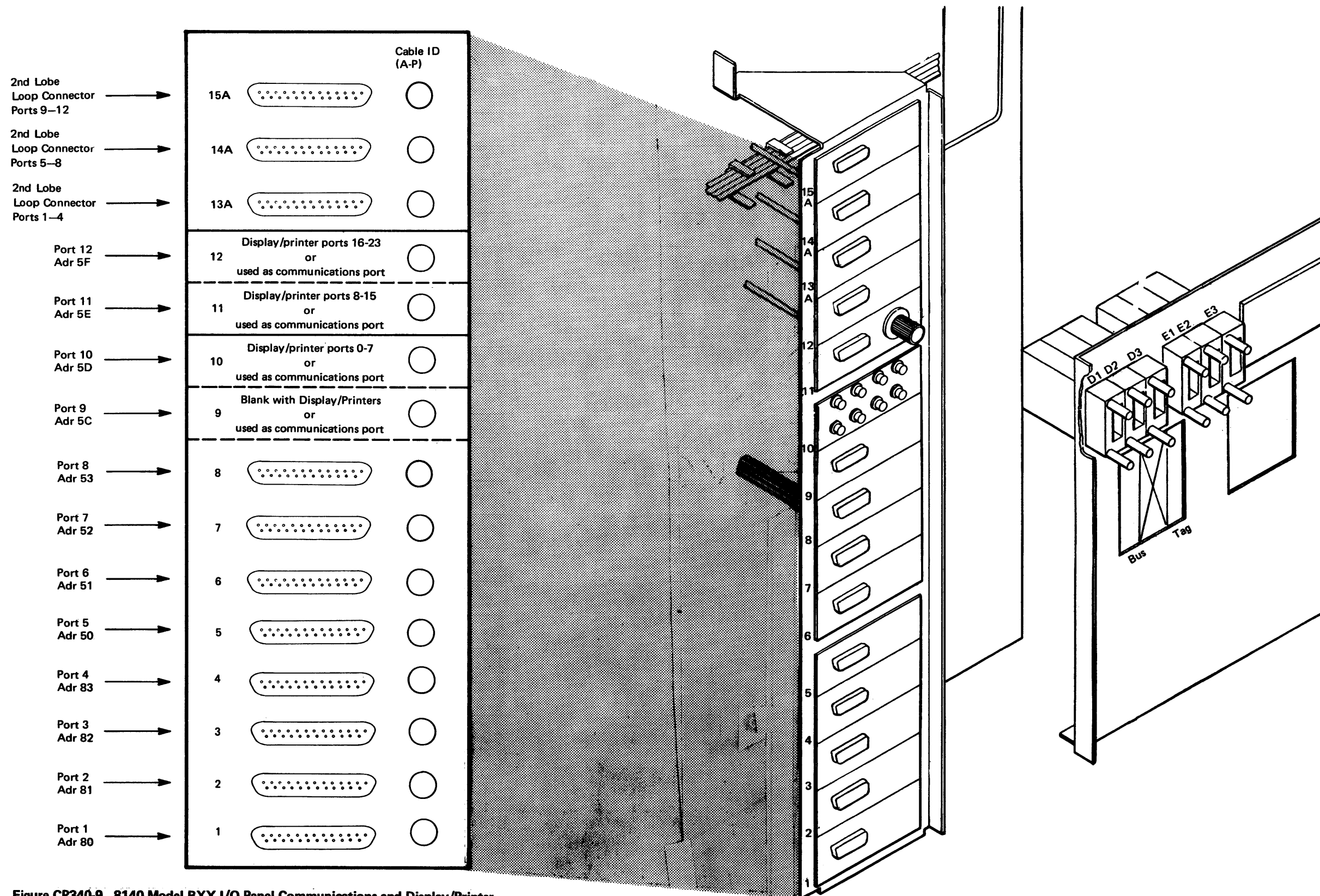


Figure CP340-9. 8140 Model BXX I/O Panel Communications and Display/Printer Port Designations

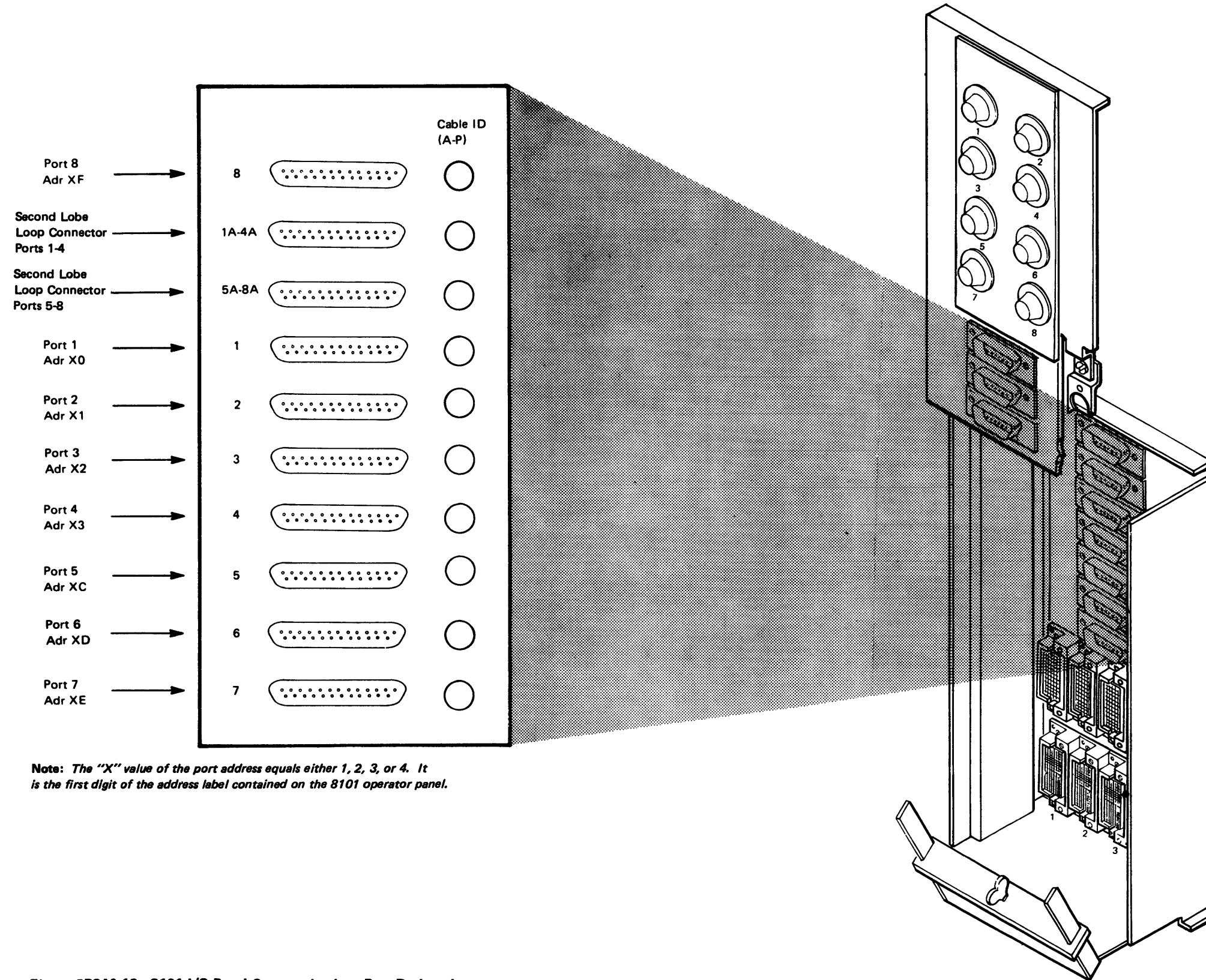


Figure CP340-10. 8101 I/O Panel Communications Port Designations

**CP350 How to Complete Tape and Display/Printer Adapter Katakana Feature Configuration Table Entries**

**Note:** Perform the configuration procedures in CP320, CP330, or CP340 before using this procedure, which completes or adds entries for 8809 tape drives and for display/printer Katakana features.

1. Determine if 8809 tape drives are attached. If none are attached, go to step 3.
2. Determine the tape drive model (1A or 1B) of the first 8809 and the drive address of each unit. The drive addresses are 00 to 03 and are set in each tape drive. For Model 1B, go to step a; for Model 1A, go to step b.
  - a. For an 8809-1B, select the entries from the following chart. The LV01 entry is required, and the optional LVO2 entry specifies the address of each type drive installed.

	Configuration Table Entry							Description
	LV	PA	UTUT	OP	OP	OP	OP	
Required	01	73	0040	00	00	00	00	Tape adapter entry
Optional	02	00	0040	00	00	00	00	Tape drive address 00
Optional	02	01	0040	00	00	00	00	Tape drive address 01
Optional	02	02	0040	00	00	00	00	Tape drive address 02
Optional	02	03	0040	00	00	00	00	Tape drive address 03

- (1) Add the list to the end of the configuration table as follows:
  - (a) At the PF menu select the LST option (6), which displays the last entry.
  - (b) Press PF.
  - (c) Select the ADD option (8).
  - (d) Add the above entries to the configuration table.
  - (e) Assemble the configuration table.
- (2) Add the 8809-1B SSCF entry as follows:
  - (a) At the PF menu select the PA option (2).
  - (b) Enter 0888 (displays first SSCF entry).
  - (c) Press PF.
  - (d) Select the ADD option (8).
  - (e) Add 027800F064.
  - (f) Assemble the configuration table.
- (3) Optional step – record the entries on diskette as follows:
  - (a) Press RESET.
  - (b) Select the FILE option (2).
  - (c) After completing the FILE option, select the Configuration Utility for use in the following steps.

(4) Go to step 3.

- b. For an 8809-1A, select the entries from the following chart. The optional LV02 entry specifies the address of each tape drive installed.

	Configuration Table Entry							Description
	LV	PA	UTUT	OP	OP	OP	OP	
Optional	02	00	0040	00	00	00	00	Tape drive address 00
Optional	02	01	0040	00	00	00	00	Tape drive address 01
Optional	02	02	0040	00	00	00	00	Tape drive address 02
Optional	02	03	0040	00	00	00	00	Tape drive address 03

- (1) Add the list after the tape adapter entry as follows:
  - (a) At the PF menu, select the UT option (3).
  - (b) Enter 0040 (locates tape adapter entry).
  - (c) Press PF.
  - (d) Select the ADD option (8).
  - (e) Add the above entries to the configuration table.
  - (f) Assemble the configuration table.
- (2) Optional step – record the entries on diskette as follows:
  - (a) Press RESET.
  - (b) Select the FILE option (2).
  - (c) After completing the FILE option, select the Configuration Utility.
3. Determine if a display/printer adapter is present as follows:
  - a. At the PF menu, select the UT option (3).
  - b. Enter 0080 (locates display/printer adapter entry 01PA0080). If an adapter is not present, go to CP360.
4. Determine if any 3284-1, 2; 3286-1, 2; 3287-1, 2; 3288-2 Printers attached to the adapter have a Katakana feature (usually required only in Japan or Taiwan). If no printers are attached, or the Katakana feature is not installed, go to CP360.
5. Identify the port number (00-23) of each attached Katakana printer.
6. Locate and change the Katakana port entries. Each port has two configuration entries associated with it.

LV	PA	UTUT	OP	OP	OP	OP
02	PT	0080	S0	00	00	00
03	PT	0100	S0	00	00	00

where: PT = the port number (00-23 in decimal)  
 S = 0 = the Katakana feature is not installed.  
 = 8 = the Katakana feature is installed.

Change the S option digit to an 8 in both entries for every port that has a Katakana feature on a printer, as follows:

- a. Identify and note the display/printer adapter PA as follows:
    - (1) At the PF menu, select the UT option (3).
    - (2) Enter 0080.
    - (3) Entry 01PA0080 displays, where PA is the adapter PA.
  - b. Display the LV02 entry for the Katakana port as follows:
    - (1) Press PF.
    - (2) Select the PA option (2).
    - (3) Enter PAPT, where:
      - PA = the adapter PA.
      - PT = the port to be changed.
  - c. Change the LV02 entry as follows:
    - (1) Press PF.
    - (2) Select the CHANGE option (7).
    - (3) Enter 02PT008080, where:
      - PT = the port to be changed.
  - d. Display the LV03 entry for the Katakana port as follows:
    - (1) At the PF menu, select the CURRENT option (1).
    - (2) Press FWD.
    - (3) LV03 entry displays.
  - e. Change the LV03 entry as follows:
    - (1) Press PF.
    - (2) Select the CHANGE option (7).
    - (3) Enter 03PT010080, where:
      - PT = the port to be changed.
  - f. Repeat the procedure starting at step b until all Katakana ports have been changed.
7. Optional step – record the entries on diskette as follows:
- a. Press RESET.
  - b. Select the FILE option (2).
  - c. After completing the FILE option, select the Configuration Utility.
8. Go to CP360.

## CP360 How to Complete Communications Adapter Configuration Table Entries

This procedure is necessary only if offline communications adapter loop/link tests or 2741 or 364X tests are required. Versions of these tests are provided and configured by DPPX and DPCX operating systems. Because of the inherent difficulties in obtaining concise link and attached terminal information, you can choose to defer this procedure until a condition arises requiring offline tests of this type.

This procedure consists of:

- Listing any Data Link options in the LV01 Adapter Entry using Figure CP360-1.
- Listing the LV02, 03, and 04 entries for the adapter using procedures in CP361 through CP365. Adapter level 01 entries could also change.
- Entering the entries into the configuration table and altering level 01 if necessary.
- Repeating the procedure for the next adapter and devices.
- Copying the completed table to MD diskettes 02, 03, and 09 (if present).

The configuration procedure either in section CP320, CP330, or CP340 must be performed before using this procedure. If you choose to skip this procedure, go to step 6 to file and copy the configuration table information.

To use this procedure, you must have the following:

1. The FAC number and the address (PA) of the communications adapter to be completed. This information is provided in the machine configuration list (MCL) shipped with each 8130, 8140, and 8101.
2. Downstream device attachment information, which includes the machine type and model, the device link address and in some cases, device feature information. The configuration procedures identify the information required to complete the configuration entries.
3. The link options. These options must be supplied by the customer. Figure CP360-1 identifies what specific link options, if any, are required for each FAC number.
  - SDLC Data Link Options:
    - Primary Station – communications adapter is the manager of a downstream link. This is sometimes called control point, master, or host. Generally, there is only one primary station for each data link.
    - Secondary Station – communications adapter is attached to a primary station. This is sometimes called a tributary station; there can be multiple secondary stations on each data link.
    - NRZI/SDLC – certain modems require a non-return-to-zero in the vertical mode of bit transmission to maintain synchronism. All units on a link must be set for the same mode.
    - Switched/Nonswitched – switched indicates some form of temporary connection, usually established through a dial-up procedure; nonswitched indicates a more permanent form of link connection, sometimes called leased or private wire. Dial-up capability can be optional.
    - 108.1 – sometimes called connect modem to line circuit. Applies only to switched lines and used only in countries other than the United States and Canada. It modifies the “data terminal ready” sequence for switched line call initiation.
    - Tone – tone option provides three seconds of answer time for those modems that do not generate their own answer tone. This option applies to switched line only.

- BSC and Airlines Reservation (RPQ) Data Link Options:
  - Primary Station – communication adapter is the manager of a downstream link. This is sometimes called control point, master, or host. Generally, there is only one primary station for each data link.
  - Secondary Station – communications adapter is attached to a primary station. This is sometimes called tributary station. There can be multiple secondary stations on each data link.
  - Point-to-Point – data link consists of one primary station and one secondary station only; link protocol is bisynchronous point-to-point.
  - Multipoint – data link consists of one primary station and multiple secondary stations; link protocol is bisynchronous multipoint.
- Start/Stop Data Link Options:
  - 2741 – a single 2741 is attached to the communication adapter. Line speed and character length are automatically set for 9 bits per character and 134.5 bps.
  - 11-Bit TTY – provides TTY 33/35 protocol with an 11-bit character and 110 bps.
  - 10-Bit TTY/150 bps – provides TTY 33/35 protocol with a 10-bit character and 150 bps.
  - 10-Bit TTY/300 bps – provides TTY 33/35 protocol with a 10-bit character and 300 bps.
  - 10-Bit TTY/600 bps – provides TTY 33/35 protocol with a 10-bit character and 600 bps.

To complete communications adapter configuration table entries, perform the following steps:

1. Using the communication adapter address or port number, obtain the adapter FAC number from the MCL.
2. Using the FAC number, adapter physical address (PA), and link options, go to Figure CP360-1. Complete and list the adapter LV01 entry.

MCL Example:

```

COMM FEAT
PT3 FAC19
      SDLC WC A-A2K2
      MODEM SW A-A2J2
      ADDR 83
CDE 0183 0060 0111 XXXX
  
```

**Note:** List the adapter LV01 entry from Figure CP360-1. Do not use the MCL CDE.

3. Go to the section specified in the Next Procedure column of Figure CP360-1.
4. To list another adapter, return to step 1; to input the listed entries, go to step 5.
5. Input the configuration table entry changes and additions for each communications feature using the following procedure:
  - a. Display the LV01 adapter entry as follows:
    - (1) At the PF menu, select the PA option (2).
    - (2) Enter the PA of the adapter to be configured.

b. To change the LV01 adapter entry when necessary:

- (1) Press PF.
- (2) Select the CHANGE option (7).
- (3) Enter the changes.

c. To add the LV02, 03 and 04 entries:

- (1) At the PF menu, select the ADD option (8).
- (2) Add the entries as listed.

**Note:** Up to 16 sequential entries may be added before assembling the configuration table; you do not have to enter trailing zeroes.

(3) Ensure that the configuration table is assembled.

d. Optional step. To check the entries, proceed as follows:

- (1) Press PF.
- (2) Select the PA option (2).
- (3) Enter the PA of the adapter being configured.
- (4) Press FWD to display each added entry.

e. Optional step. Record the entries on diskette as follows:

- (1) Press RESET.
- (2) Select the FILE option (2).
- (3) After completing the FILE option, select the Configuration Utility for use in the following steps.

f. To input the entries for another adapter, repeat step 5.

6. If not done, record any changes on MD diskette 01 by selecting the Configuration Utility FILE option (2).
7. Using MD diskette 01, select the Copy Utility. Copy the configuration table from MD diskette 01 to MD diskettes 02, 03, and 09 (if present). Refer to CP463 "Copy Utility", if necessary.

FAC No.	Link Protocol	Configuration Table Entry					Next Procedure
		LV	PA	UTUT	OPOP	OPOP	
08	Loop	01	PA	0060	0203	0100	Go to CP361.
09	Loop	01	PA	0060	0213	0100	Go to CP361.
10	Loop	01	PA	0060	0203	0000	Go to CP361.
11	Loop	01	PA	0060	0213	0000	Go to CP361.
12	SDLC	01	PA	0060	0001	WOYZ	<ul style="list-style-type: none"> <li>• If W = 0, go to CP362.</li> <li>• If W = 1, go to CP363.</li> </ul> <p>Where: W = 0 = Primary 1 = Secondary</p> <p>Y = 0 = Non-NRZI mode 1 = NRZI mode</p> <p>Z = 0 = Nonswitched 1 = Switched 3 = Switched and tone 5 = Switched and 108.1 7 = Switched and tone and 108.1*</p> <p>*5 and 7 not used in U.S. and Canada</p>
13	SDLC	01	PA	0060	0000	WOYZ	<ul style="list-style-type: none"> <li>• If W = 0, go to CP362.</li> <li>• If W = 1, go to CP363.</li> </ul> <p>Where: W = 0 = Primary 1 = Secondary</p> <p>Y = 0 = Non-NRZI mode 1 = NRZI mode</p> <p>Z = 0 = Non-switched 1 = Switched 3 = Switched and tone *5 = Switched and 108.1 *7 = Switched and tone and 108.1</p> <p>*Not used in U.S. and Canada</p>
15	SDLC	01	PA	0060	0011	00Y0	Go to CP362.
16	SDLC	01	PA	0060	0012	00Y0	Go to CP362.
17	SDLC	01	PA	0060	0010	10Y0	Go to CP363.

FAC No.	Link Protocol	Configuration Table Entry					Next Procedure
		LV	PA	UTUT	OPOP	OPOP	
18	SDLC	01	PA	0060	0101	W0Y0	<ul style="list-style-type: none"> <li>• If W = 0, go to CP362.</li> <li>• If W = 1, go to CP363.</li> </ul> <p>Where: W = 0 = Primary 1 = Secondary</p> <p>Y = 0 = Non-NRZI mode 1 = NRZI mode</p>
19	SDLC	01	PA	0060	0111	10YZ	Go to CP363.
20	SDLC	01	PA	0060	0403	W0Y0	<ul style="list-style-type: none"> <li>• If W = 0, go to CP362.</li> <li>• If W = 1, go to CP363.</li> </ul> <p>Where: W = 0 = Primary 1 = Secondary</p> <p>Y = 0 = Non-NRZI mode 1 = NRZI mode</p>
21	SDLC	01	PA	0060	0403	11Y0	Go to CP363.
24	SDLC	01	PA	0060	0311	00Y0	Go to CP362.
25	SDLC	01	PA	0060	0312	00Y0	Go to CP362.
26	SDLC	01	PA	0060	0312	W1Y0	Go to CP362.

Figure CP360-1 (Part 1 of 2). Communications Adapter Loop/Link Options

FAC No.	Link Protocol	Configuration Table Entry					Next Procedure
		LV	PA	UTUT	OPOP	OPOP	
27	SDLC	01	PA	0060	0310	10Y0	Go to CP363. Where: Y = 0 = Non-NRZI mode 1 = NRZI mode
28	SDLC	01	PA	0060	0310	11Y0	Go to CP363. Where: Y = 0 = Non-NRZI mode 1 = NRZI mode
29	SDLC	01	PA	0060	0300	11Y0	Go to CP363. Where: Y = 0 = Non-NRZI mode 1 = NRZI mode
30	SDLC	01	PA	0060	0500	W0Y0	Go to CP362. Where: W = 0 = If primary 1 = If secondary Y = 0 = Non-NRZI mode 1 = NRZI mode
31	SDLC	01	PA	0060	0500	W1Y0	Go to CP362. Where: W = 0 = If primary 1 = If secondary Y = 0 = Non-NRZI mode 1 = NRZI mode
40	BSC	01	PA	0061	2001	W000	Go to CP364. Where: W = 0 = Primary and multipoint 1 = Secondary and multipoint 2 = Primary and point-to-point 3 = Secondary and point-to-point
41	BSC	01	PA	0061	2000	W000	Go to CP364. Where: W = 0 = Primary and multipoint 1 = Secondary and multipoint 2 = Primary and point-to-point 3 = Secondary and point-to-point
43	BSC	01	PA	0061	2011	2000	Go to CP364. Use W = 2 option.
44	BSC	01	PA	0061	2012	2000	Go to CP364. Use W = 2 option.
45	BSC	01	PA	0061	2101	W000	Go to CP364. Where: W = 0 = Primary and multipoint 1 = Secondary and multipoint 2 = Primary and point-to-point 3 = Secondary and point-to-point

Figure CP360-1 (Part 2 of 2). Communications Adapter Loop/Link Options

FAC No.	Link Protocol	Configuration Table Entry					Next Procedure
		LV	PA	UTUT	OPOP	OPOP	
47	BSC	01	PA	0061	2403	W000	Go to CP364. Where: W = 0 = Primary and multipoint 1 = Secondary and multipoint 2 = Primary and point-to-point 3 = Secondary and point-to-point
60	S/S	01	PA	0061	1001	W000	Go to CP365. Where: W = 0 = 2741, 9 BIT, 134.5 bps 1 = TTY, 11 BIT, 110 bps 2 = TTY, 10 BIT, 150 bps 3 = TTY, 10 BIT, 300 bps 4 = TTY, 10 BIT, 600 bps
61	S/S	01	PA	0061	1011	W000	Go to CP365. Where: W = 0 = 2741, 9 BIT, 134.5 bps 1 = TTY, 11 BIT, 110 bps 2 = TTY, 10 BIT, 150 bps 3 = TTY, 10 BIT, 300 bps 4 = TTY, 10 BIT, 600 bps
A2	Airlines RPO	01	PA	006F	FF00	W000	Go to CP364. Where: W = 0 = Primary and multipoint 1 = Secondary and multipoint 2 = Primary and point-to-point 3 = Secondary and point-to-point
A3	Airlines RPO	02	PA	006F	FF12	2000	Go to CP364. Use W = 2 option.

Note: For FAC codes 08, 09, 21, 26, 28, 29 and 31 only one FAC code is allowed on high channel priority per system.

**CP361 Completing Entries for Devices on a Directly Attached Loop**

To use this procedure, refer to the following example and also to Figure CP361-1 for the following information:

- Machine type, model number, and loop address (LA) of every unit attached directly to the loop wire for the communications adapter being configured.
- Additional feature information for machine types 3641, 3643, 3644, and 3646.

1. Using Figure CP361-1, complete and list (under the LV01 adapter entry) an entry for each device directly attached to the loop. In the following example the PA in the configuration table LV02 entry is the loop address of the device. Where two entries are shown, both must be listed.

Example:	Configuration Table Entry							Description
	LV	PA	UTUT	OP	OP	OP	OP	
	01	81	0060	02	03	01	00	*Communications adapter LV01 entry for FAC 08 and adapter address 81
	02	21	0200	00	00	00	00	8775 entry; loop address = 21
	02	22	0200	00	00	00	00	3642 entries; loop address = 22
	03	01	0291	00	00	00	00	
	02	23	0200	00	00	00	00	3276 entry; loop address = 23

\*This example indicates SDLC adapter high channel priority, only one FAC of which is allowed for each system.

2. List complete. Return to CP360, step 4.

Machine Type	Configuration Table Entry					
	LV	PA	UTUT	OPOP	OPOP	
3262-2, -12	02	LA	0200	0000	0000	
3274-51C, -52C	02	LA	0200	0000	0000	
3276-11, -12, -13, -14	02	LA	0200	0000	0000	
3287-11, -12	02	LA	0200	0000	0000	
3289-3	02	LA	0200	0000	0000	
3641-1, -2	02	LA	0200	0000	0000	
	03	01	0290	S000	0000	
Where: S = 0 = 3641 Digital Input/Digital Output Adapter not installed 8 = 3641 Digital Input/Digital Output Adapter installed						
3642-1, -2	02	LA	0200	0000	0000	
	03	01	0291	0000	0000	
3643-2, -3, -4	02	LA	0200	0000	0000	
	03	01	0292	ST00	0000	
	Where: S = 8 = 3643 Model 2 4 = 3643 Model 3 2 = 3643 Model 4					
	T = 0 = 3643 Magnetic Reader Attachment and Katakana Features not installed 8 = 3643 Magnetic Reader Attachment Feature installed 4 = 3643 Katakana Feature installed C = 3643 Magnetic Reader Attachment and Katakana Features installed					
3644	02	LA	0200	0000	0000	
	03	01	0293	S000	0000	
Where: S = 0 = 3644 Keyboard/Display not installed 8 = 3644 Keyboard/Display installed						
3645	02	LA	0200	0000	0000	
3646	02	LA	0200	0000	0000	
	03	04	0294	0000	0000	
	03	05	0294	0000	0000	
	Optional	03	06	0294	0000	0000
	Optional	03	07	0294	0000	0000
The two optional entries are the 3646 Magnetic Reader Attachment additional ports feature. If the feature is present, both optional entries must be listed.						
3647	02	LA	0200	0000	0000	
	03	01	0295	0000	0000	
8775-1, -2	02	LA	0200	0000	0000	

Figure 361-1. Direct-Attached Loop Device Configuration Table Entries



**CP362 Completing Entries for Devices on a Data Link or Remote Loop**

To use this procedure, refer to the following examples and also to Figures CP362-1 and CP362-2 for the following information:

- The machine type and link address of every unit directly attached to the data link being controlled by the communications adapter being configured (Figure CP362-1).
  - If a **3842** or **3843** Loop Control Unit is attached to the data link, the machine type, model number, and remote loop address of each unit directly attached to the **3842** or **3843** must be obtained (Figure CP362-2).
  - Additional feature information is needed for machine types **3641**, **3643**, **3644**, and **3646** attached to a **3842/3843** (Figure CP362-2).
1. Using Figure CP362-1, complete and list (under the LV01 adapter entry) an entry for each device directly attached to the data link. In the following example, the LA in the configuration table entry is the device link address. If **3842s** or **3843s** are installed, list these entries last.

Example:

Configuration Table Entry								Description
LV	PA	UTUT	OP	OP	OP	OP		
01	81	0060	00	00	00	10		Communications adapter LV01 entry for FAC 13 and adapter address 81
02	21	0200	00	00	00	00		3276 entry; link address = 21
02	22	0200	00	00	00	00		3267 entry; link address = 22
02	23	0200	00	00	00	00		3276 entry; link address = 23
02	24	0250	00	00	00	00		3842 entry; link address = 24
02	25	0250	00	00	00	00		3842 entry; link address = 25

2. If **3842s** or **3843s** have been listed, go to step 4.
3. If no **3842s** or **3843s** have been listed, list is complete. Go to CP360, step 4.

4. Using Figure CP362-2, complete and list (immediately under the LV02 **3842** or **3843** entry) an entry or entries for each device directly attached to the **3842** or **3843** loop control unit. Repeat this step for each **3842/3843**. In the following example, the LA in the configuration table entry is the device loop address. Where two entries are shown, both must be listed.

Example:

Configuration Table Entry								Description
LV	PA	UTUT	OP	OP	OP	OP		
01	81	0060	00	00	00	10		Communications adapter LV01 entry for FAC 13 and adapter address 81
02	21	0200	00	00	00	00		3276 entry; link address = 21
02	22	0200	00	00	00	00		3267 entry; link address = 22
02	23	0200	00	00	00	00		3276 entry; link address = 23
3842>	02	24	0250	00	00	00		3842 entry; link address = 24
	03	41	0200	00	00	00		3642 entries; loop address = 41 for
	04	01	0291	00	00	00		3642 attached to 3842 address = 24
	03	42	0200	00	00	00		3641 entries, loop address = 42 for
	04	01	0290	00	00	00		3641 attached to 3842 address = 24
3842>	02	25	0250	00	00	00		3842 entry, link address = 25
	03	43	0200	00	00	00		3289 entry, loop address = 43 for
								3289 attached to 3842 address = 25
	03	44	0200	00	00	00		3276 entry, loop address = 44 for
								3276 attached to 3842 address = 25

5. List is complete. Go to CP360, step 4.

Machine Type and Model	Configuration Table Entry				
	LV	PA	UTUT	OPOP	OPOP
3274-51C, -52C	02	LA	0200	0000	0000
3276-1, -2, -3, -4, -11, -12, -13, -14	02	LA	0200	0000	0000
3631	02	LA	0200	0000	0000
3632	02	LA	0200	0000	0000
3704	02	LA	0200	0000	0000
3705	02	LA	0200	0000	0000
3767-1, -2, -3	02	LA	0200	0000	0000
3842*	02	LA	0250	0000	0000
3843	02	LA	0250	0000	0000
4331	02	LA	0200	0000	0000
8101	02	LA	0200	0000	0000
8130	02	LA	0200	0000	0000
8140	02	LA	0200	0000	0000
8775-11, -12	02	LA	0200	0000	0000

\*3842 may require that the NRZI bit be set on. For NRZI bit location see FAC Code 13.

Figure CP362-1. Communications Adapter Data Link Device Configuration Table Entries

Machine Type and Model	Configuration Table Entry					
	LV	PA	UTUT	OPOP	OPOP	
3262-2, -12	03	LA	0200	0000	0000	
3274-51C, -52C	03	LA	0200	0000	0000	
3276-11, -12, -13, -14	03	LA	0200	0000	0000	
3287-11, -12	03	LA	0200	0000	0000	
3289-3	03	LA	0200	0000	0000	
3641-1, -2	03	LA	0200	0000	0000	
	04	01	0290	S000	0000	
	Where: S = 0 = 3641 Digital Input/Digital Output Adapter not installed 8 = 3641 Digital Input/Digital Output Adapter installed					
3642-1, -2	03	LA	0200	0000	0000	
	04	01	0291	0000	0000	
3643-2, -3, -4	03	LA	0200	0000	0000	
	04	01	0292	ST00	0000	
	Where: S = 8 = 3643 Model 2 4 = 3643 Model 3 2 = 3643 Model 4 T = 0 = 3643 Magnetic Reader Attachment and Katakana features not installed 8 = 3643 Magnetic Reader Attachment feature installed 4 = 3643 Katakana feature installed C = 3643 Magnetic Reader Attachment and Katakana features installed					
	03	LA	0200	0000	0000	
	04	01	0293	S000	0000	
3644	Where: S = 0 = 3644 Keyboard/Display not installed 8 = 3644 Keyboard/Display installed					
	03	LA	0200	0000	0000	
3645	03	LA	0200	0000	0000	
3646	03	LA	0200	0000	0000	
	04	04	0294	0000	0000	
	04	05	0294	0000	0000	
	Optional	04	06	0294	0000	0000
	Optional	04	07	0294	0000	0000
	The two optional entries are for 3646 Magnetic Reader Attachment additional port features.					
3647	03	LA	0200	0000	0000	
	04	01	0295	0000	0000	
8775-1, -2	03	LA	0200	0000	0000	

Figure CP362-2. Remote-Attached Loop Device Configuration Table Entries

**CP363 Completing Entries for a Secondary SDLC Communications Adapter**

To complete these configuration table entries, you must have the SDLC secondary data link address (LA) assigned to this adapter. This address is NOT the adapter PA address indicated by the adapter LV01 entry; it is the address transmitted on the link by the primary control point when adapter contact is required.

1. Complete and list under the LV01 adapter entry, the following entry:

LV	PA	UTUT	OP	OP	OP	OP
02	LA	0201	00	00	00	00

where:

LA = the SDLC secondary link address

2. List is complete. Go to CP360, step 4.

**CP364 Completing Entries for a BSC Communications or Airlines Reservation System (RPQ) Adapter**

To use this procedure you must have the following information:

- The W option from the adapter LV01 entry (0, 1, 2, 3).
- If W = 0, the downstream link address of every secondary device attached to the primary BSC or airlines adapter being configured.
- If W = 1, the BSC or airlines secondary data link address (LA) assigned to this adapter. This address is NOT the adapter PA address indicated by the adapter LV01 entry; it is the address transmitted on the link by the primary control point when adapter contact is required.
- If W = 2 or 3, no other information is required.

1. Using the following chart, select, complete, and list (under the LV01 adapter entry) the entries for the W option specified.

Adapter "W" Option	Configuration Table Entry							Comments
	LV	PA	UTUT	OP	OP	OP	OP	
0	02	LA	0302	00	00	00	00	LA = the downstream device link address. An entry must be listed for every device attached.
	02	LA	0302	00	00	00	00	
	ETC.							
1	02	LA	0302	00	00	00	00	LA = the secondary link address assigned to the BSC or airlines adapter.
2	02	01	0302	00	00	00	00	
3	02	01	0302	00	00	00	00	

2. List is complete. Go to CP360, step 4.

**CP365 Completing Entries for an S-S Communications Adapter**

To use this procedure, you must have the "W" option from the LV01 adapter configuration entry.

1. Using the following chart, select and list (under the LV01 adapter entry) the entry for the W option specified.

Adapter "W" Option	Configuration Table Entry							Comments
	LV	PA	UTUT	OP	OP	OP	OP	
0	02	01	0300	00	00	00	00	Entry for a 2741 attachment. Only one 2741 can be attached.
1, 2, 3, 4	02	01	0301	00	00	00	00	Entry for a device conforming to ASR/TTY 33/35 protocol. Only one device can be attached.

2. List is complete. Go to CP360, step 4.

CP370 Configuration Table Entry Summary and SSCF Switch Settings

Figure CP370-1 explains in detail the configuration table entries for the various hardware components of the 8130/8140/8101.

Hardware Description	Configuration Table Entry					Option Field Description																
	LV	PA	UTUT	OPOP	OPOP																	
8130/8140 Processor	OC	99	0F00	STUV	WXYO	S = 0 = No ECC 1 = With ECC T = 2 = Logical storage installed 3 = Floating point and logical storage installed Storage Capacity UV = 04 = 128K 0A=320K 10=512K 20=1024K 08 = 256K 0C=384K 18=768K WX = Last 2 digits of model number Y = Model designation (A or B) Z = 0 = Not used																
Disk Storage Format Utility	OC	60	0F30	0000	0000	Option field not used																
SSCF System Routines	OC	69	00F0	0000	0000	Option field not used																
PSCF	01	08	00F0	1000	WXYZ	WXYZ = Contents of the PSCF 1PL switches = 4380 for 8130/8140 Models AXX = 4384 for 8140 Models BXX																
Expanded Function Operator Panel (8140 only feature)	02	0A	00F1	0000	0000	Option field not used																
SSCF	02	P8	00F0	ST00	0000	ST = Bits <table border="1" style="display: inline-table; vertical-align: middle;"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td> </tr> <tr> <td>-</td><td>7</td><td>8</td><td>9</td><td>10</td><td>5</td><td></td><td></td> </tr> </table> SSCF Switch Pos See Figure CP370-2	0	1	2	3	4	5	6	7	-	7	8	9	10	5		
0	1	2	3	4	5	6	7															
-	7	8	9	10	5																	
Disk Storage	01	PA	0020	ST		PA = 80 = adapter in 8140 Model AXX PA = 84 = adapter in 8140 Model BXX (1st drive) PA = 85 = adapter in 8140 Model BXX (2nd drive) PA = 90 = adapter in first 8101 Model A11, A13, A23 or A25 PA = 91 = adapter in first 8101 Model A25 PA = A0 = adapter in second 8101 Model A11, A13, A23 or A25 PA = A1 = adapter in second 8101 Model A25 PA = B0 = adapter in third 8101 Model A11, A13, A23 or A25 PA = B1 = adapter in third 8101 Model A25 PA = C0 = adapter in fourth 8101 Model A11, A13, A23 or A25 PA = C1 = adapter in fourth 8101 Model A25 ST = 10 = 29mb, no fixed heads = 8130/8140/8101 Models AX1* ST = 20 = 64mb, no fixed heads = 8130/8140/8101 Models AX3* 8140 Model BX2 8101 Model A25 ST = 30 = 23mb, movable and fixed heads = 8130/8140 Models AX2* ST = 40 = 58mb, movable and fixed heads = 8130/8140 Models AX4* 8140 Models BX1*, BX2* *X = first digit of model number																

Figure CP370-1 (Part 1 of 2). Processor and Adapter Configuration Table Entries

Hardware Description	Configuration Table Entry					Option Field Description
	LV	PA	UTUT	OPOP	OPOP	
Diskette Storage	01	PA	0002	0000		Option field not used PA = 87 = adapter in 8130/8140 PA = 97 = adapter in first 8101 PA = A7 = adapter in second 8101 PA = B7 = adapter in third 8101 PA = C7 = adapter in fourth 8101
Tape Storage	01 02	PA TD	0040 0040	0000 0000	0000 0000	Option field not used PA = 5E = adapter in 8140 Model BXX PA = 93 = adapter in first 8101 PA = A3 = adapter in second 8101 PA = B3 = adapter in third 8101 PA = C3 = adapter in fourth 8101 PA = 73 = adapter in 8809-1B TD = drive address
Display/Printer Adapter (see CP145 and CP170)	01 02 03	PA PT PT	0080 0080 0080	0000 X000 X000	0000 0000 0000	X = An 80 must be placed in byte one of the first option field for both the level 02 and the level 03 entries if the attached printer has the Katakana feature. For all other devices the option fields are zero. PA = 5F = adapter in 8140 Model BXX 1F = adapter in first 8101 2F = adapter in second 8101 3F = adapter in third 8101 4F = adapter in fourth 8101 PT = Port number = 00-23 Decimal
SDLC Communications Adapter	01	PA	0060	STUV	WXYZ	S = Line discipline = 0 = SDLC T = Interface type = 0 = EIA/CCITT = 1 = Integrated modem = 2 = Loop adapter = 3 = V.35 = 4 = DDSA = 5 = X.21 U = Interface type option = 0 = External modem } For EIA/CCITT, V.35, and EIA/ALC (RPQ) = 1 = Direct connect = 0 = First lobe loop = 1 = Second lobe loop = 0 = Nonswitched integrated modem = 1 = Switched integrated modem V = Clocking = 0 = External clock = 1 = Adapter clock = 2 = DTE multispeed clock = 3 = Interface card clock W = Line discipline option = 0 = Primary = 1 = Secondary X = Variable adapter = 0 = Not on high channel request priority = 1 = On high channel request priority YZ = Data link options = Bit 0 = Not used = Bit 1 = Data rate select = Bit 2 = Select standby = Bit 3 = NRZI mode = Bit 4 = Permanent request to send = Bit 5 = 108.1 = Bit 6 = Tone = Bit 7 = Switched line

Hardware Description	Configuration Table Entry					Option Field Description
	LV	PA	UTUT	OPOP	OPOP	
BSC/Stop/Start Communications Adapter	01	PA	0061	STUV	W000	<p>S = Line discipline = 1 = Start/Stop = 2 = BSC</p> <p>T = Interface type = 0 = EIA/CCITT = 1 = Integrated modem = 2 = Loop adapter = 3 = V.35 = 4 = DDSA = 5 = X.21</p> <p>U = Interface type option = 0 = External modem = 1 = Direct connect } For EIA/CCITT, V.35, and EIA/ALC (RPQ)</p> <p>= 0 = First lobe loop = 1 = Second lobe loop</p> <p>= 0 = Nonswitched integrated modem = 1 = Switched integrated modem</p> <p>V = Clocking = 0 = External clock = 1 = Adapter clock = 2 = DTE multispeed clock = 3 = Interface card clock</p> <p>W = Line discipline option = 0 = Primary and multipoint = 1 = Secondary and multipoint = 2 = Primary and point-to-point = 3 = Secondary and point-to-point } For BSC</p> <p>= 0 = 2741, 9-bit, 134.5 bps = 1 = TTY, 11-bit, 110 bps = 2 = TTY, 10-bit, 150 bps = 3 = TTY, 10-bit, 300 bps = 4 = TTY, 10-bit, 600 bps } For Start/Stop</p>
ALC Airlines Reservation System Communications Adapter (RPQ MK6959)	01	PA	006F	FFUV	W000	<p>U = Interface type option = 0 = External modem = 1 = Direct connect</p> <p>V = Clocking = 0 = External clock = 1 = Adapter clock = 2 = DTE multispeed clock = 3 = Interface card clock</p> <p>W = Line discipline option = 0 = Primary and multipoint = 1 = Secondary and multipoint = 2 = Primary and point-to-point = 3 = Secondary and point-to-point</p>

Figure CP370-1 (Part 2 of 2). Processor and Adapter Configuration Table Entries

Figure CP370-2 shows the SSCF switch settings and configuration table entries for the 8130, 8140, and 8809-1B, as well as for all possible 8101 adapter combinations.

8130/8140/8809 - 1B SSCF Switch Setting (N = on)										Configuration Entry				Address Group	Comments
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		
N				N		N		N		02	88	00F0	54	8	8130/40 Model AXX
	N		N	N		N	N		N	02	58	00F0	6C	5	8140 Model BXX
	N	N	N	N		N	N			02	78	00F0	64	7	8809 Model 1B

8101 A1 Board SSCF (SC5) Switch Setting (N = on)										Configuration Entry				Address Group	Adapter Present	
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		First Display/Printer	Second Display/Printer (RPQ)
			N	N		N	N	N		02	18	00F0	74	1	Yes	No
			N	N				N	N	02	18	00F0	1C	1	No	No
				N		N	N	N	N	02	18	00F0	7C	1	Yes	Yes
		N		N		N	N	N		02	28	00F0	74	2	Yes	No
		N		N				N		02	28	00F0	14	2	No	No
				N		N	N	N	N	02	28	00F0	7C	2	Yes	Yes
		N	N	N		N	N	N		02	38	00F0	74	3	Yes	No
		N	N	N				N		02	38	00F0	0C	3	No	No
				N		N	N	N	N	02	38	00F0	7C	3	Yes	Yes
		N		N		N	N	N		02	48	00F0	74	4	Yes	No
		N		N						02	48	00F0	04	4	No	No
				N		N	N	N	N	02	48	00F0	7C	4	Yes	Yes

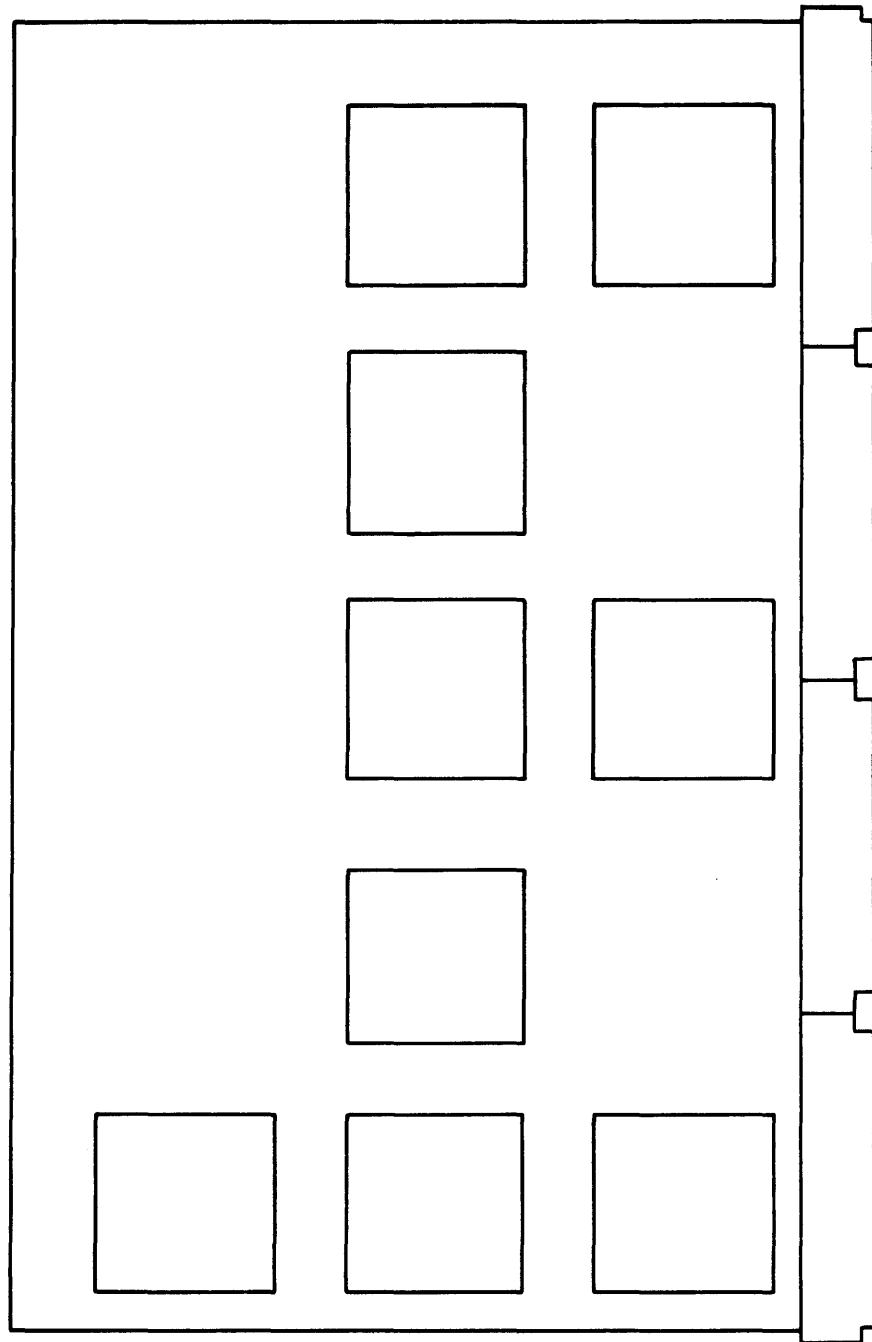
8101 A2 Board SSCF (SC5) Switch Setting (N = on)										Configuration Entry				Address Group	Adapter Present		
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		Tape	Diskette	Disk
N			N	N		N		N	N	02	98	00F0	5C	9	Yes	*	*
N			N	N		N			N	02	98	00F0	4C	9	No	Yes	**
N			N	N			N	N	N	02	98	00F0	3C	9	No	No	Yes
N			N	N						02	98	00F0	04	9	No	No	No
N		N		N		N		N	N	02	A8	00F0	5C	A	Yes	*	*
N		N		N		N			N	02	A8	00F0	4C	A	No	Yes	**
N		N		N			N	N		02	A8	00F0	34	A	No	No	Yes
N		N		N						02	A8	00F0	04	A	No	No	No
N		N	N	N		N		N	N	02	B8	00F0	5C	B	Yes	*	*
N		N	N	N		N			N	02	B8	00F0	4C	B	No	Yes	**
N		N	N	N			N	N	N	02	B8	00F0	2C	B	No	No	Yes
N		N	N	N						02	B8	00F0	04	B	No	No	No
N	N			N		N		N	N	02	C8	00F0	5C	C	Yes	*	*
N	N			N		N			N	02	C8	00F0	4C	C	No	Yes	**
N	N			N			N			02	C8	00F0	24	C	No	No	Yes
N	N			N						02	C8	00F0	04	C	No	No	No

\*When the tape adapter is present, the existence of disk or diskette has no effect on the SSCF switch setting.  
\*\*When the diskette adapter is present, the existence of disk has no effect on the SSCF switch setting.

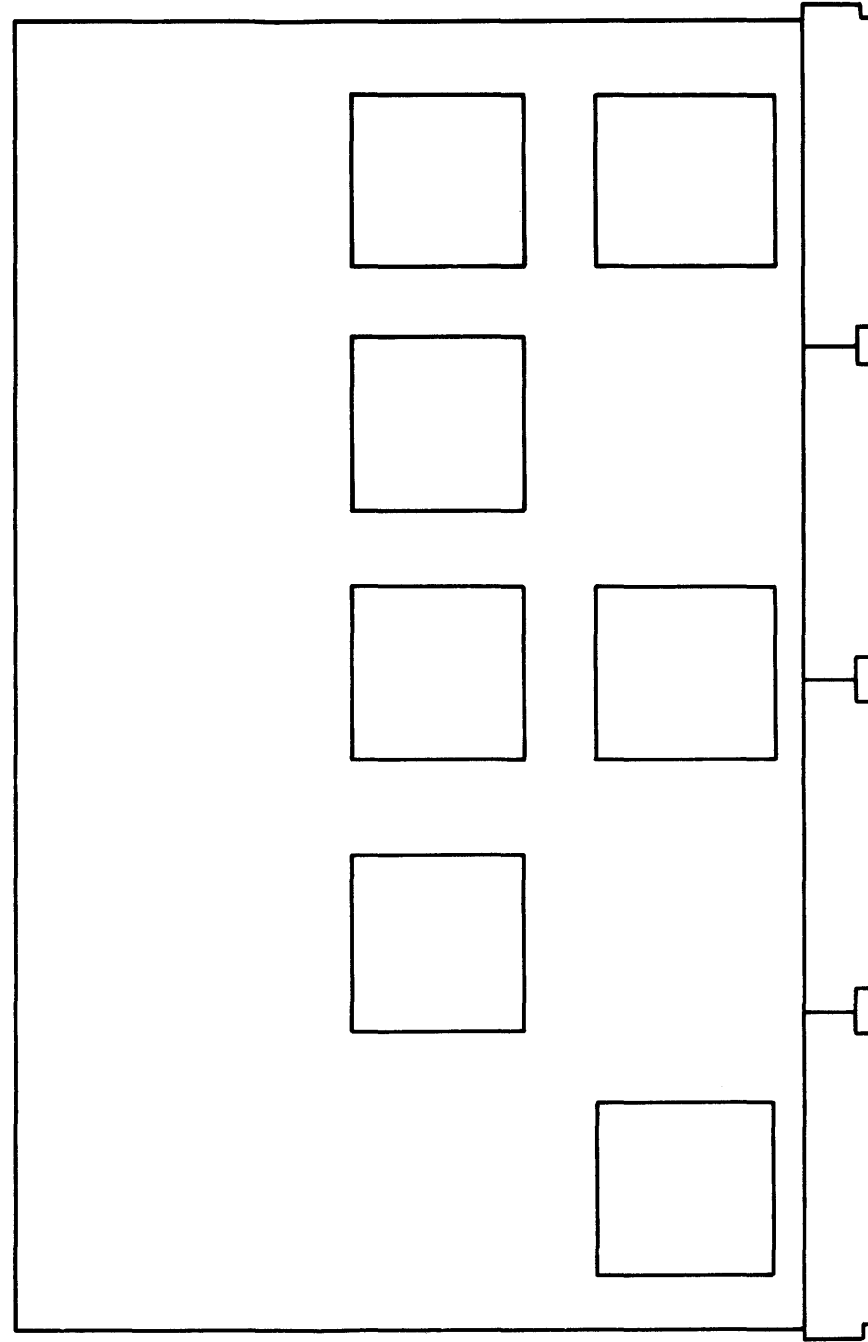
Figure CP370-2. SSCF Switch Settings and Configuration Table Entries

CP380 Communications Card Identifier

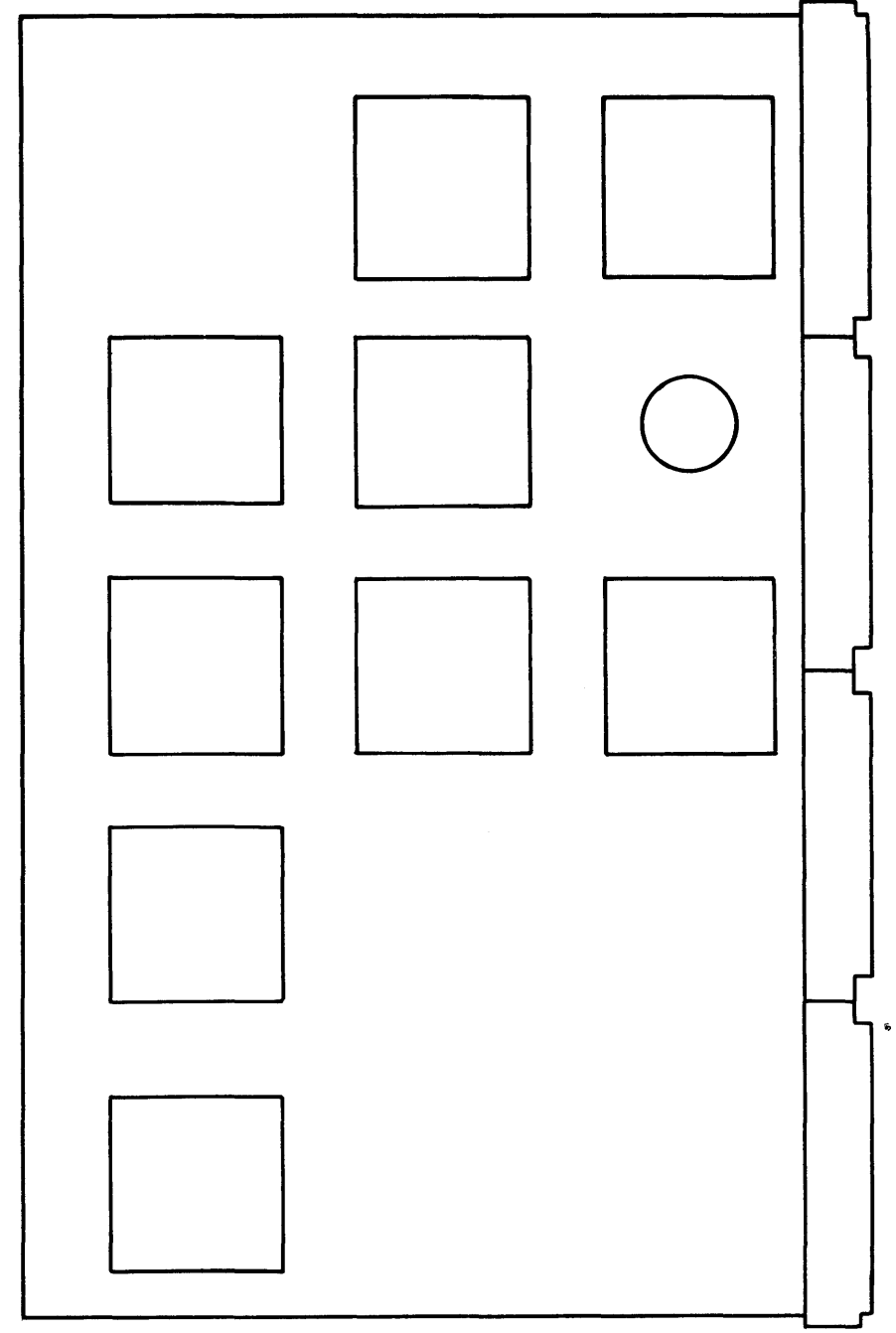
The following diagrams show communications card types, list their pseudo numbers, card names, and feature code numbers, and show their jumper locations and meanings when installed.



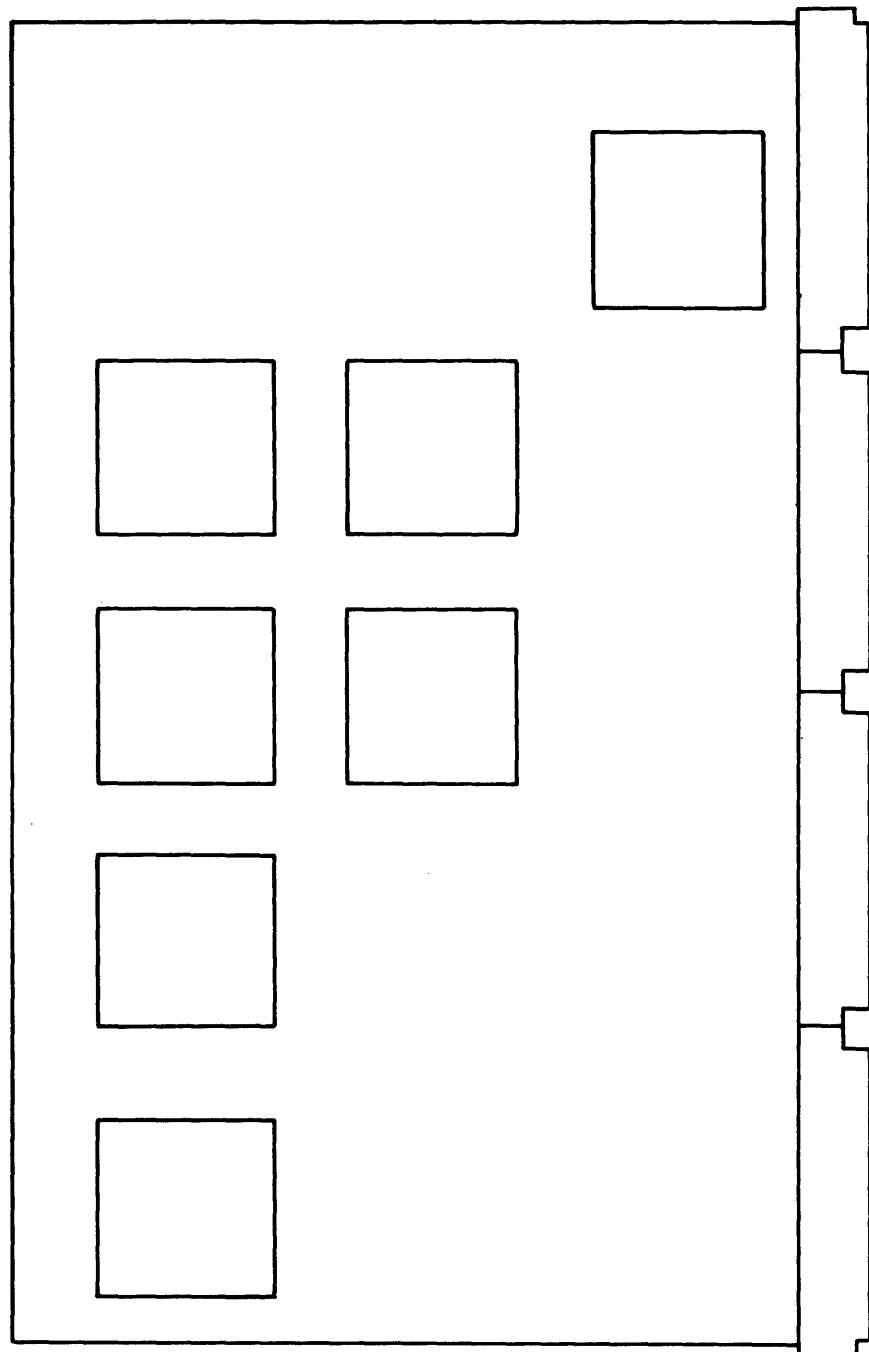
CA 1 - SDLC Communications Adapter with Clock (Feature Code 1601)



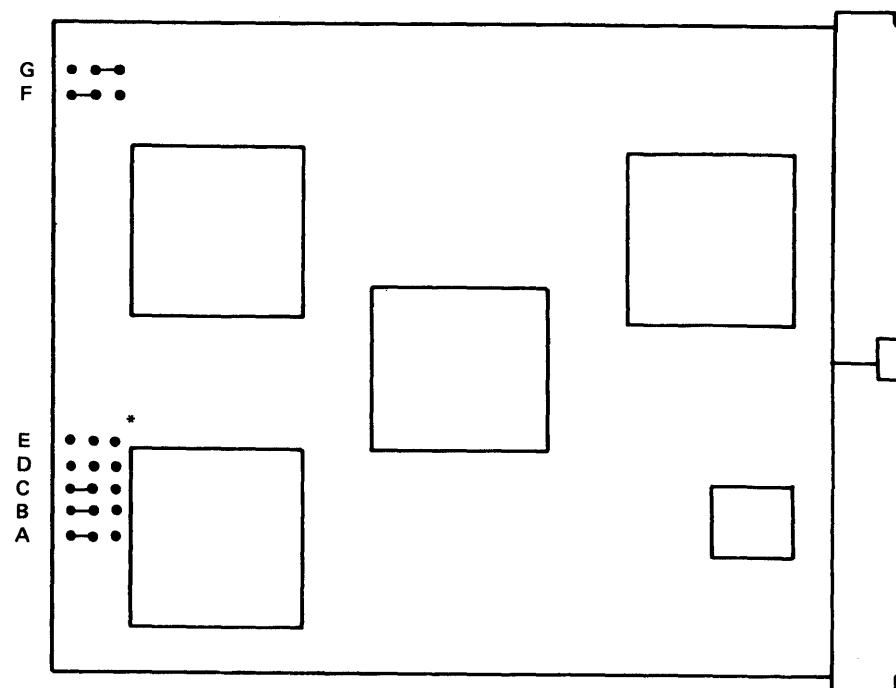
CA 1 - SDLC Communications Adapter without Clock (Feature Code 1602)



CA 2 - BSC/S-S Communications Adapter with Clock (Feature Code 1603)

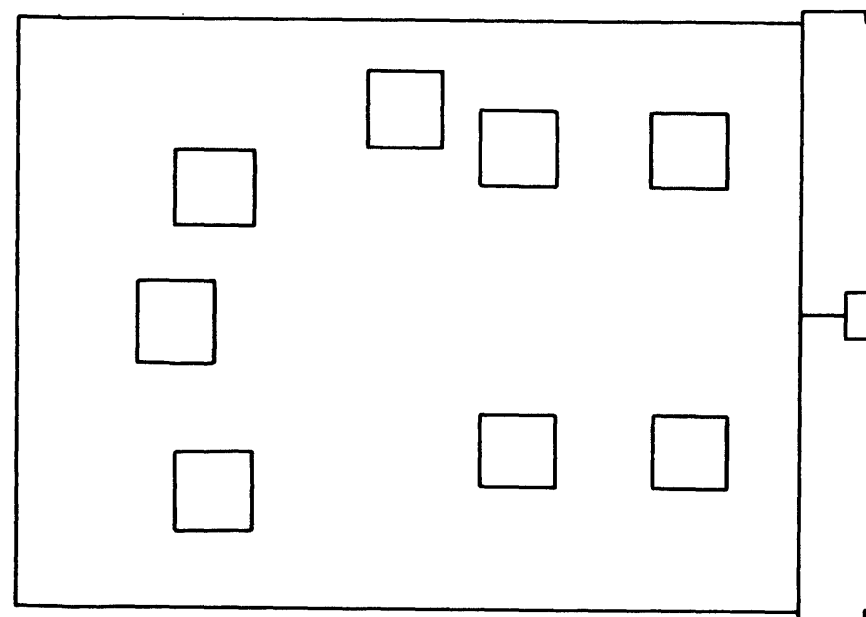
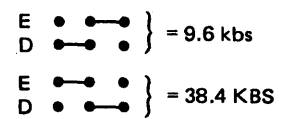


CA 2 - BSC/S-S Communications Adapter without Clock (Feature Code 1604)

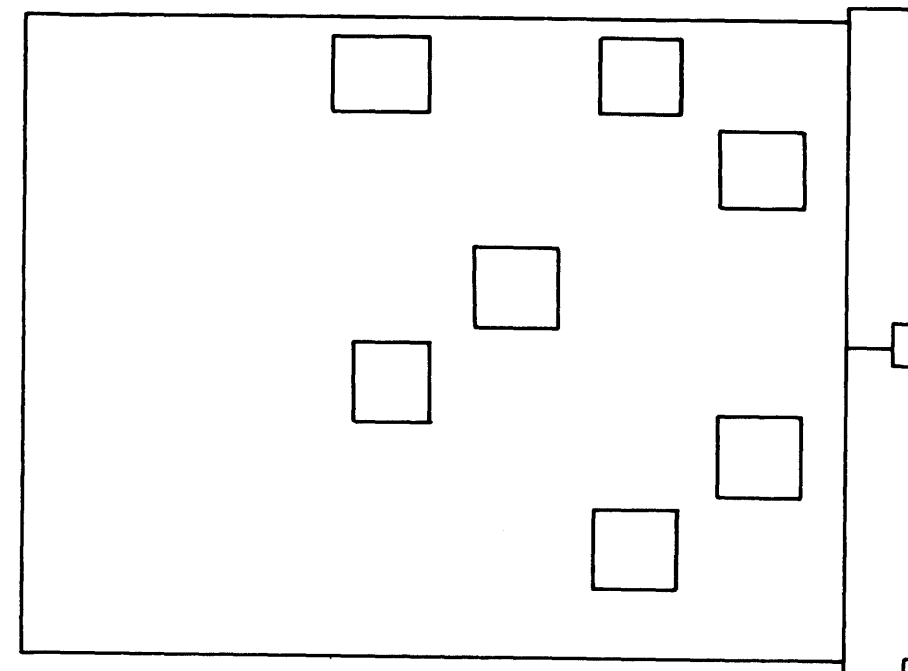


CA 3 & CA 4 - Loop Adapter - First and Second Lobe (Feature Codes 4830 and 4835)

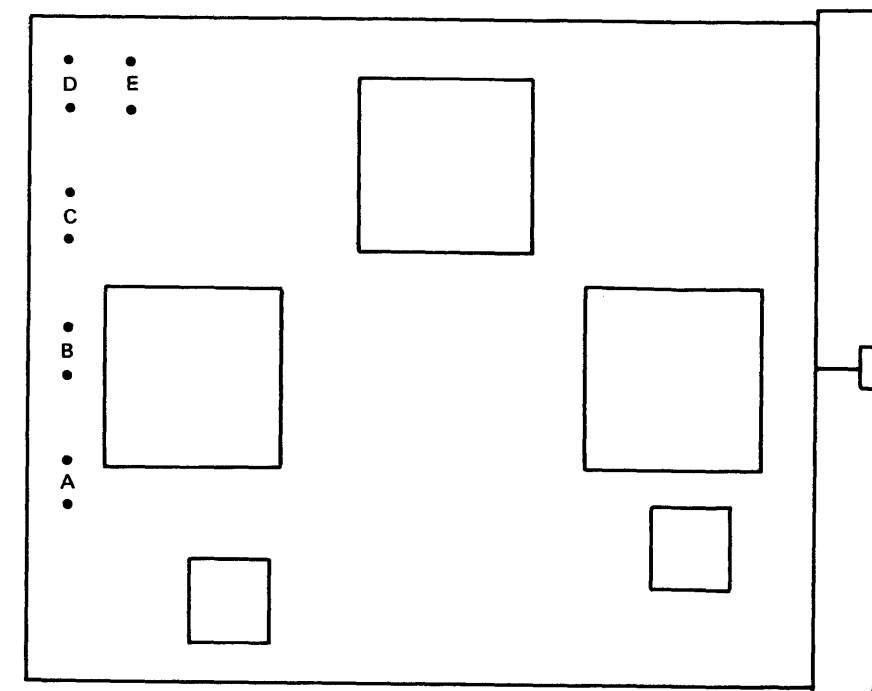
\*Jumpers D and E as shown to specify loop speed.



CA 6 - CCITT V.35 Driver/Receiver (Feature Code 1550)



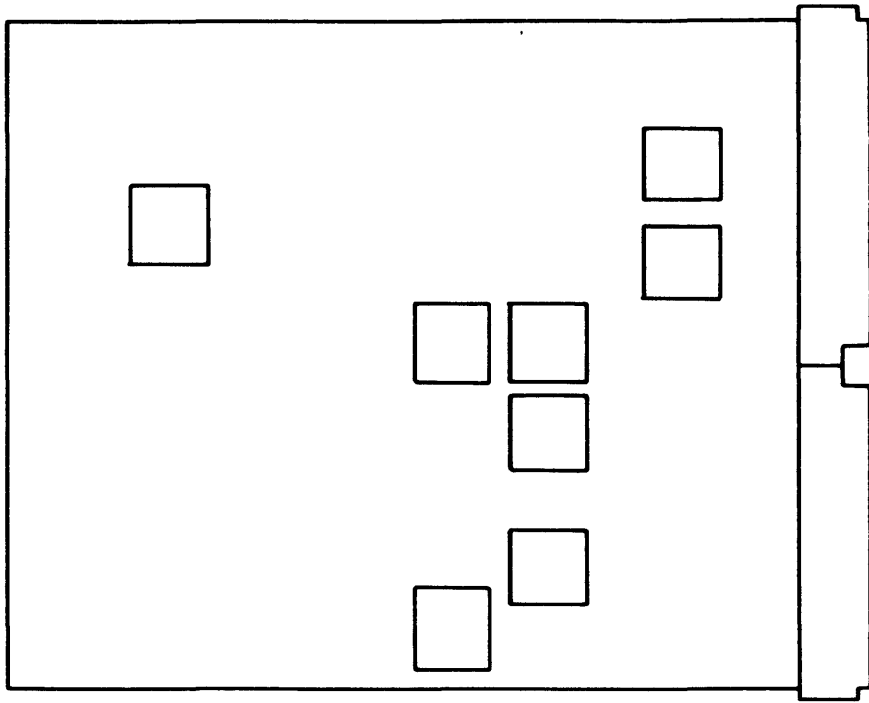
CA 5 - EIA RS-232-C/CCITT V.24 Driver/Receiver (Feature Code 3701)



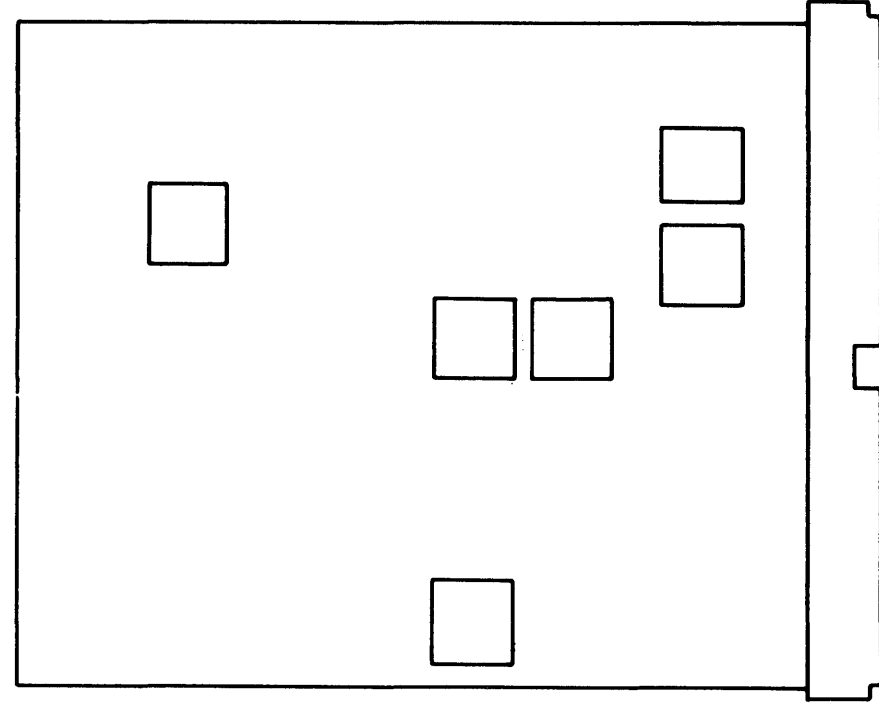
CA 7 - Digital Data Service Driver/Receiver (Feature Code 5650)

Install jumper for DDSA timing.

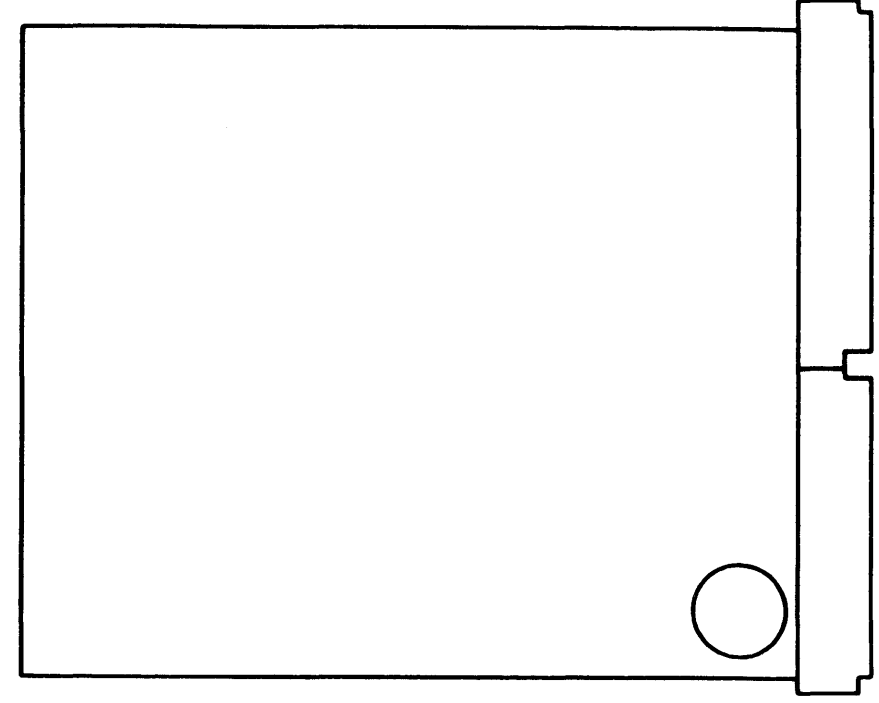
- A = 2.4 Kbps      D = 56.0 Kbps
- B = 4.8 Kbps      E = DDL (Disable Double Loop Back)
- C = 9.6 Kbps



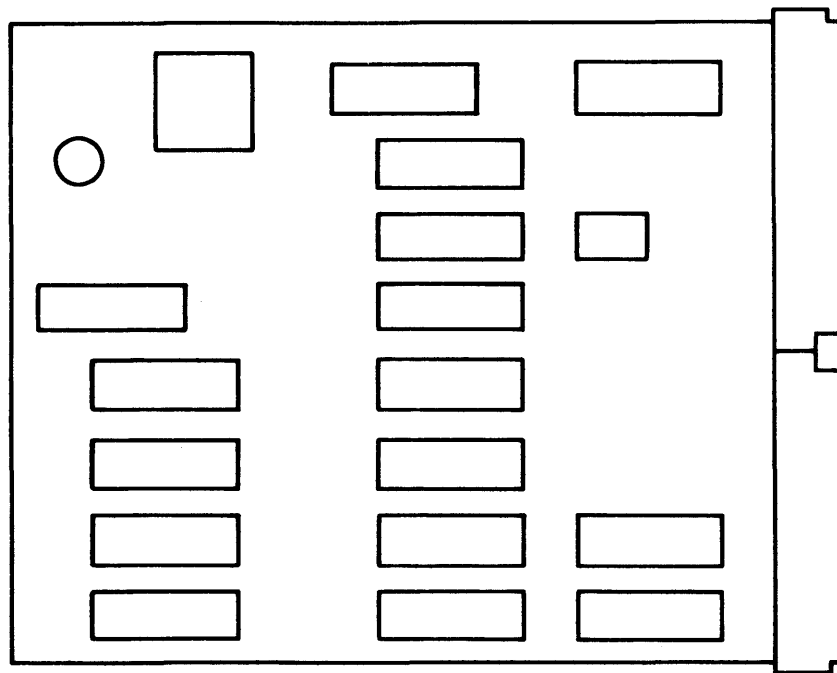
CA 8 - Integrated Analog Modem - Switched (Feature Code 5501)



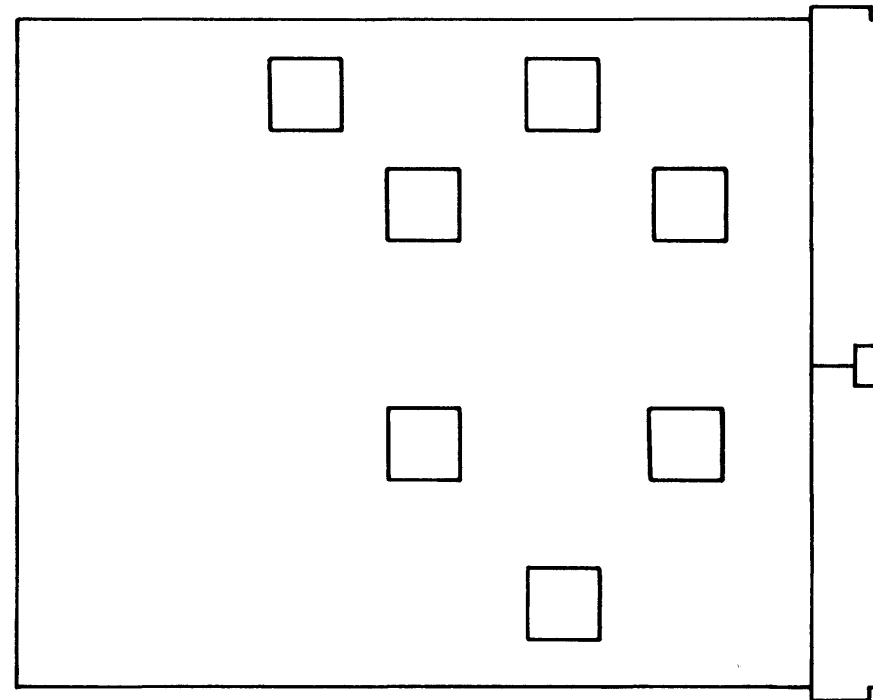
CA 9 - Integrated Analog Modem - Nonswitched (Feature Code 5500)



CA 10 - Multispeed Clock (Feature Codes 5200)



CA 11 - X.21 Driver/Receiver - Nonswitched (Feature Code 5655)



CZ5 - EIA Airlines Reservation Driver/Receiver (RPQ MK6959)



## CP390 Updating MD Diskette Configuration Table Entries

This section provides step-by-step instructions for updating the MD diskette configuration table entries after adding or removing an MES (CP391), an 8101 (CP392) or an 8909 (CP393).

### CP391 How to Update MD Diskette Configuration Tables Entries After an MES

Use the configuration procedures outlined below to update the MD diskette configuration table if deleting, adding, or changing an individual feature component by an MES. The following procedures are provided; select the one that corresponds to the MES:

- Configuration Update Procedure A – 8130/8140 Model Conversion, Storage Change or Floating-Point Change
- Configuration Update Procedure B – Communications Feature Addition or Deletion
- Configuration Update Procedure C – Disk Storage Addition or Deletion
- Configuration Update Procedure D – Diskette Storage Addition or Deletion
- Configuration Update Procedure E – Tape Adapter Addition or Deletion
- Configuration Update Procedure F – Display/Printer Adapter or Driver/Receiver Card Addition or Deletion
- Configuration Update Procedure G – Expanded Function Panel Addition or Deletion
- Configuration Update Procedure H – SSCF Addition, Deletion, or Switch Change

Certain procedures use the Configuration Utility. See CP466 for detailed Configuration Utility operation, if necessary. The following hints could be helpful:

- The Configuration Utility options are selected from the PF Menu. The PF Menu is displayed by pressing the PF key.
- The "file to diskette" and "terminate" options are selected from the RST Menu. Display the RST menu by pressing the RESET key.
- Adds are done by first displaying the location preceding the add start point using any display option, then pressing PF and selecting the ADD option. You can add up to 16 sequential entries before requesting a configuration table assembly. You do not need to enter trailing zeroes in an entry option field (OP).
- Make changes to an entry by displaying the entry to be changed using any display option, then pressing PF and selecting the CHANGE option. Only digits entered are changed.

## Configuration Update Procedure A: 8130/8140 Model Conversion, Storage Change, or Floating-Point Change

### Processor Configuration Table Entry Format and Meaning:

LL PA UTUT OP OP OP OP  
 0C 99 0F00 ST UV WX Y0

Where:

- S = 0 = without ECC
- = 1 = with ECC
- T = 2 = without floating-point
- = 3 = with floating-point
- UV = 08 = 256K storage
- = 0A = 320K storage
- = 0C = 384K storage
- = 10 = 512K storage
- = 18 = 768K storage
- = 20 = 1024K storage
- WX = Processor model number
- Y = Processor model

For example, the WXY entry for Model A31 = 31A.

Model	Configuration Entry (CDE)*	Description
A2X	0C990F00S2082XA0** 0C990F00S20C2XA0** 0C990F00S2102XA0** 0C990F00S2182XA0** 0C990F00S2202XA0**	256K storage 384K storage 512K storage 768K storage 1024K storage
A3X	0C990F0002083XA0 0C990F00020C3XA0	256K storage 384K storage
A4X	0C990F00030A4XA0	320K storage and floating point
A5X	0C990F0002105XA0	512K storage
A6X	0C990F0012186XA0	768K storage
A7X	0C990F0012207XA0	1024K storage
B5X	0C990F0012105XB0 0C990F0013105XB0	512K storage 512K storage and floating point
B6X	0C990F0012186XB0 0C990F0013186XB0	768K storage 768K storage and floating point
B7X	0C990F0012207XB0 0C990F0013207XB0	1024K storage 1024K storage and floating point

\*X in CDE is the same as X in Model.

\*\*Enter S option as indicated above.

Figure CP391-1. Processor Configuration Table Entries

**Changing the Processor Entry:**

1. Using the MES, determine the new model number and whether storage or floating point was added or deleted.
2. Use Figure CP391-1 to select the appropriate configuration table entry.
3. Change the processor configuration entry in the table as follows:
  - a. Using MD diskette 01, select the configuration utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the 1st option (5).
  - d. At message 7110, verify the original processor entry displayed (0C9900F0OPOPOPOP).
  - e. Press the PF pushbutton.
  - f. At the PF menu, select the CHANGE option (7).
  - g. At message 7107, enter the new processor entry.
4. File the configuration table and then copy it to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy utility operation if necessary.
5. Update the machine configuration list with the new processor description and CDE. (The processor entry is the first entry in the MCL.)

**Configuration Update Procedure B: Communications Feature Addition or Deletion**

**Communications Configuration Table Entry Format and Meaning:**

LV PA UTUT OP OP OP OP  
01 PA UTUT ST UV WX YZ

**Where:**

PA = The adapter physical address (PA) and is identified in Figure CP391-2.

UTUT = 0060 = SDLC Communication Adapter  
0061 = Bi-Sync/Start Stop Communication Adapter  
006F = Airlines Reservation System Communication Adapter (RPQ)

- |                            |   |                  |
|----------------------------|---|------------------|
| S = Line discipline        | = 0 = SDLC  |                  |
|                            | 1 = Start/Stop  |                  |
|                            | 2 = Bi-Sync   |                  |
| T = Interface type         | = 0 = EIA/CCITT   |                  |
|                            | 1 = Integrated modem                                    |                  |
|                            | 2 = Loop adapter  |                  |
|                            | 3 = V.35  |                  |
|                            | 4 = DDSA  |                  |
|                            | 5 = X.21  |                  |
| U = Interface type option  | = 0 = External modem                                    |                  |
|                            | = 1 = Direct connect (EIA/CCITT or V.35)                |                  |
|                            | = 0 = First lobe loop                                   |                  |
|                            | = 1 = Second lobe loop                                  |                  |
|                            | = 0 = Non-switched integrated modem                     |                  |
|                            | = 1 = Switched integrated modem                         |                  |
| V = Clocking               | = 0 = External clock                                    |                  |
|                            | 1 = Adapter clock                                       |                  |
|                            | 2 = DTE clock   |                  |
|                            | 3 = Interface card clock                                |                  |
| W = Line discipline option | = 0 = Primary (SDLC)                                    |                  |
|                            | = 1 = Secondary   |                  |
|                            | = 0 = 2741, 9-bit, 134.5 bps                            | } For Start/Stop |
|                            | = 1 = TTY, 11-bit, 110 bps                              |                  |
|                            | = 2 = TTY, 10-bit, 150 bps                              |                  |
|                            | = 3 = TTY, 10-bit, 300 bps                              |                  |
|                            | = 4 = TTY, 10-bit, 600 bps                              |                  |
|                            | = 0 = Primary and multipoint                            | } For BSC        |
|                            | = 1 = Secondary and multipoint                          |                  |
|                            | = 2 = Primary and point to point                        |                  |
|                            | = 3 = Secondary and point to point                      |                  |
| X = Variable adapter       | = 0 = SDLC adapter not on high channel request priority |                  |
|                            | = 1 = SDLC adapter is on high channel request priority* |                  |
| YZ = Data link options     | = Bit 0 = Not used                                      |                  |
|                            | = Bit 1 = Data rate select                              |                  |
|                            | = Bit 2 = Select standby                                |                  |
|                            | = Bit 3 = NRZI mode                                     |                  |
|                            | = Bit 4 = Permanent request to send                     |                  |
|                            | = Bit 5 = 108.1   |                  |
|                            | = Bit 6 = Tone  |                  |
|                            | = Bit 7 = Switched line                                 |                  |

\*Only one FAC code per system is allowed on High Channel Priority.

Machine	Port	Adapter Card	D/R Card	Adapter PA
8130	1	A2K2	A2J4	81
	2	A2L2	A2J2	82
	3	A2M2	A2N4	83
	4	A2P2	A2Q4	84
	5	A2R2	A2S4	85
	6	A2T2	A2U4	86
8140 Model AXX	1	A2E2	A2F2	81
	2	A2G2	A2H2	82
	3	A2J2	A2K2	83
8140 Model BXX	1	A2H2	A2J2	80
	2	A2F2	A2G2	81
	3	A2D2	A2E2	82
	4	A2B2	A2C2	83
	5	C2H2	C2J2	50
	6	C2F2	C2G2	51
	7	C2D2	C2E2	52
	8	C2B2	C2C2	53
	9	D2H2	D2J2	56
	10	D2F2	D2G2	5D
	11	D2D2	D2E2	5E
	12	D2B2	D2C2	5F
8101*	1	A1H2	A1J2	P0
	2	A1F2	A1G2	P1
	3	A1D2	A1E2	P2
	4	A1B2	A1C2	P3
	5	B1H2	A1J2	PC
	6	B1F2	B1G2	PD
	7	B1D2	B1E2	PE
	8	B1B2	B1C2	PF

\*Determine the P in the PA value (1, 2, 3, or 4) from the address group label on the 8101 operator panel.

Figure CP391-2. Communications Features PA Identification

FAC No.	Configuration Entry (CDE)*	Description
08	01 PA 0060 0203	SDLC, 1 loop, 1 lobe, 38.4K bps
09	01 PA 0060 0213	SDLC, 1 loop, 2 lobes, 38.4K bps
10	01 PA 0060 0203	SDLC, 1 loop, 1 lobe, 9.6K bps
11	01 PA 0060 0213	SDLC, 1 loop, 2 lobes, 9.6K bps
12	01 PA 0060 0001	SDLC, EIA external modem
13	01 PA 0060 0000	SDLC, EIA external modem
15	01 PA 0060 0011	SDLC, EIA direct connect
16	01 PA 0060 0012	SDLC, EIA direct connect
17	01 PA 0060 001010	SDLC, EIA direct connect
18	01 PA 0060 0101	SDLC, internal modem, non-switched
19	01 PA 0060 011110	SDLC, internal modem, switched
20	01 PA 0060 0403	SDLC, DDS
21	01 PA 0060 040310	SDLC, DDS
24	01 PA 0060 0311	SDLC, V.35, direct connect
25	01 PA 0060 0312	SDLC, V.35, direct connect
26	01 PA 0060 031201	SDLC, V.35, direct connect, 56K bps
27	01 PA 0060 031010	SDLC, V.35, direct connect
28	01 PA 0060 031001	SDLC, V.35, direct connect, 56K bps
29	01 PA 0060 030001	SDLC, V.35 external modem
30	01 PA 0060 9500	SDLC, X.21 external modem 2.4K, 4.8K or 9.6K bps
31	01 PA 0060 050001	SDLC, X.21 external modem 48K bps
40	01 PA 0061 2001	BSC, EIA external modem
41	01 PA 0061 2001	BSC, EIA external modem
43	01 PA 0061 201120	BSC, EIA direct connect
44	01 PA 0061 201220	BSC, EIA direct connect
45	01 PA 0061 2101	BSC, internal modem, non-switched
47	01 PA 0061 2403	BSC, DDS
60	01 PA 0061 1001	SS, EIA external modem
61	01 PA 0061 1011	SS, EIA, direct connect
A2	01 PA 006F FF00	ALC, EIA, external modem (RPQ)
A3	01 PA 006F FF0220	ALC, EIA, direct connect (RPQ)

\*PA is the adapter PA from Figure CP391-2.  
Option Field trailing zeroes not required at this time.

Figure CP391-3. Configurations Entry by FAC Number

**Communication Feature Entry Addition.** When adding communications features, update the configuration table entries as follows:

1. Using the MES, determine the communications FAC number and the socket or port number of the communication adapter.
2. Use Figure CP391-2 and the adapter socket/port to identify the adapter PA.
3. Use Figure CP391-3, the adapter PA, and the FAC number to identify and complete the configuration table entry.
4. Add the communication adapter entry to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the LST option (6).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the communications adapter entry.
  - g. Assemble the configuration table.
5. File the configuration table, then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.
6. Update the machine configuration list for only the affected machine to reflect the added communications feature, using the following format as an example:

```

COMM FEAT
PT4 FAC12
SDLC, EIA, EXT MODEM
ADDR P3
LOC A1-B2, A1-C2

```

The above information is obtained from the MES and from Figures CP391-2 and CP391-3.

7. If you need to complete the communications adapter configuration entries at this time, go to CP360. If not, the procedure is complete.

**Communication Feature Entry Deletion.** When removing communications features, delete the configuration table entries as follows:

1. Using the MES, identify the communications adapter card socket or port number that was deleted.
2. Use Figure CP391-2 and the adapter socket/port to identify the adapter PA.
3. Delete the communications adapter entry and its attachments from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, Enter the PA of the communication adapter to be deleted.
  - e. At message 7110, verify that the entry displayed is the correct communication entry (01PA006X).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At Message 710A, select the DA option.
4. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.
5. Update the machine configuration list by crossing out the communication feature entry.

**Configuration Update Procedure C: Disk Storage Addition or Deletion**

**Disk Storage Configuration Entry Format and Meaning:**

**Note:** When you remove a disk storage and replace it with another, you also change the machine model number.

LV PA UTUT OP  
01 PA 0020 OP

Where:

- PA = 80 = 8130/8140 Model AXX
- = 84 = 8140 Model BX1
- = 84,85 = 8140 Model BX2
- = 90 = 8101 Models A11, A13, A23, Address Group 9
- = A0 = 8101 Models A11, A13, A23, Address Group A
- = B0 = 8101 Models A11, A13, A23, Address Group B
- = C0 = 8101 Models A11, A13, A23, Address Group C
- = 90,91 = 8101 Model A25, Address Group 9
- = A0,A1 = 8101 Model A25, Address Group A
- = B0,B1 = 8101 Model A25, Address Group B
- = C0,C1 = 8101 Model A25, Address Group C
  
- OP = 10 = 29 M Bytes
- = 20 = 64 M Bytes
- = 30 = 23 M Bytes with fixed heads
- = 40 = 58 M Bytes with fixed heads

**Disk Storage Entry Addition.** When adding a disk storage, update the configuration table entry as follows:

1. Using either the MES or the address group label on the operator panel, identify the disk storage PA or address group and the model number.
2. Use Figure CP391-4 or CP391-5 and the PA or address group and the model number to select the appropriate configuration entry.
3. Add the disk storage entry to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the LST option (6).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the disk storage entry.
  - g. Assemble the configuration table.

4. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:

- a. Press the RESET pushbutton.
- b. At the RST menu, select the FILE option (2).

When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

5. Update the machine configuration list for only the affected machine to reflect the added disk storage, using the following format as an example:

```
DISK STORAGE
64 MB
ADDR P0
CDE 01 P0 0020 20
```

8130/8140 Model	Configuration Entry	Description
A21,A31,A41,A51,A61,A71	01 80 0020 10	29 M Bytes
A22,A32,A42,A52,A62,A72	01 80 0020 30	23 M Bytes w/Fixed Heads
A23,A33,A43,A53,A63,A73	01 80 0020 20	64 M Bytes
A24,A34,A44,A54,A64,A74	01 80 0020 40	58 M Bytes w/Fixed Heads
B51,B61,B71	01 84 0020 40	58 M Bytes w/Fixed Heads
B52, B62, B72*	01 84 0020 40*	58 M Bytes w/Fixed Heads
	01 85 0020 20*	64 M Bytes

**Figure CP391-4. 8130/8140 Disk Storage Configuration Entries**

8101 Model	Configuration Entry	Description
A10, A20	None	No Disk Present
A11	01 P0 0020 10**	29 M Bytes
A13, A23	01 P0 0020 20**	64 M Bytes
A25*	01 P0 0020 20**	(2 Disks) 64 M Bytes
	01 P1 0020 20**	64 M Bytes

\*Two entries required, as these models have two disks.

\*\*Determine the P in the PA value (9, A, B, or C) from the address group label on the 8101 operator panel.

**Figure CP391-5. 8101 Disk Storage Configuration Entries**

**Disk Storage Entry Deletion.** When removing a disk storage, delete the configuration table entry as follows:

1. Using the address group label on the operator panel and the configuration entry format in step 5 of the disk entry add procedure, identify the disk storage PA (8, 9, A, B, or C).
2. Delete the disk storage entry from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter the PA of the disk storage to be deleted (80, 84, 85, 90, 91, A0, A1, B0, B1, C0 or C1).
  - e. At message 7110, verify that the entry displayed is a disk storage entry (01 PA 0020 OP).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the CURRENT option (D1).
3. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.
4. Update the machine configuration list by crossing out the disk storage entry.

#### Configuration Update Procedure D: Diskette Storage Addition or Deletion

##### Diskette Storage Configuration Entry Format and Meaning:

```
LV PA UTUT
01 PA 0002
```

Where:

PA = 87 = 8130/8140	(Required)
97 = First 8101	Address Group 9
A7 = Second 8101	Address Group A
B7 = Third 8101	Address Group B
C7 = Fourth 8101	Address Group C

**Diskette Storage Entry Addition.** When adding a diskette storage, update the configuration table entry as follows:

1. Using either the MES or the address group label on the operator panel, identify the diskette storage PA or address group (9, A, B, or C).
2. Using the PA or address group, complete the configuration table entry according to the format previously specified.
3. Add the diskette storage entry to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the LST option (6).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the diskette storage entry.
  - g. Assemble the configuration table.
4. Update the machine configuration list for only the affected machine to reflect the added diskette storage, using the following format as an example:
 

```
DISKETTE STORAGE
ADDR P7
CDE 01 P7 0002
```
5. Diskette storage installation could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switch Change procedure. Otherwise, go to the next step.
6. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**Diskette Storage Entry Deletion.** When removing a diskette storage, delete the configuration table entry as follows:

1. Using the address group label on the operator panel and the configuration entry format in step 4 of the diskette entry add procedure, identify the diskette storage PA (9, A, B, or C).
2. Delete the diskette storage entry from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter the PA of the diskette storage to be deleted (97, A7, B7, or C7).
  - e. At message 7110, verify that the entry displayed is a diskette storage entry (01 PA 0002).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the CURRENT option (D1).
3. Update the machine configuration list by crossing out the diskette storage entry for only the affected machine.
4. Diskette storage deletion could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switch Change Procedure. Otherwise, go to the next step.
5. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

#### Configuration Update Procedure E: Tape Adapter Addition or Deletion

##### Tape Adapter Configuration Entry Format and Meaning:

```
LV PA UTUT
01 PA 0040
```

Where:

```
PA = 5E = 8140 Model BXX
93 = First 8101 Address Group 9
A3 = Second 8101 Address Group A
B3 = Third 8101 Address Group B
C3 = Fourth 8101 Address Group C
```

**Tape Adapter Entry Addition.** When adding a tape adapter, update the configuration table entry as follows:

1. Using either the MES or the address group label on the operator panel, identify the tape adapter PA or address group (5, 9, A, B, or C).
2. Using the PA or address group, complete the configuration table entry according to the format previously specified.
3. Add the tape adapter entry to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the LST option (6).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the tape adapter entry.
  - g. Assemble the configuration table.
4. Update the machine configuration list for only the affected machine to reflect the added tape adapter, using the following format as an example:

```
TAPE ADAPT
ADDR PA
CDE 01 P7 0040
```
5. Tape adapter installation could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switch Change procedure. Otherwise, go to the next step.
6. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**Tape Adapter Entry Deletion.** When removing a tape adapter, delete the configuration table entry as follows:

1. Using the address group label on the operator panel and the configuration entry format in step 4 of the tape adapter entry add procedure, identify the tape adapter PA (5, 9, A, B or C).
2. Delete the tape adapter entry from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter the PA of the tape adapter to be deleted (5E, 93, A3, B3 or C3).
  - e. At message 7110, verify that the entry displayed is a tape adapter entry (01 PA 0040).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the DA option.
3. Update the machine configuration list by crossing out the tape adapter entry.
4. Tape adapter deletion could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switch Change procedure. Otherwise, go to the next step.
5. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**Configuration Update Procedure F: Display/Printer Adapter or Driver/Receiver Card Addition or Deletion**

**Note:** To change entries for display/printers with the Katakana feature, go to CP350.

Figure CP391-6 shows and describes the display/printer adapter and driver/receiver configuration table entry formats and meanings:

Configuration Entry				Description
LV	PA	UTUT	OP	
01	PA	0080	OP	Display/Printer Adapter First D/R Card, Socket H2, Ports 00-03
02	00	0080	OP	
03	00	0100	OP	
02	01	0080	OP	
02	01	0100	OP	
02	02	0080	OP	
03	02	0100	OP	
02	03	0080	OP	
03	03	0100	OP	
02	04	0080	OP	Second D/R Card, Socket J2, Ports 04-07
03	04	0100	OP	
02	05	0080	OP	
03	05	0100	OP	
02	06	0080	OP	
03	06	0100	OP	
02	07	0080	OP	Third D/R Card, Socket H4, Ports 08-11
03	07	0100	OP	
02	08	0080	OP	
03	08	0100	OP	
02	09	0080	OP	
03	09	0100	OP	
02	10	0080	OP	Fourth D/R Card, Socket J4, Ports 12-15
03	10	0100	OP	
02	11	0080	OP	
03	11	0100	OP	
02	12	0080	OP	
03	12	0100	OP	
02	13	0080	OP	Fifth D/R Card, Socket K2, Ports 16-19
03	13	0100	OP	
02	14	0080	OP	
03	14	0100	OP	
02	15	0080	OP	
03	15	0100	OP	
02	16	0080	OP	Sixth D/R Card, Socket K4, Ports 20-23
03	16	0100	OP	
02	17	0080	OP	
03	17	0100	OP	
02	18	0080	OP	
03	18	0100	OP	
02	19	0080	OP	
03	19	0100	OP	
02	20	0080	OP	
03	20	0100	OP	
02	21	0080	OP	
03	21	0100	OP	
02	22	0080	OP	
03	22	0100	OP	
02	23	0080	OP	
03	23	0100	OP	

Where:

- Adapter PA = 5F = 8140 Model BXX
- 1F = First 8101 Address Group 1
- 2F = Second 8101 Address Group 2
- 3F = Third 8101 Address Group 3
- 4F = Fourth 8101 Address Group 4
- OP = 00 = Katakana Printer not attached

**Figure CP391-6. Display/Printer Configuration Entries**



**Display Printer Adapter and First D/R Card Addition.** When adding a display/printer adapter and the first driver/receiver card, update the configuration table entries as follows:

1. Using either the MES or the address group label on the operator panel, identify the display/printer adapter PA or address group (1, 2, 3, or 4).
2. Using Figure CP391-6, select the correct PA or address group, and complete the display/printer adapter configuration table entry.
3. Add the adapter and first D/R card configuration entries to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the LST option (6).
  - c. Press the PF pushbutton.
  - d. At the PF menu, select the ADD option (8).
  - e. Add the following entries. Do not specify the OP values at this time:  
01 PA 0080  
02 00 0080  
03 00 0100  
02 01 0080  
03 01 0100  
02 02 0080  
03 02 0100  
02 03 0080  
03 03 0100
  - f. Assemble the configuration table.
4. Update the machine configuration list for only the affected machine to reflect the added display/printer adapter and first D/R card, using the following format as an example:  
DISPLAY/PTR ADAPT  
ADDR PF  
CDE 01 PF 0080  
DRIVER/REC 0-3  
CDE 02 00 0080  
CDE 03 00 0100  
CDE 02 01 0080  
CDE 03 01 0100  
CDE 02 02 0080  
CDE 03 02 0100  
CDE 02 03 0080  
CDE 03 03 0100
5. Display/Printer adapter installation could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switch Change procedure. Otherwise, go to the next step.
6. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**Display Printer Adapter and First D/R Card Deletion.** When removing a display/printer adapter and all associated driver/receiver cards, delete the configuration table entries as follows:

1. Using either the MES or the address group label on the operator panel and Figure CP391-6, identify the display/printer adapter PA or address group (1, 2, 3, 4 or 5).
2. Delete all display/printer adapter and D/R card configuration entries from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter the PA of the display/printer adapter (1F, 2F, 3F, 4F, or 5F).
  - e. At message 7110, verify that the entry displayed is a display/printer adapter entry (01 PF 0080).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the DA option.
3. Update the machine configuration list by crossing out the display/printer adapter entry and all driver/receiver entries for only the affected machine.
4. Display/printer adapter deletion could involve changing SSCF priority switches 7–10. If the MES changed these switches, go to Configuration Update Procedure H and perform the CRP Switched Change procedure. Otherwise, go to the next step.
5. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**Second through Sixth Display Printer D/R Card Addition.** When adding any second through sixth display/printer driver/receiver card, update the configuration table entries as follows:

1. Identify the card socket of the display/printer D/R card added by the MES.
2. Using Figure CP391-6, identify the four ports and the eight configuration entries to be added.
3. Add the D/R card configuration entries to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the UT option (3).
  - d. At message 7101, enter 0100.
  - e. Press FWD until the MD displays the 03 PT 0100 entry containing the PT (port number) that precedes the first port number to be added. For example, if adding port 08, locate and display 03 07 0100 (Port 07).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the ADD option (8).
  - h. Add the eight entries associated with the D/R card added.
  - i. Assemble the configuration table.
4. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.
5. Update the machine configuration list for only the affected machine to reflect the added driver/receiver card, using the following format as an example:

```
DRIVER/REC 4-7
CDE 02 04 0080
CDE 03 04 0100
CDE 02 05 0080
CDE 03 05 0100
CDE 02 06 0080
CDE 03 06 0100
CDE 02 07 0080
CDE 03 07 0100
```

**Second through Sixth Display Printer D/R Card Deletion.** When removing a display/printer driver/receiver card without removing the adapter, delete the configuration table entries as follows:

1. Identify the card socket of the display printer D/R Card deleted by the MES.
2. Using Figure CP391-6, identify the four ports and the eight configuration entries to be deleted.
3. Delete the D/R card configuration entries from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the UT option (3).
  - d. At message 7103, enter 0080.
  - e. Press FWD until the MD displays the 02 PT 0080 entry containing the PT (port number) of the first port to be deleted.
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DA option to delete the port.
  - h. Press the PF pushbutton.
  - i. At the PF menu, select the CURRENT option, which displays the next port.
  - j. Return to step F until all four ports are deleted.
4. Update the machine configuration list by crossing out the entries associated with the deleted ports only for the affected machine.
5. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

## Configuration Update Procedure G: Expanded Function Panel Addition or Deletion

### Expanded Function Panel Configuration Format and Meaning:

```
LV PA UTUT
02 0A 00F1
```

**Note:** This entry follows the PSCF entry (01 08 00 F010) in the configuration table.

**Expanded Function Panel Entry Addition.** When adding the expanded function panel, update the configuration table entry as follows:

1. Add the EFP entry:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter 08 (PSCF address).
  - e. At message 7110, verify that the entry displayed is 01 08 00F0 10.
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the ADD option (8).
  - h. Add the EFP entry (02 0A 00F1).
  - i. Assemble the configuration table.
2. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.
3. Update the 8140 machine configuration list to reflect the added expanded function panel using the following format as an example:

```
EXP FUNCT PANEL
CDE 02 0A 00F1
```

**Expanded Function Panel Entry Deletion.** When removing the expanded function panel, delete the configuration table entry as follows:

1. Delete the EFP entry:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter 0A.
  - e. At message 7110, verify that the entry displayed is an EFP entry (02 0A 00F1).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the CURRENT option (D1).
2. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.
3. Update the 8140 machine configuration list by crossing out the expanded function panel entry.

**Configuration Update Procedure H: SSCF Addition, Deletion or Switch Change**

All machine types use a PSCF; the number of SSCFs depend on machine type and installed features:

- 8130s use one SSCF only with the System Expansion Feature.
- 8140 Models AXX use only one SSCF.
- 8140 Models BXX and 8101s use one SSCF and can have two, depending on features.

Figures CP391-7 and CP391-8 show and describe the PSCF and SSCF configuration table entry formats and meanings, as well as the SSCF switch settings and decode. Switches 1, 2, 3, and 4 determine the address group number, switch 5 is always on, and switches 7 through 10 determine the channel request priority (CRP) for that address group.

The following summarizes the procedures used to change SSCF switch settings and configuration table entries, depending on the MES:

- Use the SSCF Addition or CRP Change procedure when:
  - Adding cards in 8130 positions A2B2 through A2F2.
  - Adding or removing a display/printer adapter on 8101 board B1.
  - Adding or removing the second display/printer adapter (RPQ).
  - Adding or removing a tape adapter on 8101 board A2.
  - Adding or removing a diskette storage adapter on an 8140 Model BXX or an 8101 without a tape adapter.
- Use the SSCF Deletion procedure when:
  - Removing cards from 8130 positions A2B2 through A2F2.
  - Removing a board from 8101 positions A1 or A2.
  - Removing a board from 8140 Model BXX position C2.
- Use the Address Group Change procedure when the MES changes the address group switches of a previously installed 8101 SSCF.

	LV	PA	UTUT	OP	OP	OP	OP
PSCF Entry	01	08	00F0	10	00	WX	YZ
SSCF Entry	02	P8	00F0	ST	00	00	00

Where:

WXYZ = The PSCF IPL parameter switches  
 = 4380 = 8130/8140 Model AXX  
 = 4384 = 8140 Models BXX

P = The address group number on the operator panel  
 = 8 for 8130/8140  
 = 5 for 8140 Model BXX board C2  
 = 1, 2, 3, or 4 for 8101 board A1  
 = 9, A, B, or C for 8101 board A2

ST = The SSCF channel request priority switches 7, 8, 9, 10, and 5 arranged in the first OP field as follows:

ST Bits	0	1	2	3	4	5	6	7
SSCF Sw Pos	–	7	8	9	10	5*	–	–

\*SSCF SW 5 is always on.

Figure CP391-7. PSCF and SSCF Configuration Entries and SSCF Switch Values

8130/8140/8809 - 1B SSCF Switch Setting (N = on)										Configuration Entry				Address Group	Comments
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		
N				N		N		N		02	88	00F0	54	8	8130/40 Model AXX
	N		N	N		N	N		N	02	58	00F0	6C	5	8140 Model BXX
	N	N	N	N		N	N			02	78	00F0	64	7	8809 Model 1B

8101 A1 Board SSCF (SC5) Switch Setting (N = on)										Configuration Entry				Address Group	Adapter Present	
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		First Display/Printer	Second Display/Printer (RPQ)
			N	N		N	N	N		02	18	00F0	74	1	Yes	No
			N	N				N	N	02	18	00F0	1C	1	No	No
				N		N	N	N	N	02	18	00F0	7C	1	Yes	Yes
		N		N		N	N	N		02	28	00F0	74	2	Yes	No
		N		N				N		02	28	00F0	14	2	No	No
				N		N	N	N	N	02	28	00F0	7C	2	Yes	Yes
		N	N	N		N	N	N		02	38	00F0	74	3	Yes	No
		N	N	N				N		02	38	00F0	0C	3	No	No
				N		N	N	N	N	02	38	00F0	7C	3	Yes	Yes
		N		N		N	N	N		02	48	00F0	74	4	Yes	No
		N		N						02	48	00F0	04	4	No	No
				N		N	N	N	N	02	48	00F0	7C	4	Yes	Yes

8101 A2 Board SSCF (SC5) Switch Setting (N = on)										Configuration Entry				Address Group	Adapter Present		
1	2	3	4	5	6	7	8	9	10	LV	PA	UTUT	OP		Tape	Diskette	Disk
N			N	N		N		N	N	02	98	00F0	5C	9	Yes	*	*
N			N	N		N			N	02	98	00F0	4C	9	No	Yes	**
N			N	N				N	N	02	98	00F0	3C	9	No	No	Yes
N			N	N						02	98	00F0	04	9	No	No	No
N		N		N		N		N	N	02	A8	00F0	5C	A	Yes	*	*
N		N		N		N			N	02	A8	00F0	4C	A	No	Yes	**
N		N		N				N	N	02	A8	00F0	34	A	No	No	Yes
N		N		N						02	A8	00F0	04	A	No	No	No
N		N	N	N		N		N	N	02	B8	00F0	5C	B	Yes	*	*
N		N	N	N		N			N	02	B8	00F0	4C	B	No	Yes	**
N		N	N	N				N	N	02	B8	00F0	2C	B	No	No	Yes
N		N	N	N						02	B8	00F0	04	B	No	No	No
N	N			N		N		N	N	02	C8	00F0	5C	C	Yes	*	*
N	N			N		N			N	02	C8	00F0	4C	C	No	Yes	**
N	N			N				N		02	C8	00F0	24	C	No	No	Yes
N	N			N						02	C8	00F0	04	C	No	No	No

\*When the tape adapter is present, the existence of disk or diskette has no effect on the SSCF switch setting.  
 \*\*When the diskette adapter is present, the existence of disk has no effect on the SSCF switch setting.

Figure CP391-8. SSCF Switch Settings and Configuration Table Entries

Machine	Board	Socket
8130	A2	C2
8140-AXX	A2	D2
8140-BXX	A2	A2
8140-BXX	C2	C2
8101	A1	A2
8101	A2	A2

**Figure CP391-9. SSCF (SC5) Card Locations**

**SSCF Addition or Switch 7–10 Change.** When adding an SSCF card or changing the settings of SSCF switches 7 through 10 (channel request priority), update the configuration table as follows:

1. Using either the MES or the SSCF card, determine switch settings 1–10 of the SSCF card installed or changed. Refer to Figure CP391-9 for SSCF card locations if necessary.
2. Using Figure CP391-8, locate the switch settings and the configuration entry to be updated and add or change the configuration entry as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. If the MES installed an SSCF card, go to step 3.
  - d. If the MES only changed the SSCF switch settings, go to step 4.
3. Add the SSCF configuration entry to the table as follows:
  - a. At the PF menu, select the PA option (2).
  - b. At message 7102, enter 08.
  - c. At message 7110, verify that the entry displayed is the PSCF entry (01 08 00F0).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the SSCF entry (02 PA 00F0 OP).
  - g. Assemble the configuration table, then go to step 5.
4. Change the SSCF configuration entry in the table as follows:
  - a. At the PF menu, select the PA option (2).
  - b. At message 7102, enter 08PA, where PA is the PA value from the configuration entry to be changed.
  - c. At message 7110, verify that the entry displayed is the SSCF entry to be changed (02 PA 00F0).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the CHANGE option (7).
  - f. Enter the new SSCF configuration entry, then go to the next step.

5. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

6. Update the machine configuration list for only the affected machine to reflect the added or changed SSCF, using the following format as an example:

```
SEC SYS CNTRL (SSCF)
DISKETTE/NO TAPE
CDE 02 98 00F0 4C
```

**SSCF Deletion.** When removing an SSCF card, delete the configuration table entry as follows:

1. Use either the address group label on the operator panel or examine the SSCF card on the removed board and use Figure CP391-8 to identify the physical address (PA) of the SSCF card.
2. Delete the SSCF configuration entry from the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter 08PA, where PA is the PA of the SSCF configuration entry to be deleted.
  - e. At message 7110, verify that the entry displayed is the SSCF entry to be deleted (02 PA 00F0).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the CURRENT option (D1).
3. File the configuration table and then copy the table to MD diskettes 02, 03 and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.
4. Update the machine configuration list by crossing out the corresponding SSCF entry for only the affected machine.

**SSCF Address Group Change (Switches 1-4, 7-10).** When changing an SSCF address group assignment, update the machine configuration list and the configuration table as follows:

**Note:** Address group numbers can only be changed to another address within the same group (1, 2, 3, 4 or 9, A, B, C).

1. Obtain the machine configuration list (MCL) for the 8101 whose address group was changed.
2. Change the SSCF entries on the MCL as follows:
  - a. Using either the MES or the SSCF card, determine the new switch settings (1-10) of the changed SSCF Cards. Up to two SSCF Cards may be changed.
  - b. Using Figure CP391-8, locate the switch settings and the new SSCF configuration entries.
  - c. Write the new configuration entries under the SEC SYS CNTRL (SSCF) CDE in the MCL. **Do not destroy the old value.** Use the following as an example:
 

```
SEC SYS CNTRL (SSCF)
NO DISPLAY/PTR
CDE 021800F01C 0000 - 022800F014
```
  - d. Using either the address group label or the operator panel on Figure CP391-8, change the high order address entries on the MCL to the new group addresses. Use the following as an example:
 

```
FIRST ATTACHMENT
HIGH ORDER ADDRESS (Address Group)
ENTRIES FOLLOW
- COMM FEAT      P = 1 2
- DISPLAY PRINTER P = 1 2
- TAPE           P = 9 A
- DISK/DISKETTE  P = 9 A
```
3. Mark the CSU diskette associated with the changed 8101 as invalid.
4. If you are not removing the changed 8101 from the system, go to step 7 and update the configuration entries on the MD diskettes for the SSCF and its associated adapters.
5. If you are moving the changed 8101 to another system, go to CP392, 8101 Removal. If not, go to the next step.
6. If you are installing the changed 8101 from another system to this one, go to CP392, 8101 Relocation.
7. Change the SSCF configuration entry or entries in the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the PA option (2).
  - d. At message 7102, enter 08P8, where P is the original address group number of the SSCF prior to the MES.

- e. At message 7110, verify that the entry is the original SSCF configuration entry (02 P8 00F0).
  - f. Press the PF pushbutton.
  - g. At the PF menu, select the CHANGE option (7).
  - h. Enter the new SSCF configuration entry as written on the MCL.
  - i. If a second SSCF was changed, repeat step 7.
8. Identify the PAs of the LV=01 adapters attached to the changed SSCF address group(s) as follows:
    - a. Using the Configuration Utility, at the PF menu select the LV option (4).
    - b. At message 7104 enter 01.
    - c. Press FWD to display every LV=01 adapter entry. Determine and list the PAs when the "P" value equals the old (original) address groups.
  9. Change the original PAs to the new address groups as follows:
 

**Caution: Address group numbers can only be changed to another address within the same group (1, 2, 3, 4 or 9, A, B, C). Do not change address group values between these two groups. For example, if the original address group was 2, it can only be changed to 1, 3, or 4.**

    - a. At the PF menu, select the PA option (2).
    - b. At message 7102, enter PA, where PA is one of the original PAs listed in step 8.
    - c. At message 7110, press the PF pushbutton.
    - d. At the PF menu, select the CHANGE option (7).
    - e. At message 7107, enter 01PA where P is the new address group value and A remains unchanged.
    - f. Repeat step 9 for each PA listed.
  10. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
    - a. Press the RESET pushbutton.
    - b. At the RST menu, select the FILE option (2).
    - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

**CP392 How to Update The MD Diskette Configuration Table Entries After an 8101 Addition, Removal, or Relocation**

Use one of the procedures in this section to update the MD diskette configuration table entries on the initial service call after installing or removing an 8101. Select the procedure that corresponds to the type of installation or removal as follows:

- **8101 Addition** — used to create MD diskette configuration table entries when installing an 8101 on an existing system. The 8101 must have a CSU diskette that reflects the 8101 configuration.
- **8101 Removal** — used to delete configuration table entries after removing an 8101 from a system.
- **8101 Relocation** — used to create MD diskette configuration table entries after installing (relocating) an 8101 that had been previously installed on another system. The CSU diskette is not valid and MESs could have been installed.

These procedures use the Configuration Utility. See CP466 for detailed Configuration Utility operation, if necessary. The following hints could be helpful:

- The Configuration Utility options are selected from the PF Menu. The PF Menu is displayed by pressing the PF key.
- The File to Diskette and Terminate options are selected from the RST Menu. Display the RST Menu by pressing the RESET key.
- Adds are done by first displaying the location preceding the add start point using any display option, then pressing PF and selecting the ADD option. You can add up to 16 sequential entries before requesting a configuration table assembly. You do not need to enter trailing zeroes in an entry option field (OP).
- Make changes to an entry by displaying the entry to be changed using any display option, then pressing PF and selecting the CHANGE option. Only digits entered are changed.

**8101 Addition**

Use this procedure on the initial service call after adding a new 8101 on a previously installed system. The procedure uses the preconfigured 8101 CSU diskette to configure the MD diskettes.

**Note:** Do not use this procedure if either the CSU diskette is marked invalid or an MES has been installed. Use the 8101 Relocation procedure.

1. Obtain the CSU and MD diskettes.
2. Using MD diskette 01, select the Append Utility and append the new 8101 CSU configuration table to MD diskette 01. See CP465 for detailed Append Utility operation, if necessary.

**Note:** After completing this step, the configuration table contains the information required to repair the hardware within the 8101 enclosure. If your problem is within the enclosure, you may postpone the remaining configuration procedures.

3. Using the Copy Utility, copy the configuration table from MD diskette 01 to MD diskettes 02, 03, and 09.
4. Using MD diskette 01, select the Configuration Utility and go to CP350.

**8101 Removal**

Use this procedure to delete the configuration table entries after removing an 8101 from a system.

1. Identify the address group(s) of the removed 8101 by examining the 8101 operator panel, asking the customer, or by examining the MD diskette configuration table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the UT option (3).
  - d. At message 7101, enter 00F0.
  - e. Press FWD to display each SSCF entry (02 P8 00F0) and list the "P" value from each one.
  - f. Compare this list to the address group value on the operator panels of the remaining 8101s and determine which address groups are no longer present. (The "P" value of the SSCF entry is the address group value on the operator panel.)
2. Delete the SSCF configuration entries from the table as follows:
  - a. At the PF menu, select the PA option (2).
  - b. At Message 7102, enter 08P8, where P is the address group value of the removed 8101.
  - c. At message 7110, verify the entry.
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the DEL option (A).
  - f. At message 710A, select the CURRENT option (D1).
  - g. If the removed 8101 had a second address group, repeat this step for the second address group value.
3. Identify the PAs of the LV=01 adapters in the removed 8101 as follows:
  - a. At the PF menu, select the LV option (4).
  - b. At message 7104, enter 01.
  - c. Press FWD to display every LV=01 adapter entry. Determine and list the PAs when the "P" value equals the address group values of the removed 8101.
4. Delete the entries associated with the listed PAs above as follows:
  - a. At the PF menu, select the PA option (2).
  - b. At message 7102, enter PA, where PA is one of the listed PAs from step 3.
  - c. At message 7110, verify the PA and entry.
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the DEL option (A).
  - f. At message 710A, select the DA option.
  - g. Repeat step 4 for each listed PA.
5. File the configuration table and then copy the table to MD Diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the Table from MD Diskette 01 to MD Diskettes 02, 03 and 09. See CP463 for detailed Copy Utility operation if necessary.

**8101 Relocation**

Use this procedure on the initial service call after a previously installed 8101 has been relocated from one system to another. The procedure uses the machine configuration list (MCL) to determine the current hardware configuration.

**Caution:** The CSU diskette is not updated when installing an MES; only the MCL is updated. Using the CSU diskette could cause incorrect configuration.

1. Obtain the MCL for the relocated 8101.
2. Obtain the MD diskettes.
3. Using MD diskette 01, select the Configuration Utility.
4. Using the 8101 MCL, locate up to two SEC SYS CNTL entries. Add the entries as follows:

CDE Description	Required or Optional	CDE Format						Comments	
		LV	PA	UTUT	OP	OP	OP		
Sec Sys Cntl (SSCF)	Required	02	P8	00F0	OP	OP	OP	OP	Maximum: 2 on an 8101.

- a. At the PF menu, select the PA option (2).
- b. Enter 0888 (displays first SSCF Entry 02 88 00F0).
- c. Press the PF pushbutton.
- d. Select the ADD option (8).
- e. Add the Sec Sys Cntl entry or entries.
- f. Assemble the configuration table.

5. Using the same 8101 MCL, locate the following CDEs.

**Note:** The start of the 8101 MCL identifies the "P" in the CDE entry.

CDE Description	Required or Optional	CDE Format						Comments	
		LV	PA	UTUT	OP	OP	OP		
Disk Storage	Optional	01	PA	0020	OP	OP	OP	OP	PA = X0, X1
Diskette Storage	Optional	01	P7	0002	00	00	00	00	
Tape Adapter	Optional	01	PA	0040	00	00	00	00	
Display/Printer Adapter	Optional	01	PF	0080	00	00	00	00	
Driver/Rec X-7	Optional	02	PT	0080	00	00	00	00	LV 02 = Display/Printer Adapter Port; LV 03 = Driver/Receiver for that port. Maximum: 6 groups of 8 entries (4 ports) or 24 ports
Comm Feature	Optional	01	PA	UTUT	OP	OP	OP	OP	Maximum: 8 on an 8101

Add entries to the end of the table as follows:

- a. At the PF menu, select the LST Option (6), which displays the last entry.
- b. Press the PF pushbutton.
- c. Select the ADD option (8).
- d. Add the above entries to the configuration table.
- e. Assemble the configuration table after the last addition and as required.

6. OPTIONAL. Record the entries on diskette as follows:

- a. Press the RESET pushbutton.
- b. Select the FILE option (2).
- c. When completed (diskette menu displays), select the Configuration Utility for use in the following steps.

**Note:** After inputting the CDEs for all 8101s, the configuration table contains the information required to repair the hardware within the 8101 enclosure. If your problem is within the enclosure, you may postpone the remaining configuration procedures.

7. To complete the configuration table, go to CP350.
8. Using the Copy Utility, copy the configuration table from MD diskette 01 to MD diskettes 02 and 03. See CP463 for detailed Copy Utility operation, if necessary.



### CP393 How to Update the MD Diskette Configuration Table Entries After an 8809 Addition or Removal

Use the configuration procedures in this section to update the MD diskette configuration table if adding or removing an 8809. The following shows and describes the 8809 configuration table entry format:

LV	PA	UTUT	Description
01	PA	0400	8809-1B or 8101 Tape Adapter Entry
02	TD	0040	8809 Model 1A, 2, or 3 Entry

Where

PA = 5E = 8140 Tape Adapter Address Group 5  
= 73 = 8809-1B Tape Adapter Address Group 7  
= 93 = First 8101 Tape Adapter Address Group 9  
= A3 = Second 8101 Tape Adapter Address Group A  
= B3 = Third 8101 Tape Adapter Address Group B  
= C3 = Fourth 8101 Tape Adapter Address Group C

TD = 00 = 8809-1A, 2 or 3 Drive Address 00  
= 01 = 8809-1A, 2 or 3 Drive Address 01  
= 02 = 8809-1A, 2 or 3 Drive Address 02  
= 03 = 8809-1A, 2 or 3 Drive Address 03

The following shows the 8809 Model 1B SSCF configuration entry, which is positioned after the PSCF entry (01 08 00F010) and must be added or deleted when installing or removing an 8809 Model 1B:

LV	PA	UTUT	OP
02	78	00F0	64

### 8809 Models 1A, 2 or 3 Addition

When adding an 8809 Model 1A, 2, or 3 to a system, add the configuration table entries as follows:

1. Determine the tape drive address. These addresses range from 00 to 03 and are set in each tape drive.
2. Select the entry from the following chart:

LV	PA	UTUT	Description
02	00	0040	Tape Drive Entry Address 00
02	01	0040	Tape Drive Entry Address 01
02	02	0040	Tape Drive Entry Address 02
02	03	0040	Tape Drive Entry Address 03

3. Add the tape drive entry to the table after the tape adapter entry as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the UT option (6).
  - d. Enter 0040 to locate the tape adapter entry.
  - e. At message 7110, verify that the entry displayed is the tape adapter entry (01 PA 0040).
  - f. Press FWD and BKWD to display the last existing tape drive entry. If none is present, again display the tape adapter entry (01 PA 0040).
  - g. Press the PF pushbutton.
  - h. Select the ADD option (8).
  - i. Add the new tape drive entry to the table (02 PA 0040).
  - j. Assemble the configuration table.
4. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

**8809 Models 1A, 2 or 3 Removal**

**Note:** *If the Model 2 or 3 is being removed as part of an 8809-1B removal, use the 8809 Model 1B Removal Procedure to delete all entries.*

When removing an 8809 Model 1A, 2, or 3 from a system, delete the configuration table entries as follows:

1. Determine the tape drive address. These addresses range from 00 to 03 and are set in each tape drive.
2. Delete the tape drive configuration entry in the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the UT option (6).
  - d. Enter 0040 to locate the tape adapter entry.
  - e. Press FWD to locate and display the tape drive entry to be deleted (02 PA 0040), where PA = the tape drive address.
  - f. With the drive entry displayed, press the PF pushbutton.
  - g. At the PF menu, select the DEL option (A).
  - h. At message 710A, select the CURRENT option (D1).
3. File the configuration table and then copy the table to MD diskettes 02, 03, and 09 as follows:
  - a. Press the RESET pushbutton.
  - b. At the RST menu, select the FILE option (2).
  - c. When completed (diskette menu displays), select the Copy Utility and copy the table from MD diskette 01 to MD diskettes 02, 03, and 09. See CP463 for detailed Copy Utility operation if necessary.

**8809 Model 1B Addition**

When adding an 8809 Model 1B to a system, add the configuration table entries as follows:

**Note:** *Use the 8809 Models 1A, 2, or 3 Addition Procedure to add entries for any Model 2 or 3 attached to the 8809-1B.*

1. Determine the tape drive address. These addresses range from 00 to 03 and are set in each tape drive.
2. Use the LV 01 entry and select the LV 02 entry from the following chart:

LV	PA	UTUT	Description
01	73	0040	8809-1B Tape Adapter Entry
02	00	0040	8809-1B Tape Drive Address 00
02	01	0040	8809-1B Tape Drive Address 01
02	02	0040	8809-1B Tape Drive Address 02
02	03	0040	8809-1B Tape Drive Address 03

3. Add these two entries to the table as follows:
  - a. Using MD diskette 01, select the Configuration Utility.
  - b. At the RST menu, select the PF menu option (1).
  - c. At the PF menu, select the LST option (6).
  - d. Press the PF pushbutton.
  - e. At the PF menu, select the ADD option (8).
  - f. Add the tape adapter entry and the selected tape drive entry.
  - g. Assemble the configuration table.
4. Add the 8809-1B SSCF entry as follows:
  - a. At the PF menu, select the PA option (2).
  - b. At message 7102, enter 0888 to display the first SSCF entry (02 88 00F0).
  - c. Press the PF pushbutton.
  - d. Select the ADD option (8).
  - e. Add the 8809-1B SSCF entry (02 78 00F0 64).
  - f. Assemble the configuration table.

## CP400 Maintenance Device Function and Use

The following describes the Maintenance Device (MD), its functions, and how to use it to invoke MAPs for both online and offline testing.

**Note:** *You do not need to connect the MD to the system if running any of the following:*

- *Power MAPs*
- *Configuration Utility*
- *Copy Utility*
- *Append Utility*
- *PE Utility*

### CP410 MD Keypad/Display

This section describes the MD keypad/display. Refer to Chapter 4 for a general description of the MD.

#### CP411 MD Display

The display has four rows of 20 characters each, and messages appear at the top, left-justified. A cursor is positioned after the message unless the message is 80 characters long.

When you enter data, it appears in the display starting at the cursor, unless the expected answer exceeds the available display space. In this case, the display clears and the input appears at the top, left-justified.

#### CP412 MD Indicators

**READY** -- When on, the MD keypad can be used.

**A/N (Alphanumeric)** -- Determines the value of the characters entered.

When on, the keypad enters alphanumeric information as indicated by the keytop values (alphanumeric mode). When off, the keypad enters the control characters as indicated by the keypad face above the key (control mode).

**Note:** *For most MD operations, the keypad shift does not have to be altered, as the mode automatically changes according to the input expected. Exceptions to this, such as the use of the PF, REF, or RET pushbuttons, might require a shift before entering.*

**REF (Reference)** -- When on, indicates the availability of additional information that relates to the main display. The indicator remains on when displaying this reference information.

## CP413 MD Pushbuttons

### Description

Refer to Figure CP413-1 for the following description and operational discussion.

All control pushbuttons are self-entering; you do not have to press the ENT pushbutton to input them.

The PF, REF, UP, YES, PULSE, FWD, OPEN, RET, DOWN, BKWD, NO, and RESET pushbuttons can be entered only with the A/N indicator off, as they specify control functions.

The SPACE, BKSP, SHIFT, and ENTER pushbuttons perform the same function in either mode.

All data pushbuttons operate the same as any alphanumeric keyboard, and can be entered only when the A/N indicator is on.

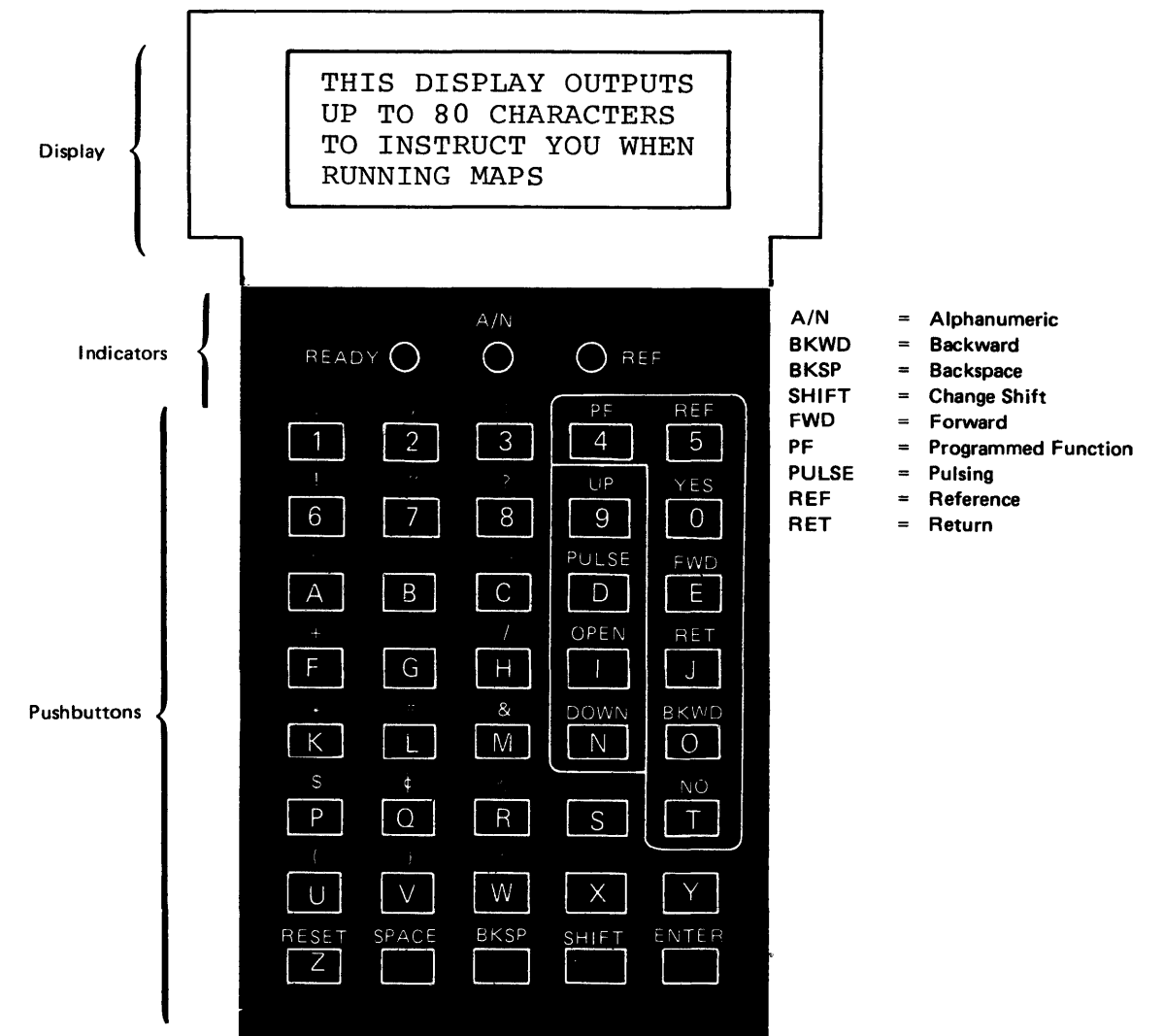


Figure CP413-1. Maintenance Device Keypad/Display

## Operation

The following describes the functional operation of the MD keypad pushbuttons:

PF (program function) – In general, used to restart the current operation, but depends specifically on the operation being performed:

- During a MAP operation, pressing the PF pushbutton displays the PF menu options. You can then either restart the MAP, restart at the last MAP checkpoint, or perform a checkpoint save operation. Refer to CP442 for a further explanation.
- During the Configuration Utility, the PF pushbutton displays the PF menu, where you can then select another option. Refer to CP466 for a further description.
- If using the Copy or Append Utility, the PF pushbutton returns to the start message.

UP, PULSE (pulsing), OPEN, DOWN – Responses to MAP questions after probing a point.

REF (reference) – With the REF indicator on, pressing REF displays the first 80 characters of reference information available. Each time you press this pushbutton, it either displays additional reference information or returns to the original display.

**Note:** *The A/N indicator must be off to display reference information.*

YES, NO – Response to MAP question.

FWD (forward) – Advances either to the next display or the next operation.

RET (return) – If pressed during a reference display, returns to the main display.

BKWD (backward) – Displays the previous message when using a multiple display message.

ENTER – Indicates the completion of an A/N entry.

SHIFT – Shifts the keypad between A/N and control mode and changes the state of the A/N indicator accordingly.

BKSP (backspace) – Permits you to correct invalid entries. Each time you press this pushbutton when making A/N entries, it deletes the character above the cursor and returns to the previous character. A backspace past the first display position does not occur.

SPACE -- Inserts and displays blanks in an input message when in A/N mode.

RESET – In general, used to terminate the current operation and return to the diskette menu, but depends specifically on the operation being performed:

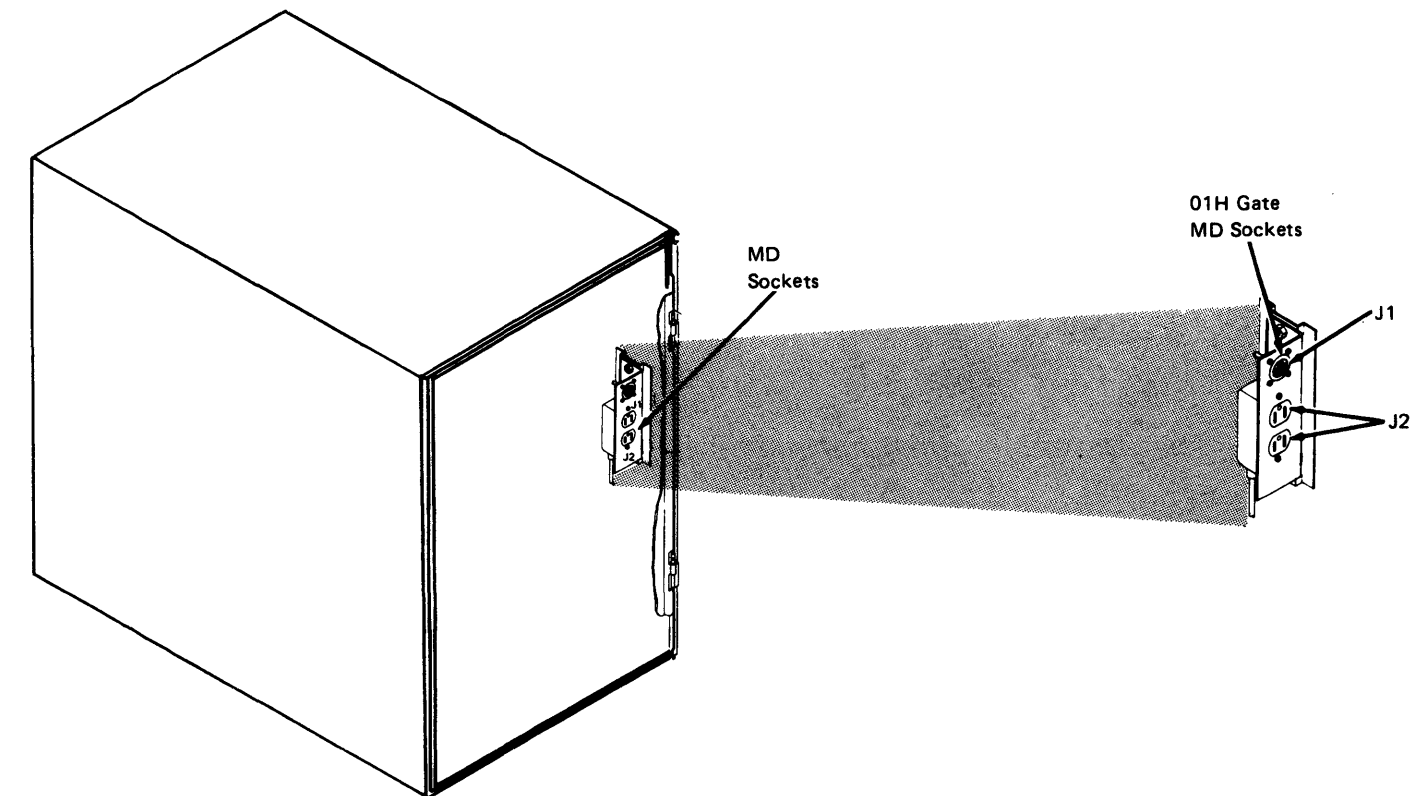
- During a MAP operation, pressing this pushbutton terminates the MAP and returns to the diskette menu.
- If using the Copy or Append Utility, terminates the utility and permits insertion of another diskette before returning to the diskette menu.

## CP420 How to Connect the MD to the 8130/8140

1. Open the external and internal front covers of the 8130/8140 and locate the 01H gate attached to the right side of the frame. This provides both power and signal connection for the MD.
2. Plug the MD ac power cord into either power socket (J2) below the signal socket.
3. Turn the MD POWER switch to ON.

**Caution:** MD power must be on when connecting and disconnecting the MD signal plug to ensure that system interruption does not occur.

4. Plug the MD signal connector into the top (J1 socket) position by inserting and slowly rotating it clockwise until you feel it detent and slide forward. When this occurs, tighten the slip ring to retain the plug.



## CP430 How to Insert Diskettes and Test the MD

The following explains how to insert diskettes into the MD, and how to perform an MD IPL. It also explains the MD self-testing and shows the displays that occur during this testing, which occurs for every MD power on or manual IPL.

**Caution:** Do not power on the MD with the signal plug connected to the 8130/8140 if the customer program is running.

1. Power on the MD.
2. Set the LOAD/OPEN switch to OPEN.
3. Insert any MD diskette into the device with the diskette label to the rear and the index hole to the right as shown. Refer also to the label on the MD top cover if needed.

**Caution:** Insert diskette only as shown. If inserted backwards, it can become jammed in the diskette opening. To remove the diskette without having to remove the MD diskette drive, slide the head protector down the side of the diskette where it is jammed. This should allow you to then remove the diskette.

4. Set the LOAD/OPEN switch to LOAD.

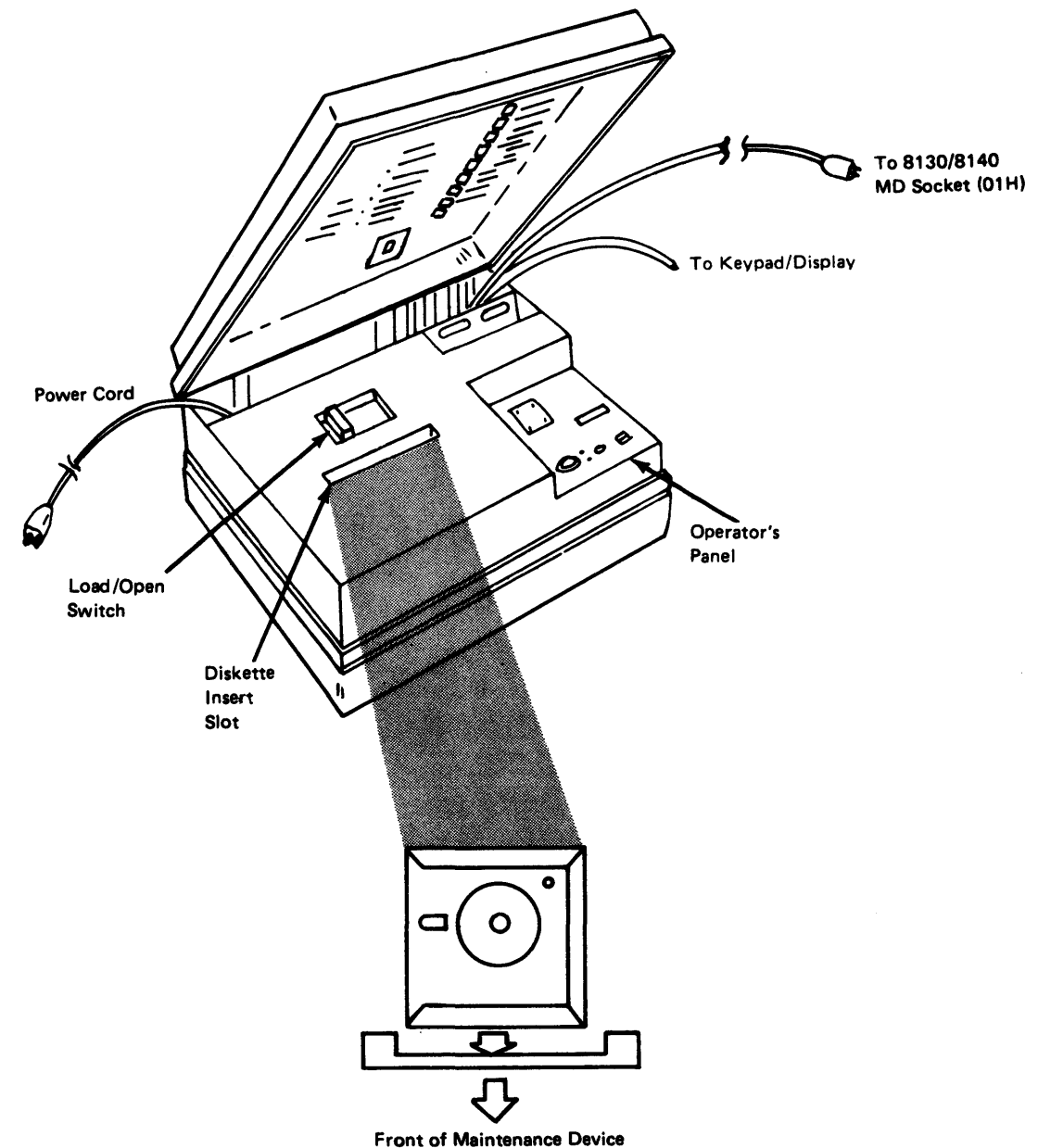
**Caution:** This switch should not be set to OPEN nor should you touch the diskette while performing any MD operation, unless specifically instructed to do so.

5. Press the MD IPL pushbutton.

The MD executes a self-test operation by displaying the following characters one at a time, and then loads the support program.

**Note:** If these values are not displayed, a problem exists with either the MD or the diskette(s). Obtain another MD and set of MD diskettes and again attempt the procedure.

1	2	3	4	5	6	7	8	9
FILE LOAD								



6. A series of information messages now occur:

```
MD EXTENDED TESTING
FILE TEST
```

```
MD EXTENDED TESTING
EIA TEST
```

```
MD EXTENDED TESTING
R-LOOP TEST
```

```
MD TESTING COMPLETE
```

```
MD TESTING COMPLETE
IPL LOADER
```

```
MAINTENANCE DEVICE
INITIAL PROGRAM
LOAD COMPLETE
          *FWD
```

7. Press FWD. The display should now indicate:

```
8100 BOOTSTRAP
NOW LOADED
```

No response is necessary at this point. The MD next displays the menu of the inserted diskette, which occurs at the end of all MD diskette load procedures. If successfully loaded, these MD diskette menus display in the following basic format:

```
*DISKETTE NN MENU*
MAPS: AA=1 BB=2 CC=3
DD=4 EE=5
CDK=E UTL=F *ENT SEL
```

This indicates the contents of a particular MD diskette. The alphabetic code represents the MAP ID, the Change Diskette option selection "E", or the Utility option selection "F". If necessary, you can select a reference display that expands the codes for further understanding of them.

At this menu, select either a MAP, the Change Diskette option, or the Utility option by performing the following:

1. To select a MAP, enter the 1-digit numeric code.
2. To change diskette, enter "E".
3. To select the Utility option, enter "F".

The following display shows all utility options. Refer to the respective utility description in CP460 for further information concerning their function and operation.

**Note:** *Not all utilities reside on all MD diskettes. Refer to CP441.*

```
UTILITIES: RESTORE=1
FREELANCE=2 COPY=3
PE=4 APPEND=5
CONFIG=6      *ENT SEL
```

## CP440 MD Diskettes and Their Operation

### CP441 MAP Menu Options and What They Test

This section shows the diskette menu that displays for each of the MD diskettes, as well as the display that indicates the utility options available for each diskette. It also describes the functional areas checked by each MAP and its associated test.

With the exception of the power MAPS, both the MAP and test programs reside on these diskettes. The power MAP only prompts for fault isolation and has no associated test program.

#### MD Diskette 01

```
*DISKETTE 01 MENU*
MAPS: BU=1 SC=2 SP=3
PA=4 PB=5
CDK=E UTL=F *ENT SEL
```

The following describes the MAPs and tests contained on MD diskette 01, the MAP ID, and the functional area(s) tested:

ID	MAP	Test	Functional Area Tested
BU	Yes	Yes	Processor instruction/execution unit, storage, storage control, floating point, and BOP
SC	Yes	Yes	System control facility
SP	Yes	Yes	Expanded function operator panel
PA	Yes	No	8130, 8140, and 8101 power

The following MAP menu display indicates the utilities contained on MD diskette 01:

```
UTILITIES: RESTORE=1
FREELANCE=2 COPY=3
PE=4 APPEND=5
CONFIG=6 *ENT SEL
```

#### MD Diskette 02

```
*DISKETTE 02 MENU*
MAPS: CA=1

CDK=E UTL=F *ENT SEL
```

The following describes the MAP and test contained on MD diskette 02, the MAP ID, and the functional area tested:

ID	MAP	Test	Functional Area Tested
CA	Yes	Yes	All communications features

The following MAP menu display indicates the utilities contained on MD diskette 02:

```
UTILITIES: RESTORE=1
FREELANCE=2 COPY=3
PE=4
CONFIG=6 *ENT SEL
```

#### MD Diskette 03

```
*DISKETTE 03 MENU*
MAPS: AD=1 DA=2 FA=3
TA=4
CDK=E UTL=F *ENT SEL
```

The following describes the MAPs and tests contained on MD diskette 03, the MAP ID, and the functional area(s) tested:

ID	MAP	Test	Functional Area Tested
AD	Yes	Yes	Display and printer adapter
DA	Yes	Yes	Diskette storage adapter and drive
FA	Yes	Yes	Disk storage adapter and drive
TA	Yes	Yes	Tape adapter and drive

The following MAP menu display indicates the utilities contained on MD diskette 03:

```
UTILITIES: RESTORE=1
FREELANCE=2 COPY=3
PE=4
CONFIG=6 *ENT SEL
```

#### MD Diskette 09

```
*DISKETTE 09 MENU*
CDK=E UTL=F *ENT SEL
```

This diskette contains tests for the 364X family of devices and are selected only by using the Free-Lance Utility.

The following MAP menu display indicates the utilities contained on MD diskette 09:

```
UTILITIES: RESTORE=1
FREELANCE=2 COPY=3
PE=4
CONFIG=6 *ENT SEL
```

#### MD Diskette 70

```
*DISKETTE 70 MENU*
MAPS: CZ1
CDK=E UTL=F *ENT SEL
```

This diskette contains the tests for the Airlines Reservation System (RPQ MK6959).

**CP442 PF Menu Options and What They Do**

The MAP PF functions permit you to return to the MAP menu, restart the MAP at the last checkpoint, or save the MAP parameters associated with the last checkpoint on the diskette.

These functions can be selected during the execution of any MAP, providing the MD keypad is ready.

1. Press the PF pushbutton on the MD. The following display occurs:

```
*PF MENU*
MAP MENU RET=1
CP RESTART=2
CP SAVE=3   *ENT SEL
```

- a. Option 1 displays the menu of the currently executing MAP, where the MAP can then be restarted.
- b. Option 2 restarts the MAP at the last checkpoint. These checkpoints are placed so that approximately six MAP questions are answered between checkpoints. The actual checkpoint restarted depends on your location between the MAP checkpoints when you pressed the PF pushbutton. When selecting this option, the following display occurs:

```
CHECKPOINT ID =
--XXXXXXXX--*FWD
```

- This display indicates the checkpoint ID, and permits you to return to the last checkpoint in the MAP to again execute the MAP steps. Press FWD to display the MAP step associated with the checkpoint, where the MAP prompts can again be answered.
- c. Option 3 writes the MAP parameters and the checkpoint ID to the MD diskette. This permits you to interrupt a repair action and then return to the checkpoint in the MAP even after powering off the MD. After completion of the save, this option displays the following prompt message:

```
RUN TERMINATED
SAVE OPTION IN
EFFECT
```

You now can unload the diskette and power off the MD. To restart the MAP at a later time at this checkpoint, use the Restore Utility.

**CP450 Common MD Displays**

Common MD displays occur while running the MAPs. Some require a response to a prompt, some specify the availability of reference information, and others indicate system, MD and test status. The following paragraphs describe these messages.

**CP451 Prompt and Reference Messages**

The MAPs prompt you for certain common responses while using the MD. These display prompts appear at the lower right of the bottom line, are right-justified, and are:

```
*FWD
*Y/N
*ENT SEL
*UP/DOWN
*OPEN/PULSING
*RST
```

**Note:** When \*C displays, it usually indicates that a test routine is about to start. Another prompt message replaces the \*C if the routine is successful. If you have performed any action, if requested, and the \*C remains in the display for more than 20 seconds with no further prompting, a hardware failure occurred. To perform MAP analysis for this condition, enter a 'C' and the MAP then prompts you for further action.

Many MAP displays have reference information associated with the main display, which are either optional or mandatory.

- The REF indicator on during any display signifies that optional reference information is available.
- The SEE REF prompt in the main message display signifies that you must display the additional reference information.

**CP452 MD Displays for System, MD, and Test Status**

The following shows and describes other common MD display messages that relate to either system, MD, or test status:

```
WRITE T/O STARTED
WAITING FOR 8100
```

This message occurs prior to the start of every test. At this time, the MD determines if the TCM must be either reloaded or restarted. The TCM does not normally have to be reloaded unless the system was powered off.

After 10 seconds the MD displays the following message:

```
MD-8100 INTERFACE
TIMEOUT, IPL 8100
TO LOAD TCM USE 1F
FOR BU TESTS USE 3F
```

The above message occurs in offline mode. You should perform a manual IPL of the system.



At prompt message 0200, enter either '1F' or '3F' at the BOP, and press Enter Function.

Loading then starts automatically. Refer to the paragraph in CP523 "How to Load the TCM or Bringups from the MD" for procedures.

```
READ TIMEOUT STARTED
```

The 8100 has 10 seconds to respond to the MD for every MD message sent. Failure to respond within 10 seconds results in the following display:

```
MD-8100  
INTERFACE CONDITION  
TO RESTART KEY FWD  
OTHERWISE PF OR RST
```

At this message, press:

FWD – to again attempt TCM to MD interaction, which should restart the previous test.

PF – to return to the PF menu.

RST – to return to the diskette menu.

```
10BC TCM LOADING
```

The above display occurs while loading the offline TCM into processor storage. It takes approximately 45 seconds, and the MD keypad is disabled during this load operation.

```
11BC CONFIG TABLES  
LOADING
```

The above display occurs while loading the configuration tables into processor storage. It occurs automatically at the start of any MD diskette load procedure, and takes from 3 to 12 seconds depending on the size of the table. The MD keypad is disabled during this load operation.

```
12BC XXXXXXXX  
TEST LOADING
```

The above display occurs while loading the requested test from diskette location XXXXXXXX into processor storage. Loading completes within 30 to 90 seconds depending on the test size, and the MD keypad is disabled during this load operation.

## CP460 MD Utilities and How to Invoke Them

This section describes the MD utilities contained on the MD diskettes, as well as how to invoke them. Described are the Restore Utility, the Free-Lance Utility, the Copy Utility, the Append Utility, and the Configuration Utility.

**Note:** *The PE Utility requires assistance from 8100 Product Engineering, and is not discussed here.*

The following shows which utilities are contained on each MD diskette:

Utility and Selection	Contained on MD Diskette(s)
Restore (1)	01, 02, 03, 09
Free Lance (2)	01, 02, 03, 09
Copy (3)	01, 02, 03, 09
Product Engineering (PE) (4)	01, 02, 03, 09
Append (5)	01
Configuration (6)	01, 02, 03, 09

### CP461 Restore Utility

If you executed a checkpoint save function during MAP operation, this utility permits you to restore the saved MAP and restart it from the last checkpoint. For example, if you interrupted a repair action, this utility permits you to restart the MAP at the last checkpoint, rather than at the beginning of the MAP. For further information on how to invoke the checkpoint function, refer to CP442.

To invoke the Restore Utility, which has no options or prompt messages:

1. IPL the MD diskette with which the checkpoint was saved.
2. At the diskette menu, enter F.
3. At the utility menu, enter 1.

The utility now executes, and completes when the associated MAP display checkpoint occurs.

**CP462 Free-Lance Utility**

This utility permits the MD to function as an 8100 terminal. It is used:

1. To select and run offline tests in free-lance mode.
2. To run tests on those devices that depend on the 8100 for testing, but do not have a MAP to test them. These are:  
3641, 3642, 3643, 3644, 3646, 3277, 3284, 3286, and 3288.
3. To perform a basic checkout of the system hardware to determine a failing area prior to MAP selection.

When using the Free-Lance Utility, the procedures are the same as described under CP600 "Common Test Procedures and Messages". For a description of the adapter and device routines, refer to the appropriate Chapter 5 XX200 section.

**Note:** Read the routine description in the associated Chapter 5 XX200 section before selecting the routine for offline testing.

**How to Invoke the Free-Lance Utility**

1. Select the Free-Lance Utility as follows:
  - a. IPL the MD diskette containing the test to be run. Refer to CP441 for the MD diskette contents.
  - b. If MD diskette has already been IPLed, press RESET to return to the diskette menu.
2. At the diskette menu, enter F.
3. At the utility menu, enter 2.

The free-lance utility then displays the following:

```
* FREELANCE START*
                               *FWD
```

**Note:** Offline test mode requires total 8100 system dedication.

The following display occurs for 10 seconds:

```
WRITE TIMEOUT STARTED
WAITING FOR 8100
```

After 10 seconds, the following display occurs:

```
MD-8100 INTERFACE
TIMEOUT, IPL 8100
TO LOAD TCM USE 1F
FOR BU TESTS USE 3F
```

**Note:** The last line occurs only when using MD diskette 01, as the BU tests reside only on MD diskette 01.

5. With either of the above messages displayed, load either the BU tests (MD diskette 01 only) or the offline test control monitor (TCM) as follows:
  - a. At the 8130/8140 basic operator panel (BOP), set the IPL Mode switch to Manual, and the keylock switch (if installed) to Enable.
  - b. IPL the 8100 by either:
    - (1) Pressing Reset/IPL on the BOP if the system is already powered on.
    - (2) Powering on the system. Be aware that a complete power-on sequence can take up to 70 seconds.
  - c. At BOP message 0200:
    - (1) To load the BU tests, enter 3F and press Enter Function at the BOP.
    - (2) To load the TCM, enter 1F and press Enter Function at the BOP.

**Note:** You must load the TCM to run all offline tests other than the BU tests.

6. Either the BU tests or the TCM now begins loading.
  - The BOP displays either 0F03 or 0F04 while loading occurs.
  - The MD displays either:

```
01BC BU TEST
LOADING
```

OR

```
10BC TCM LOADING
```

Loading takes approximately 45 seconds, and the MD keypad is disabled during this load operation.

7. After load complete, the MD displays either:

```
02BC BU TEST STARTED
SEE BOP FOR TEST
STATUS
```

OR

```
80BC TCM WAIT
ENTER INVOKE ADDRESS
FORMAT: PAPA...B OR
A OR C
```

- If the BU tests were loaded, the BOP displays the test progress.
  - If the TCM was loaded, you can now select and run the adapter and device tests. Refer to CP600 "Common Test Procedures and Messages" for a discussion of how to invoke and run adapter and device tests on an 8100.
8. If the MD keypad is ready, the Free-Lance Utility can be terminated at any time by pressing the MD RESET pushbutton, which then displays the diskette menu.

#### Using the Free-Lance Utility With Multiple Diskettes

Since offline testing sometimes requires more than one diskette, the Free-Lance Utility permits you to change diskettes to continue testing while in free-lance mode. If, for example, the loaded MD diskette does not contain the selected test, the following display occurs:

```
45BC TEST NOT ON
DISKETTE. TO CHANGE
DISKETTE KEY FWD. FOR
NEW INVOKE ENTER F
```

1. If you pressed FWD because the diskette did not contain the selected test, the following message appears:

```
INSERT CORRECT
DISKETTE
```

You can then insert the diskette that contains the test and again enter the 80BC and 81BC requests.

Refer to CP441 for a list of the tests contained on each MD diskette.

2. If you pressed F, the 80BC prompt message appears.

For example, the Run All options of A or XA where 'X' equals the level tested, requires multiple diskettes to completely test all hardware assigned to this level. When running tests using these selections, the MD displays the 13BC prompt message, which indicates that all tests for the selection are complete. This enables you to change diskettes to continue testings, as follows:

```
13BC DISKETTE TESTS
COMP, TO CONT RUN
ALL, KEY FWD. FOR
NEW INVOKE ENTER F
```

1. If you pressed FWD, the following prompt message appears:

```
INSERT NEW DISKETTE
RUN ALL WILL RESTART
AUTOMATICALLY
```

When you insert another MD diskette, the testing automatically continues for the level specified in the 80BC prompt message, even if the same MD diskette was previously inserted.

2. If you entered F, the 80BC prompt message appears for another test selection.

#### CP463 Copy Utility

This utility copies a complete configuration table from any MD or CSU diskette to any other MD or CSU diskette. This utility resides on MD diskette numbers 01, 02, 03, and 09, and is invoked by specifying utility selection 3.

It is used to copy an updated configuration table from MD diskette 01 to MD diskettes 02, 03, and 09 and the CSU diskette. It is also used to copy the existing configuration table from these diskettes to a new set of CSU to MD diskettes.

**Note:** Do NOT use the Copy Utility to build the original system configuration from the CSU diskette on an initial 8100 call. Use the Append Utility.

The Copy Utility ensures that you are using either a CSU or MD diskette, and that the table to be copied contains configuration information, one entry of which must be the processor configuration entry.

**Note:** If offline, IPL the system after using the Copy Utility to update the configuration table.

#### How to Invoke the Copy Utility

To select and run the Copy Utility you do not need MD system connection. Perform the following:

1. IPL any MD diskette.
2. When the diskette menu displays, enter F.

3. When the utility menu displays, enter 3, which specifies the Copy Utility.  
Message 7201 displays as follows:

```
7201 COPY START
AND PF KEY RETURN

                *FWD
```

While using this utility, the PF key returns the utility to this message to permit a utility restart.

4. Press FWD. Message 7202 displays as follows:

```
7202 DO YOU WANT TO
READ CONFIG FROM THE
LOADED DISKETTE

                *Y/N
```

5. The utility permits either reading the configuration table from the loaded diskette or inserting another MD or CSU diskette to obtain the configuration table.
- A Y (yes) response reads the table from the loaded diskette and displays the 7204 prompt message.
  - The N (no) response displays the following message:

```
7203 INSERT DISKETTE
TO BE READ
```

6. If selecting the N option, insert the diskette. After a ready delay of approximately 20 seconds, the configuration table reads into MD storage and the following message occurs:

```
7204 INSERT DISKETTE
TO BE WRITTEN
```

7. Insert the diskette to be written. After a ready delay of approximately 20 seconds, the configuration table loaded into MD storage in the previous step is written to the diskette and the following message occurs:

```
7205 WRITE COMPLETE
TO WRITE ANOTHER
DISKETTE, KEY FWD.
TO END, KEY RST
```

Pressing FWD returns the display to message 7204. This permits you to copy the configuration table still contained in MD storage to another diskette. Pressing RST displays the following message:

```
7260 UTILITY ENDED
INSERT MD DISKETTE
FOR NEXT OPERATION
```

8. If the next operation uses the diskette that is still loaded, only move the diskette load switch from OPEN to LOAD. If it does not use the same diskette, insert the diskette needed for the next operation.

#### Copy Utility Exception Messages

The following show and describe the MD display indications if exception conditions were detected while running the Copy Utility.

```
7230 LOADED DISKETTE
IS NOT A CSU OR MD
DISKETTE

                *FWD
```

The diskette read is not a CSU or MD diskette. At this message you can press:

- FWD to return to message 7203 and insert another diskette.
- RST to terminate the utility.
- PF to return to message 7201 and restart the utility.

```
7231 DISKETTE
IS NOT CONFIGURED
TABLE NOT COPIED

                *FWD
```

The loaded diskette had a blank configuration table. You can press:

- FWD to return to message 7203 and insert another diskette.
- RST to terminate the utility.
- PF to return to message 7201 and restart the utility.

```
7232 LOADED DISKETTE
IS NOT A CSU OR MD
DISKETTE

                *FWD
```

The diskette to be written is not a CSU or MD diskette. At this message, you can press:

- FWD to return to message 7203 and insert another diskette.
- RST to terminate the utility
- PF to return to message 7201 and restart the utility.

The following displays occur when the first entry in the configuration table was not a processor entry (0C99 00F0). The configuration table validity is questionable.

```
7233 TABLE TO BE
WRITTEN DOES NOT
CONTAIN A PROCESSOR
ENTRY          *FWD
```

```
CONFIGURATION MAY BE
INCOMPLETE. TO ABORT
KEY RST. TO WRITE,
KEY FWD
```

You can either press:

- FWD to write the table to the diskette.
- RST to terminate the utility.
- PF to return to message 7201 and restart the utility.

#### CP464 Product Engineering Utility (PE)

No description or procedures for this utility are discussed here. You must confer with 8100 Product Engineering to understand its operation and use.

#### CP465 Append Utility

A CSU diskette accompanies every 8101, 8130, and 8140, and contains a configuration table customized for that particular unit. This diskette must be used in combination with the Append Utility to build a system configuration table for the MD diskettes. The utility accomplishes this by combining each CSU diskette table into a master system table.

The Append Utility resides on MD diskette 01 and is invoked by specifying utility selection 5. It performs the following functions:

- Builds the MD system configuration table and permits you to configure the MD diskettes.
- Builds a new system table if a set of MD diskettes is either lost or destroyed.
- Allows the addition of CSU diskette information to the configuration table when 8101s are added to an existing system. It performs this by appending the information on the CSU diskette to the existing system table.

The utility creates a master system table by reading the configuration tables from either the MD diskette 01 or the CSU diskette, or both, and combines them in MD storage until all tables are appended. The utility then deletes certain common entries and writes the new table to MD diskette 01. Refer to CP310 for the procedures involved.

**Note:** The copy utility should then be used to write the system configuration tables on MD diskettes 02, 03, and 09.

The Append Utility checks if:

- MD diskette 01 already has configuration information.
- A CSU processor diskette has been loaded.
- The CSU diskette is configured.
- MD diskette 01 has been loaded.
- The appended entries are already in the configuration table.
- The 8101 CSU diskette contains processor entries.
- The CSU diskette contains SCF entries.

The PF and RST pushbuttons perform the following:

PF – Returns to the 7301 display message, where the utility can again be started.

RST – Terminates the utility and any operations in progress.

#### How to Invoke the Append Utility

To select and run the Append Utility, you do not need to connect the MD to the 8130/8140. Perform the following:

1. Obtain the 8100 CSU diskette(s).
2. Identify the 8130/8140 CSU processor diskette.
3. Identify the 8101 diskettes, if present.
4. IPL MD diskette 01 and select the Append Utility by specifying option 'F' to select the utility menu, and then selecting option 5 to select the Append Utility. Message 7301 displays as follows:

```
7301 APPEND START
PF KEY RETURN
```

\*FWD

When pressing FWD, the configuration table reads from MD diskette 01 into MD storage.

5. If the configuration table does NOT exist on MD diskette 01, the following message appears:

```
7303 INSERT CSU
PROCESSOR DISKETTE
```

6. Insert the CSU processor diskette. After a ready delay of approximately 20 seconds, the configuration table reads into MD storage and message 7304 occurs. Go to message 7304 for procedures.

7. If the configuration table exists on MD diskette 01, the following message occurs:

```
7302 MD TABLE HAS
PROCESSOR CONFIG
ENTRY. DO YOU WANT
TO OVERLAY? *Y/N
```

If pressing Y (yes), message 7303 occurs. Refer to message 7303.

If pressing N (no), message 7305 occurs. Refer to message 7305.

```
7304 ARE THERE ANY
OTHER 8101 DISKETTES
TO APPEND? *Y/N
```

8. If pressing Y (yes), the following message occurs:

```
7305 INSERT 8101
CSU DISKETTE
```

The configuration table then reads from the loaded diskette, appends to the table in MD storage, and then displays the 7304 message to permit insertion of either another 8101 diskette or MD diskette 01.

9. If pressing N (no), message 7306 occurs.

```
7306 INSERT
MD DISKETTE 01
```

MD storage then appends the configuration tables, writes them to MD diskette 01, and displays the following message:

```
7310 APPENDED TABLE
WRITTEN TO DISKETTE
UTILITY ENDED *FWD
```

The FWD response displays the diskette menu.

#### Append Utility Exception Messages

The following show and describe the MD display indications if exception conditions were detected while running the Append Utility.

```
7331 DISKETTE
INSERTED NOT CORRECT
```

\*FWD

MD diskette 01 was not inserted. At this message you can press:

- FWD to return to message 7330 and insert another diskette.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7332 PROCESSOR
DISKETTE NOT
INSERTED
```

At this message you can press:

- FWD to return to message 7303 and insert another diskette.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7333 DISKETTE
INSERTED NOT CORRECT
```

\*FWD

MD diskette 01 was not inserted. At this message you can either press:

- FWD to return to message 7306 and insert another diskette.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7334 CSU DISKETTE
NOT INSERTED
```

\*FWD

At this message you can press:

- FWD to either return to message 7304 and insert another diskette, or write the configuration table from MD storage to MD diskette 01.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7335 CSU DISKETTE
NOT CONFIGURED,
TABLE NOT APPENDED
          *FWD
```

A CSU diskette without configuration information was loaded. At this message you can press:

- FWD to either return to message 7304 and insert another diskette, or write the configuration table to MD storage.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7336 PROCESSOR
ENTRIES PRESENT,
TABLE NOT APPENDED
          *FWD
```

The loaded 8101 CSU diskette had processor entries when none should be present. At this message you can press:

- FWD to either return to message 7304 and insert another diskette, or write the configuration table to MD storage.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7337 SCF ENTRY NOT
PRESENT, TABLE
CANNOT BE APPENDED
          *FWD
```

No SCF entry was found in the configuration table. The CSU diskette must have an SCF entry or the table is invalid. At this message you can press:

- FWD to either return to message 7304 and insert another diskette, or write the configuration table to MD storage.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

```
7338 SCF ENTRIES
DUPLICATED, TABLE
CANNOT BE APPENDED.
          *FWD
```

The master system table in MD storage had an existing SCF entry identical to the one that you tried to append. The loaded diskette has been appended already. At this message you can press:

- FWD to either return to message 7304 and insert another diskette, or write the configuration table to MD storage.
- RST to terminate the utility.
- PF to return to message 7301 and restart the utility.

### CP466 Configuration Utility

The Configuration Utility configures the MD diskette to permit use of the MAPs and off-line tests contained on these diskettes. The utility resides on test diskette 01, and is selected by specifying utility option 6.

It performs the following functions:

- Adds or changes communications feature link options.
- Adds and deletes configuration table entries for terminals attached to the 8100.
- Adds and deletes configuration table entries for 8101, 8130, and 8140 features.
- Displays the 8100 configuration.

Each MD diskette has configuration table entries that define the attached devices and their features. These entries must be identical on all MD diskettes, and, if any changes are made on MD diskette 01, they must also be changed on MD diskettes 02, 03, and 09 (if present).

**Note:** You must use the Append Utility with the CSU diskette to initially configure the system and write the configuration tables to MD diskette 01. You must then use the Copy Utility to write the configuration information from MD diskette 01 to MD diskettes 02, 03 and 09 (if present).

### Configuration Utility Operational Description

The Configuration Utility operates by first loading the existing configuration table information from MD diskette 01 into MD storage. It then permits you to perform all configuration functions available. When using the Add, Change, Delete, Disable, or Enable options, the table updates automatically in MD storage. You can then use the display option to immediately display these changes to verify correctness, and eliminate the need to reconfigure after every operation. The original configuration table remains on the MD diskette until performing a file operation. You should verify the entries before filing the assembled changes as the operation overlays the original configuration entry.

If, while the table resides in MD storage and you enter information in error, you can use either the terminate option to discontinue the update or you can again select the utility and reload the original table from the MD diskette to MD storage.

If the MD diskette 01 configuration table has been destroyed, you can use the Copy Utility to generate the tables from either MD diskette 02 or 03. If necessary, you can also use the Append Utility and the CSU diskette to build the tables. Tables should only be filed after all changes are complete.

### Configuration Utility Menu Options

The Configuration Utility displays either the restart (RST) or the program function (PF) menu, depending on the MD pushbutton pressed.

```

  *RST MENU*
PF MENU_____ 1
FILE_____ 2
TERMINATE_____ 3
  
```

- The RST menu occurs initially and also any time you press the RST pushbutton on the MD. The following explains the RST options:

```

PF MENU      – Selects the PF menu.
FILE         – Writes the configuration table to the MD diskette.
TERMINATE    – Ends the utility without writing the configuration table to the
              MD diskette.
  
```

```

*PF MENU* CURRENT=1
PA=2 UT=3 LV=4 1ST=5
LST=6 CHANGE=7 ADD=8
ENAB/DISAB=9 DEL=A
  
```

- This is the main operating menu used for the Configuration Utility, and occurs any time you press the PF key during the utility. After executing any PF menu function, the menu either displays automatically or you can force a return by pressing the PF pushbutton. To return to the RST menu from here, press RST.

The PF menu options execute by using a configuration table entry location counter, which is set and stepped ONLY by the PF menu display options 1-6 (see above). The Add and Alter options (7-A) use the location counter to either determine which entries to change or to find the starting point for an add operation. The Add and Alter options do not step the location counter.

To perform any Alter option, first display the table entry to be altered, which sets the location counter. To perform an Add option, display the entry immediately before it, then return to the PF menu to select the Add option.

**PF Menu Option Summary.** The following explains the functions performed using the configuration table for each of the ten PF menu select options. 1-6 are display options and 7-A and add/alter options that must first use a display function.

- CURRENT (1) – Displays the table entry at the current location counter position.
- PA (2) – Displays the table entry associated with the physical address path entered.
- UT (3) – Displays the table entry containing the unit type entered.
- LV (4) – Displays the table entry associated with the level request entered.
- 1ST (5) – Displays the first table entry.
- LST (6) – Displays the last table entry.
- CHANGE (7) – Changes a single table entry.

- ADD (8) – Used to add an entry or entries.
- ENAB/DISAB (9) – Enables or disables table entries.
- DEL (A) – Deletes an entry or entries.

**PF Menu Maintenance Device Pushbutton Summary.** The following describes the operation performed by the PF, RST, FWD, BKWD, RET, and REF MD pushbuttons as they relate to PF menu operation:

- PF – Returns to the PF menu and terminates any incomplete operation.
- RST – Returns to the RST menu and terminates any incomplete operation.
- FWD – Displays the following:
  - The next sequential table entry in a forward direction for the CURRENT, PA, and 1ST options.
  - The entry specified by the UT or LV options, but scans only in a forward direction.
- BKWD – Displays the following:
  - The next sequential table entry in a backward direction for the CURRENT, PA, and LST options.
  - The entry specified by the UT or LV options, but scans only in a backward direction.
- RET – For display options PA, UT, and LV, returns to the original scan request input prompt message of either 7102, 7103, or 7104.
- REF – Depends on the displayed input message, and either:
  - Displays physical address path information at message 7110, or
  - Returns to message 7110 if at message 7111.

**PF Menu 7110 and 7111 Display Message Description.** Configuration Utility PF menu options 1-6 display the contents of a table entry and the physical addressing (PA) path by using the 7110 and 7111 MD messages. The following show these messages and describes their meaning:

```

7110  LV PA UTUT
      XX XX XXXX
      OPOP OPOP
      XXXX XXXX
  
```

```

7111  PA PATH =
      PA PA PA
  
```

Where:

LV = the table entry physical address level from 1 to 8.

PA = the physical address of the unit defined by that table entry.

UTUT = the unit type of the unit for that table entry.

OPOP OPOP = a four-byte option field that further defines the characteristics of the unit.



**Note:** You obtain the 7111 display by pressing REF while at the 7110 message, which also returns you to the 7110 message if at 7111.

For all 7110 messages, the Configuration Utility determines the PA path to the table entry displayed. This PA path parameter must be used to select the level at which tests should be performed.

The following example shows the relationship between configuration table entries and the 7110 and 7111 messages. Assume the following consecutive configuration table entries specify addressing path level of the unit type that you wish to test, which in this example is the last Level 3 entry:

```
01 21 0060 OPOP OPOP
02 05 0200 OPOP OPOP
02 06 0201
03 19 0240
03 20 0291 6432 0001
```

You would next use a Configuration Utility PF menu option to display this entry, and it appears on the MD display as follows:

```
7110 LV PA UTUT
      03 20 0291
      OPOP OPOP
      6432 0001
```

Press REF to display the 7111 message, which is:

```
7111 PA PATH =
      21 06 20
```

The 21 06 20 entry defines the address path of the device to be tested, and is the response to the 80BC test message when running either online or offline tests.

**Note:** Remember that the configuration table entries on MD diskette 01 must reflect the actual system configuration, or this path could be invalid.

**PF Menu Display Option Description and Procedures.** The following describes PF menu options 1–6 and the procedures for their use:

- **CURRENT (1)** Displays the table entry associated with the current position of the location counter. When at display output messages 7110 or 7111, you can press:
  - FWD to display the next table entry.
  - BKWD to display the previous table entry.
  - PF to display the PF menu.
  - RST to display the RST menu.

- **PA (2)** – Locates and displays the table entry associated with the physical address path entered. After selecting this option, the following message appears:

```
7102 ENTER PA PATH
FORMAT: PA, OR PAPA,
OR PAPA... ETC.
```

Enter the physical address path for the unit and table entry you wish to test. Start with Level 01 PA followed by Level 02 and end with the level under test. The utility then displays the 7110 and 7111 message sequence, where you can press:

FWD to display the next table entry.

BKWD to display the previous table entry.

PF to display the PF menu.

RST to display the RST menu.

RET to display input prompt message 7102.

- **UT (3)** – Locates and displays the table entry containing the unit type requested. After selecting this option, the following message appears:

```
7103 ENTER UNIT TYPE
FORMAT: UTUT
```

Enter the 4-digit unit type for the unit and table entry desired. Refer to CP370 for the valid unit type designations. The utility then displays the 7110 and 7111 message sequence, where you can press:

FWD to scan the table forward and find the UTUT specified.

BKWD to scan the table backward and find the UTUT specified.

PF to display the PF menu.

RST to display the RST menu.

RET to display input prompt message 7103.

- **LV (4)** – Locates and displays the table entry according to the level entered. After selection, the following message appears:

```
7104 ENTER LEVEL REQ
FORMAT: 01, OR PA02,
OR PAPA03...ETC
```

At this message, select one of the following options:

– Enter 01 to locate and display only Level 1 (adapter) entries.

– Enter PA02 to locate and display only the Level 2 entries associated with the Level 01 PA value that you specified in this entry.

– Enter PAPA03 to locate and display only the Level 3 entries associated with the PAPA Level 1 and 2 values that you specified in this entry. All requests up to Level 4 are valid.

The utility then displays the 7110 and 7111 message sequence, where you can press:

FWD to scan the table forward to find and display the next entry of the level specified by the request.

BKWD to scan the table backward to find and display the next entry of the level specified by the request.

PF to display the PF menu.

RST to display the RST menu.

RET to display input prompt message 7104.

- 1ST (5) – Locates and displays the first table entry. The utility then displays the 7110 and 7111 message sequence, where at 7110 you can press:

BKWD to display the previous table entry.

PF to display the PF menu.

RST to display the RST menu.

- LST (6) – Locates and displays the last table entry. The utility then displays the 7110 and 7111 message sequence, where at 7110 you can press:

FWD to display the next table entry.

PF to display the PF menu.

RST to display the RST menu.

**PF Menu Alter/Add Option Description and Procedures.** The following describes PF menu Alter and Add options and the procedures for their use.

**Note:** To use an alter or add option, you must first select a display option and display the entry to be changed. This sets the location counter.

- CHANGE (7) – Changes the current entry addressed by the location counter.
  1. Select PA option 2 from the menu.
  2. Enter the PA to be changed.
  3. When correct PA is displayed, press the PF pushbutton to return to the menu.
  4. Select the change option (7).

After selection, the following message appears:

```
7107 ENTER CHANGE
CURRENT ENTRY IS:
LV PA UTUT OPOP OPOP
```

- ADD (8) – Adds additional entries to the configuration table. The utility uses an add buffer to permit up to 16 sequential entries before requiring reassembly. It also executes a reassembly after making additions, to correctly position the added entries in the table.

1. Select PA option 2 from menu.

2. Enter the PA of the entry preceding the add start point.

3. When the correct PA is displayed, press PF to return to the menu.

4. Select the add option (8).

After selection, the following message appears:

```
7108 ENTER ADD OR TO
ASSEMBLE KEY ENTER.
LAST ENTRY IS:
LV PA UTUT OPOP OPOP
```

To add an entry, a minimum of eight digits (LV PA UTUT) must be inputted, and up to 16 are permitted for each. The data entered will follow directly after the entry displayed. Any two-digit value not entered becomes zeros. After each 16 add entries, assemble the table before continuing. The 7108 message signifies that the add buffer contains the entry. When this message occurs, you can press:

ENT to add the entry to the configuration table, which returns you to the RST menu where you can add the entry with the file option.

PF to reset any entry in the add buffer and display the PF menu.

RST to reset any entry in the add buffer and display the RST menu.

The following message indicates completion of the assembly:

```
7170 TABLE ASSEMBLY
COMPLETE. TO CONTINUE
ADDING, KEY FWD.
OTHERWISE PF OR RST
```

At this message, you can press:

FWD to move the location counter to the last entry added and display message 7108.

PF to display the PF menu.

RST to display the RST menu.

- ENAB/DISAB (9) – Logically enables or disables table entries. This option disables an entry by replacing the 0 value of the table level entry with an F so the entry appears logically unavailable to the MAP tests. The enable function changes the value from F to 0. The F value in an entry also disables all entries immediately following the selected entry.

**Note:** You must first set the location counter by selecting a display option that displays the entry to be enabled or disabled. Then return to the PF menu and select the enable/disable option (9).

After selection, the following message appears:

```
7109 TO ENABLE = E
TO DISABLE = D
CURRENT ENTRY IS:
LV PA UTUT OPOP OPOP
```

At this message, you can press:

- E to enable the selected level entry and all numerically higher attached level entries.
- D to disable the selected level entry and all numerically higher attached level entries.
- PF to display the PF menu.
- RST to display the RST menu.

The PF menu display indicates completion of this option.

- DEL (A) – Deletes either a single table entry or the selected entry. An option permits deleting the entry and all numerically higher level entries attached to it.

**Note:** You must first set the location counter by selecting a display option that displays the entry to be deleted.

After selection, the following message appears and contains the entry to be deleted:

```
710A CURRENT = D1
CURRENT + ATTACH = DA
TABLE = DB CURRENT IS
LV PA UTUT OPOP OPOP
```

- \*The D1 option deletes only the displayed entry.
- The DA option deletes the displayed entry and all numerically higher logically attached entries.
- The DB option deletes the entire configuration table.

#### How to Invoke the Configuration Utility

You do not need system connection of the MD to invoke the Configuration Utility. Perform the following steps:

1. IPL MD diskette 01.
2. When the diskette menu displays, enter F.
3. When the utility menu displays, enter 6.
4. When the configuration utility RST menu displays, enter 1.

The utility then displays the configuration PF menu and you can select the option desired. Refer to "PF Menu Display Option Descriptions and Procedures" in CP466 for a further explanation of the Configuration Utility options.

\*If the table is valid, you should use the DA option to eliminate the possibility of creating an invalid table entry that could be caused by performing a single deletion. A single-entry deletion should be used only to correct a table having an invalid structure.

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## CP500 Initial Program Load (IPL)

The Read Only Storage (ROS) contains the basic bringup tests and the IPL program. IPL enables you to load either:

- A 512-byte bootstrap program into processor storage from disk or diskette storage, or
- The BU tests or TCM into processor storage from the MD.

IPL performs a basic test of the processor hardware required to load the initial program into processor storage, as well as clearing storage to hex FF.

The following methods initiate IPL:

- Pressing the Reset/IPL pushbutton on the BOP.
- Cycling the 8130/8140 power switch from Power Off to Power On.
- Restoring utility power after an outage, which causes an automatic IPL.
- A program-controlled system reset.

**Note:** *If a power-on sequence initiated the IPL, random generation of the BOP value occurs. The value has no significance until the power-on sequence completes.*

## CP510 IPL Parameters

A 2-byte parameter determines what occurs during an IPL sequence. As the following chart shows, bits 2, and 3 determine the testing options, while bits 4–15 determine the device type and address. The testing that occurs depends on the IPL mode used and the method used to invoke it.

Refer to this chart for the IPL bit values and descriptions, and to CP523 "Manual Mode IPL and Its Testing Options" to further understand the testing that occurs according to IPL bits 2 and 3.

Bit	Meaning
0	Reserved
1	Auto restart primary IPL - If on, executes a primary IPL using the parameters specified in the PSCF IPL parameter switches. If off, terminates the IPL with hex 0122 in the BOP display.
2	Extended test - Specifies manual mode testing parameters according to the operating system used, and also according to whether IPL occurred either from a power-on sequence or from the IPL pushbutton. Refer to CP523 "Manual Mode IPL and Its Testing Options" for a detailed explanation.

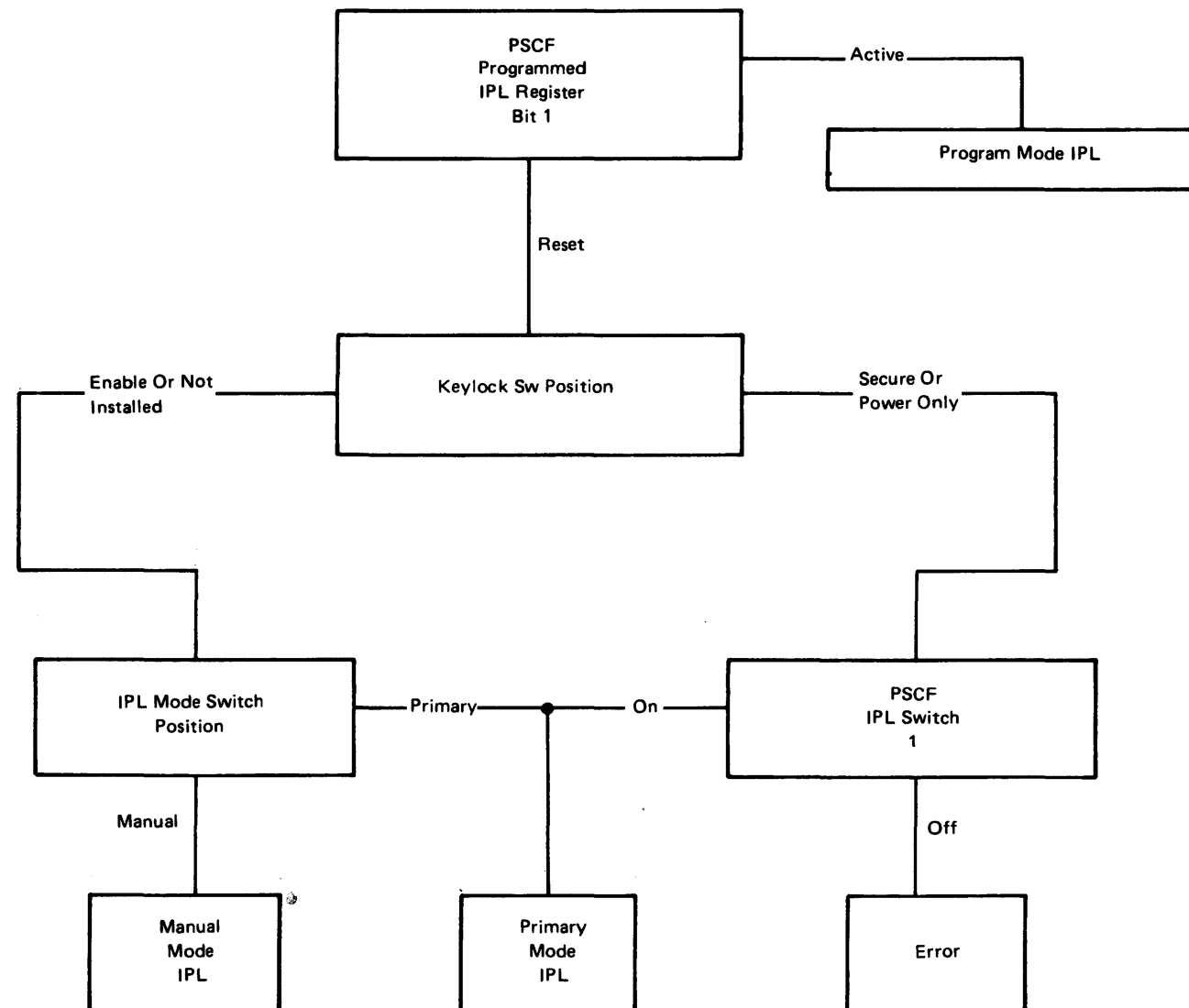
3	Initialize storage - Clears storage to FF.
4-7	IPL device type <ul style="list-style-type: none"> <li>0001 = diskette</li> <li>0011 = disk</li> <li>1111 = maintenance device</li> </ul>
8-15	IPL device address according to the following: <ul style="list-style-type: none"> <li>8-11 = SSCF address</li> <li>12-15 = device address               <ul style="list-style-type: none"> <li>80 = Disk storage—8130 or 8140 Model AXX</li> <li>84 = Disk storage—8140 Model BXX</li> <li>85 = Disk storage—8140 Model BXX (2nd drive)</li> <li>90 = Disk storage—first 8101</li> <li>91 = Disk storage—first 8101 Model A25 (2nd drive)</li> <li>A0 = Disk storage—second 8101</li> <li>A1 = Disk storage—second 8101 Model A25 (second drive)</li> <li>B0 = Disk storage—third 8101</li> <li>B1 = Disk storage—third 8101 Model A25 (2nd drive)</li> <li>C0 = Disk storage—fourth 8101</li> <li>C1 = Disk storage—fourth 8101 Model A25 (2nd drive)</li> </ul> </li> <li>87 = Diskette storage—8130 or 8140</li> <li>97* = Diskette storage—first 8101</li> <li>A7* = Diskette storage—second 8101</li> <li>B7* = Diskette storage—third 8101</li> <li>C7* = Diskette storage—fourth 8101</li> </ul>
	*Not available on 8101 Model A25.

## CP520 IPL Modes – What They Do and How to Use Them

The mode used during an IPL determines the parameter source according to the following:

- Program mode – from the program.
- Primary mode – from the switch settings of a primary system control facility card.
- Manual mode – entered at the BOP.

If you know the status of the PSCF programmed IPL register bit and the setting of PSCF IPL switch 1, the following chart enables you to determine what IPL mode was used, according to the BOP switch settings.



## CP521 Program Mode IPL

This mode occurs when the executing program places the IPL parameters into the PSCF programmed IPL register and executes a programmed system reset. IPL then begins and uses the parameters previously placed in the register. The mode allows the operating system program to control the parameters used for IPL, and to have it occur for every programmed system reset command.

## CP522 Primary Mode IPL

DPPX and DPCX normally use this mode to load and start the operating system program, which occurs:

- By cycling the 8130/8140 power switch from Power Off to Power On with the keylock switch either not installed or in Enable, and the IPL Mode switch set to Primary.
- When restoring utility power after an outage with the keylock either not installed or in Enable, and the IPL mode switch set to Primary.
- By cycling the power switch from Power Off to Power On with the keylock switch set to Power Only.
- When restoring utility power after an outage with the keylock set to Power Only.
- By pressing the Reset/IPL pushbutton on the BOP with the keylock switch set to Enable or not installed, the IPL Mode switch set to Primary, and having the 8130/8140 already powered on.

The PSCF card IPL switch settings determine the parameters in primary mode. This fixed setting (hex 4380 for 8140 Model AXX, 4384 for 8140 Model BXX) performs an IPL to the 8130/8140 disk storage drive which the operating system normally uses as the system-resident device.

If executing an IPL while using either the DPPX or DPCX operating systems, testing of the processor hardware occurs only for a power-on sequence or a primary mode IPL sequence. These tests run the basic bringups, clear processor storage to hex FF, and load the extended bringups from the system-resident device into processor storage. Control then transfers to the extended tests, which completes the testing of the processor and processor storage, and also floating point. After successful test completion, DPPX or DPCX then loads and receives control.

**Note:** If executing a primary mode IPL by pressing the Reset/IPL pushbutton with system power active, no processor testing occurs and the operating system immediately loads and receives control. This permits the program to log information if necessary, since the processor registers and storage are not altered.

## How to IPL the System-Resident Disk if Power Is Off

This procedure applies only to an 8100 using either the DPPX or DPCX operating system. Perform one of the following actions:

- Without the keylock feature, set the IPL Mode switch to Primary and turn power on.
- With the keylock switch set to either Enable or Power Only, turn power on.

This IPL procedure performs basic testing, clears storage to hex FF, loads and executes extended BU tests, and then loads and starts the operating system.

### How to IPL the System-Resident Disk if Power is On

This procedure applies only to an 8100 using either the DPPX or DPCX operating system. With the Keylock either not installed or set to Enable, set the IPL Mode switch to Primary and press Reset/IPL.

The IPL then loads and starts the operating system, but storage is not altered and the BU tests are not executed.

### CP523 Manual Mode IPL and Its Testing Options

This mode is used primarily to permit an IPL from a device other than the system-resident disk. For example, manual mode can IPL a diskette during DPPX or DPCX installation, or be used to take a dump, load a standalone utility, run the CSU tests, or IPL the MD. It can also be used to bypass the testing that normally occurs in a power-on primary mode IPL to the system-resident device, or to IPL a disk storage located in an 8101.

This mode occurs:

- By cycling the 8130/8140 power switch from Power Off to Power On with the keylock switch set to Enable or not installed and the IPL Mode switch set to Manual.
- When restoring utility power after an outage with the keylock switch set to Enable or not installed, and the IPL Mode switch set to Manual.
- By pressing the BOP Reset/IPL pushbutton with power already on, and with the keylock switch set to Enable or not installed and the IPL Mode switch set to Manual.

The actions and tests that occur when performing an IPL in manual mode depend on IPL parameter bits 2 and 3. It also depends on whether the IPL was initiated from a power-on sequence or by pressing the Reset/IPL pushbutton.

Figure CP523-1 shows what occurs during IPL, according to the value of the first IPL parameter hexadecimal digit, when invoking IPL in manual mode. Refer to CP510 for a description of the addresses associated with each IPL device type.

### How to IPL from the BOP

During a manual mode IPL, the BOP prompts you for the IPL parameters by turning on the Operator Attention indicator and displaying the 0200 message. At this message, you can perform an IPL either with or without test options.

- To perform an IPL with no test options, enter up to four IPL parameter digits (see CP510) and press Enter Function.

**Note:** Tests are only on the system-resident disk or the CSU diskette.

- To perform an IPL and select test options:
  1. Press Clear Display.
  2. Enter up to four IPL parameter digits (see CP510).
  3. Press Enter Function.

IPL Device Type	1st Digit Hex Value	Power-On IPL Sequence	Reset/IPL Pushbutton Sequence
Maintenance Device	1	Clears storage to FF. Loads the TCM.	Clears storage to FF. Loads the TCM.
	2	Clears storage to FF. Loads and starts BU tests.	If BU test is already in 8100 storage, restarts test.  If BU test is not in 8100 storage, clears storage to FF and loads and starts BU tests.
	3	Clears storage to FF. Loads and starts BU tests.	Clears storage to FF. Loads and starts BU tests.
Any diskette drive using the CSU diskette	1	Clears storage to FF. Loads and starts TCM.	Clears storage to FF. Loads and starts TCM.
	3	Clears storage to FF. Loads and starts BU tests. Loads and starts TCM.	Clears storage to FF. Loads and starts BU tests. Loads and starts TCM.
DPPX or DPCX system-resident disk storage	0	Clears storage to FF. Loads operating system program.	Loads operating system program.
	1	Clears storage to FF. Loads operating system program.	Clears storage to FF. Loads operating system program.
	3	Clears storage to FF. Loads and starts BU tests. Loads and starts the operating system program.	Clears storage to FF. Loads and starts BU tests. Loads and starts the operating system program.
Any other disk drive or diskette storage without a CSU diskette	0	Loads and starts the bootstrap program.	Loads and starts the bootstrap program.
	1	Clears storage to FF. Loads and starts the bootstrap program.	Clears storage to FF. Loads and starts the bootstrap program.

Figure CP523-1. What Occurs During a Manual Mode IPL

**How to IPL the System-Resident Disk if Power is On**

This procedure applies only to an 8100 using either the DPPX or DPCX operating system. Perform the following:

1. With the keylock either not installed or set to Enable, set the IPL Mode switch to Manual and press Reset/IPL.
2. At the BOP 0200 prompt message, perform one of the following:
  - a. To IPL and run the extended tests, enter 3380 and press Enter Function.
  - b. To IPL and bypass the extended tests, enter 1380 and press Enter Function.

Either option runs the basic BU tests, clears storage to hex FF, then loads and begins executing the operating system program.

**How to Load the TCM or Bringup Tests from the MD**

This procedure permits you to load either the TCM or the BU tests from the MD.

**Note:** *The MD must be connected to the 8130/8140 and running either the Free-Lance Utility or a MAP.*

1. Set the IPL Mode switch to Manual.
2. Set the keylock switch (if installed) to Enable.

**Note:** *The MD display indicates when to IPL the 8100. You can, however, perform an IPL before MD prompting, as the IPL waits for an MD ready condition. The BOP indicates either the OF01 or OF02 message if waiting for the MD.*

3. IPL the 8100 by either:
  - a. Pressing Reset/IPL on the BOP if already powered on, or
  - b. Power on the system.

**Note:** *If using option b, the IPL does not begin until approximately 70 seconds elapse. During this time, the BOP does not contain valid information. If the MD has an IPL request message displayed, this message will blink until IPL occurs.*

4. At BOP prompt message 0200, perform either of the following:
  - a. Enter 1F and press Enter Function to load the TCM.
  - b. If using MD diskette 01, enter 3F and press Enter Function to load the BU tests.

**Note:** *The BOP displays OF03 or OF04 while loading either the TCM or the bringup tests.*

5. The MD now prompts you for the option selected.

**How to Run Bringup Tests from the System-Resident Disk**

This procedure applies only to an 8100 using either the DPPX or DPCX operating system. Do the following:

1. With the keylock either not installed or set to Enable, set the IPL Mode switch to Manual and press Reset/IPL.
2. At the BOP 0200 prompt message, perform either of the following:
  - a. To run the BU tests once and stop after testing, enter 3380 and press Enter Data; at prompt message 0201, enter 00FF and press Enter Function.
  - b. To loop the BU tests, enter 3380 and press Enter Data; at prompt message 0201, enter 01FF and press Enter Function.

**How to Run Bringup Tests Using the MD Free-Lance Utility**

The following describes how to use the MD to select the Free-Lance Utility and run the basic and extended BU tests. After selection, the Free-Lance Utility requires no MD action.

1. IPL MD diskette 01 if not already done.
2. At the diskette menu, enter F, which selects the utility option.
3. At the utility menu, enter 2, which selects the Free-Lance Utility.
4. At the free-lance menu, enter A, which selects the offline option.
5. At the 8130/8140 BOP with the keylock either not installed or set to Enable, set the IPL Mode switch to Manual and press Reset/IPL.
6. At the BOP 0200 prompt message, perform one of the following:
  - a. To run the BU tests once, enter 3F and press Enter Function.
  - b. To loop the BU tests, enter 3F and press Enter Data.\* At message 0201, enter 01FF and press Enter Function.
  - c. To either run or loop routine RR of the BU extended tests, enter 3F and press Enter Data.\* At message 0201, to run a routine once, enter 00RR and press Enter Function; to loop a routine, enter 01RR and press Enter Function.

The BOP then displays BU test status. Any BOP test message remaining for longer than 2 minutes indicates a BU test failure. BOP display 3F00 and MD display 03BC indicate successful BU test completion. You can stop and restart the BU tests by pressing Reset/IPL on the BOP and entering a new request.

\*After running the BU tests once, they are in processor storage. Entering a 2F at this step runs the tests in less time.



## CP600 Common Test Procedures and Messages

### CP610 Common Test Invocation

All 8100 tests use common procedures and generate common message formats. The tests can be run:

- Offline from the MD using the Free-Lance Utility and offline test control monitor (TCM).
- Online from either the BOP or a terminal using DPCX online TCM.

The methods used to load the TCM are unique, depending on how you load and start the tests. The 80BC prompt message begins the common procedures and message formats.

The following exceptions apply:

- DPCX uses only a limited version of the tests; therefore, not all adapters can be checked.
- DPCX TCM does not permit the Run-All option.

Refer to DPCX (CP810) for how to invoke online testing up to the 80BC message; refer to CP720 for DPPX testing.

To test a particular 8100 device, you only need to specify the physical address path at the 80BC prompt. This path specifies information such as the SSCF address, the physical address of the adapter on the SCF signal bus, a port number, the link address of an attached data-link device, a loop address, or a tape drive address. The TCM determines which test to load by examining the configuration table.

When running any 8100 tests, the 80BC and 81BC messages prompt you for certain testing parameters. For messages other than 80BC and 81BC, refer to ST420 in Chapter 1. The following paragraphs explain these messages and procedures.

#### CP611 How to Reply to the 80BC Prompt Message

The required 80BC message response specifies the physical address path to the device. The TCM locates the configuration table entries that you specified as the 80BC response, and uses this entry to determine the correct test for the device. Perform the following:

1. Enter the physical address path in the format PA PA PA . . . The first PA specifies the 8100 adapter physical address, the second PA specifies the physical address of the unit attached to the adapter, the third PA specifies the physical address of the unit attached to the second PA. Enter as many PAs as necessary to select the device to be tested.
2. Enter either A, B, or C. A specifies the Run-All option, which runs all tests according to the level selected by the PA PA PA . . . entry above. B specifies to run the test once on the selected device. C specifies that the entry is a utility program ID rather than a physical address.

The Run-All option, which is part of the offline TCM, permits you to select a particular physical address level and run all offline tests on that level automatically. You specify this option by entering an A at the end of the 80BC prompt message. The tests then check all devices on the physical address level specified by this entry. The MD prompts you when to change diskettes, if necessary, and the following explains the devices tested according to the 80BC prompt entry:

- A – Tests all configuration table level 01 entries. These levels are the adapters for the disk, diskette, display and printer, and communications, and also the system control facility (SCF).
- XA – Tests all configuration table level 01 entries with a level 01 and a 'P' value of the PA equal to 'X'. These levels are all the adapters attached to a particular SCF address group.
- XYA – Tests all configuration table level 02 entries attached to a level 1 adapter whose PA equals the 'XY' value. These are either:
  - The ports of the display/printer adapter.
  - The SSCF (SC5) cards attached to the PSCF.
  - All attached 8809 tape drives.
  - The link test to all units attached to the communications features.

#### CP612 How to Reply to the 81BC Prompt Message

The optional 81BC message response defines the test run options in the SLRRB format. These options can either be specified or bypassed, depending on the test options required. Refer to the SLRRB description below for a detailed explanation of these options.

At the 81BC prompt message, enter SLRRB, where:

- S = the sense option
- L = the loop option
- RR = the routine number
- B = begin, and must always be specified

**Note:** Attachment tests have unique definitions for the 'S' field. Refer to the particular MAP reference material for the 'S' field definition.

The following describes the SLRRB values used for the 81BC message:

S (SENSE) – This specifies the sense option used for 8130/8140/8101 adapters and devices according to the following:

- 0 = Run adapter tests only. This option does not perform any testing on the attached devices and does not require the device to be either powered up or connected.
- 1 = Run both adapter and device tests for all routines not requiring manual intervention. The device must have power on and be ready. Diskette drives must have a scratch diskette loaded, and tape drives must have a scratch tape mounted.
- 2 = Run both adapter and device tests including those that require manual intervention. These procedures involve actions such as opening and closing covers, pressing pushbuttons, and others as directed by the MAP.

**Note:** When selecting sense option 2, the communications tests require link availability.

L (LOOP) — This specifies the looping options according to the following:

- 0 = Run test or routine once and stop on error.
- 1 = Loop selected test or routine and stop on error.
- 2 = Loop selected routine and bypass errors.

**Note:** *DPCX online tests loop only five times.*

RR (ROUTINE NUMBER) — This specifies a single routine used in conjunction with the loop option, and overrides any 'S' field entry. Refer to the appropriate test routine descriptions for valid routine numbers.

**Note:** *When selecting a routine number, no attempt is made to verify that the routine value is valid for the hardware installed. This verification occurs only as a result of the 'S' option selection used for multiple routines.*

B (BEGIN) — Entering 'B' after this option specifies to begin the test, and must always be specified.

**Note:** *You do not have to specify any SLRR entries in SLRRB parameter if not needed, as they default to zero.*

### CP620 Common Entries Used for Free-Lance Testing

The following examples show how to run 8100 tests using the MD with the Free-Lance Utility.

The entries specified are the input messages for both the 80BC and 81BC messages, and are separated by a comma. At the 80BC message, enter the leftmost value; at the 81BC message, enter the remaining value. Refer to CP223 for a list of all PA values.

**Disk Storage.** The valid PAs are 80 (for 8130/8140 Models AXX), 84 and 85 (for 8140 Models BXX), 90, A0, B0, and C0 (for 8101 Models A11, A13 and A23), and 91, A1, B1, and C1 (for 8101 Model A25).

- For adapter testing, at 80BC enter PAB, at 81BC enter B.
- For adapter and device testing, at 80BC enter PAB, at 81BC enter 1B.

**Diskette Storage.** The valid PAs are 87, 97, A7, B7, and C7.

- For adapter testing, at 80BC enter PAB, at 81BC enter B.
- For adapter and device testing, at 80BC enter PAB, at 81BC enter 1B.

**Note:** *The diskette drive must have a scratch diskette loaded and the cover closed before selecting device testing. A CSU or MD diskette can be used.*

**Display/Printer Adapter.** The valid PAs are 1F, 2F, 3F, and 4F for 8130/8140 Models AXX and 5F for 8140 Models BXX.

- For adapter testing, at 80BC enter PAB, at 81BC enter B.
- For adapter and port testing, at 80BC enter PAPT, at 81BC enter 1B.

**Note:** *The valid port numbers (PT) are from 00 to 23 in decimal. A display attached to the port must have power on, and a printer attached to a port must have paper inserted and be powered on and ready.*

**Communications Adapter.** Refer to CP223 for the valid PAs for communications tests.

- For adapter testing, at 80BC enter PAB, at 81BC enter B.
- For adapter and driver/receiver card testing, at 80BC enter PAB, at 81BC enter 1B.
- For adapter, driver/receiver, and downline link or loop testing, at 80BC enter PAB, at 81BC enter 2B.

**System Control Facility.** The valid PA is 08.

- For PSCF testing, at 80BC enter 08B, at 81BC enter B.
- For PSCF and SSCF testing, at 80BC enter 08P8B, at 81BC enter 1B. The P8 value is the SSCF address of either 88 (8140 Models AXX), 88 and 58 (8140 Models BXX), 18, 28, 38, 48, 98, A8, B8, C8 (8101s), or 78 (8809 Model 1B).
- For testing all SSCFs, at 80BC enter 08A; at 81BC enter 1B.

**Tape.** The valid PAs are 73 (8809-1B), 93, A3, B3, and C3, and 5E for 8140 Models BXX.

- For adapter testing, at 80BC enter PAB, at 81BC enter B.
- For adapter and device testing, at 80BC enter PADAB, at 81BC enter 1B. The DA value is the tape drive address from 00 to 07.

**Expanded Function Panel.** The valid PA is 0A.

- For adapter testing, at 80BC enter 080AB, at 81BC enter B.
- For adapter and EF panel testing using manual intervention routines, enter 080AB, 2B.

### CP630 Common Offline and DPCX Online Test Messages

The following describes the common test messages generated as a result of offline or DPCX online testing:

- PAXE — The tests have detected an error.
  - PA = the physical address of the device under test as entered in the last 80BC response.
  - X = the physical address level of the device, or, in other words, the number of PAs entered in the 80BC response.
  - E = an error occurred.
- The RREN value following this message designates the routine in error and the error number within the routine.
- PA00 — The tests completed successfully for the physical address specified by the last PA value in the 80BC entry.
- PAF0 — The test is executing on the physical address specified by the last PA value in the 80BC entry.
- PAMI — The test either requires manual intervention or an exceptional condition occurred. The PA value specifies the physical address of the unit under test, while the MI value can be any decimal number from 1–99. Refer to the Chapter 5 manual intervention messages section associated with the adapter under test for the action prompted by the PAMI message.
- XXBC — The TCM detected either an error or an exceptional condition.

You can use the following entries to select certain TCM functions:

- Free (F or FF) – Terminates a test and displays the 80BC prompt message. Effectively, it resets the operation in progress to permit selection of another 80BC physical address entry. You can generate this test reset by:
  - Entering 'F' when executing a single test option.
  - Entering 'F' when executing the Run-All option, which runs the next test specified by the Run-All selection.
  - Pressing 'FF' when executing the Run-All option, which terminates testing.
- Begin (B) – can be used:
  - After a PAXE message to continue with the next routine.
  - After a PAMI message to indicate that a particular action has been performed.
- Terminate (D) – can be used:
  - To return to online status if using the BOP. When using DPCX, the BOP display should then be blank.
  - If using DPCX, to terminate the SYSTCM Utility (DPCX online testing) and select another DPCX utility.
  - If using DPPX, to return to online status from the MD through free-lance mode.
- Display Extended Data (E) – can be used:
  - To display the extended data fields of those messages that use it by pressing E and then Enter Function.

## CP640 Diskette Surface Analysis

This procedure is actually Routine 29 of the diskette test, runs only when selected, and enables reading one or more consecutive tracks. Two manual intervention stops occur within the routine. The first permits selection of the first and last tracks to be tested, and the second displays the test results.

This routine first seeks to track zero and reads the diskette volume label, which determines the diskette format information. This specifies: if the diskette is single- or double-sided, if single- or double-density recording is used, and if the record length is either 128, 256, 512, or 1024 bytes.

1. Using MD diskette 03, select the DA MAP and specify routine 29 of the diskette test. Refer to CP600 "Common Test Procedures and Messages" if necessary.
2. At manual intervention stop PA21, load the diskette on which surface analysis should be performed into an 8100 diskette drive. Enter the first and last tracks to be tested according to the XXYY format, where:

XX = the decimal number of the first track to be tested

YY = the decimal number of the last track to be tested

**Note:** *If testing only one track, use the same value for both entries.*

The test then executes and stops with a display value of any one of four manual intervention messages, depending on the test results.

The following table lists the manual intervention stops and describes their meaning:

MI Stop	Description
PA23 TTH1	Specified track could not be located by reading the track ID. An initial attempt was made to find the selected track number, which failed. The head was again engaged and the test attempted twice more to read the track ID by performing a single-track seek operation in the same direction, and both retries failed.
PA23 TTH2	Track TT defective. The test read the track ID correctly and then attempted to read the sector ID and data fields within that track. After reading all sectors, the test determined that there were CRC errors in one or more records contained on that track.
PA23 TTH3	Unrecoverable read error occurred while attempting to read track TT.
PA23 TTH4	No read track ID or read CRC errors occurred on the tracks specified by the PA21 message.

Where:

TT = Last track accessed

H = Last head number accessed

= 0 = head 0

= 1 = head 1

## CP650 Disk Storage Surface Status and Format Utility

The Disk Storage Surface Status and Format Utility, which runs under control of the offline test control monitor, is used to:

- Determine the disk surface condition.
- Change the assigned alternate sector assignments to recover usable disk space.

The utility provides a record of the sectors affected by its execution. This record can be displayed after running the utility, but is lost once the utility is terminated.

## CP651 Disk Storage Track Format and Contents

### Disk Storage Track Format

Disk storage byte capacity determines the model of the machine type in which it resides, and depends on the existence of fixed heads and the number of surfaces used. A drive can contain:

- 5 or 11 data surfaces that have one movable head for each surface.
- Eight fixed heads, which replace one movable head.

Refer to FA100 for how these capacities relate to model number.

Each data surface contains 360 (decimal) tracks; 0 through 63 and 65 through 358 are normally used, 64 is reserved for alternate sector assignments, and 359 is used for testing. Each track contains 33 (decimal) sectors; 0 through 31 are normally used and 32 is reserved as an alternate.

Before shipment, the plant of manufacture initially formats the disk storage, locates defective sectors and assigns alternates, and identifies these defects as either primary or secondary.

- A primary defect is the first defect located on an individual track. If the plant of manufacture detects a primary defect when formatting the disk, sector 32 of that track is used to replace the defective one by logically displacing (pushing down) all sector address from the defect by a value of 1. This logical sector address relabeling can occur for any defective physical sector number between 0 and 31. For example, if sector 2 had a primary defect, the normal and relabeled logical sector addresses are as follows:

Sector (normal)	0	1	2	3	4	5	.....	30	31	32
Sector (relabeled)	0	1	32	2	3	4	.....	29	30	31

**Note:** Any defective sector 32 must be considered a primary defect and no pushdown track relabeling can occur, as the moving head index is after physical sector number 32.

- Secondary defects are any other defective sectors on the same track as the primary defect. Track 64 contains those physical sectors used as alternates for those sectors determined to have secondary defects.

The manufacturing defect map contains the addresses of all fixed head defects and all secondary movable head defects detected during manufacturing formatting. This map, located on sector zero of each track 64, uses write protection for both data fields and is flagged as reassigned. Should physical sector 0 be defective, the map resides at logical sector 0.

Although both logical sector 0 data fields contain the same defect map, the compatible CRC field generated by manufacturing for the 512 field format resides near the end of the second data field and should be ignored. The following shows the defect map format and meaning:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11	Byte 12
Model ID (See Note)	First defect map entry				Second defect map entry				Third defect map entry			
	Byte 0	Byte 1	Byte 2	Byte 3	Byte 0	Byte 1	Byte 2	Byte 3	Byte 0	Byte 1	Byte 2	Byte 3
	Flag	Address			Flag	Address			Flag	Address		

The model ID field specifies the disk storage type as follows:

Value	Disk Storage Type
04	23 Mb with fixed and movable heads
05	29 Mb with movable heads only
0A	58 Mb with fixed and movable heads
0B	64 Mb with movable heads only

The map entry flag and address (sector, head, and track) fields have the same format as shown in the following sector ID field description, except that flag bit 4 (sector displaced) is never set.

**Note:** The map sector addresses are always logical.

### Disk Storage Sector Contents

Each sector contains a four-byte identifier (ID) field and two 256-byte data fields. The following shows the ID field format:

Byte 0	Byte 1	Byte 2	Byte 3
0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7	0 1 2 3 4 5 6 7
Flags	Sector	Head	Track
V V V V V V V V	0 W W W W W W W X	0 Y Y Y Y Y 0	Z Z Z Z Z Z Z Z

Where:

- V = Sector ID flags
  - Bit 0 = 1 = Data field 2 defective
  - Bit 1 = 1 = Data field 1 defective
  - Bit 2 = 1 = Data field 2 write protected
  - Bit 3 = 1 = Data field 1 write protected
  - Bit 4 = 1 = Sector displaced (pushdown)
  - Bit 5 = 1 = Sector reassigned
  - Bit 6 = 1 = Sector defective
  - Bit 7 = 1 = Alternate sector

W = Hexadecimal sector number

X = Data field designation  
= 0 = Data field 1  
= 1 = Data field 2

Y = Hexadecimal head number

Z = Hexadecimal track number

The following further explains the flag bits; refer to the above listing for the bit meanings:

- All defective sectors have flag bit 6 set.
- The first defective sector of any track establishes the need to use sector displacement (pushdown). This sector has flag bits 4 and 6 set, but not 5, and its sector ID value is hex 40.

**Note:** The head and track values shown are for the current track.

- All sectors that physically follow the defective sector have flag bit 4 set in all sector IDs up to and including sector 32.

**Note:** When the hardware detects an active flag bit 4, it automatically accesses the next physical sector, whose sector ID field (byte 1) contains the logical address.

- A reassigned defective sector has flag bits 5, 6, and either 0 or 1 set.
- An alternate sector used to replace a defective sector has flag bits 5 and 7 set.

## CP652 Routine Description

The following describes the seven Surface Status and Format Utility routines grouped by function:

### Surface Status

**Routine 01 – Moving Head Surface Status.** This routine determines whether moving head surfaces are good or defective by reading each previously selected ID and data field. The read scan begins at the device physical index and ends at sector 32 and, for alternately assigned sectors, the routine accesses and validates the alternate. After scan completion, the routine displays information that includes:

- Alternate assignment information, such as those sectors containing field and factory defects and if they are primary or secondary.
- Sector ID information, such as unreadable or invalid IDs or invalid assignments.
- Data field information, such as unreadable data in either or both sector data fields.

The routine also detects those data fields identified as having a propagated bad CRC that were created by the format routines of this utility.

**Note:** *You can suppress the logging and display of factory defects (see CP653).*

### Formatting

**Routine 02 – Moving Head Formatting.** This routine scans like Routine 01. It performs a surface analysis on all sectors not having manufacturing defects to determine if the disk surface(s) are defective, and logs those sectors that require formatting. It also determines the field defects when the sectors have:

- Defect flags set in the sector ID field.
- An unreadable data field (invalid CRC).
- Data fields that require more than four read retries.
- An ID written to the displaced field.

If the routine determines that a surface is still defective, it leaves the sector ID defect flag set; if it determines that a surface is good, it reclaims the surface by restoring any available data to the sector and making any associated alternate available for subsequent reassignment.

The routine attempts data recovery by reading the sector information a maximum of 128 times. If not successful, the data is considered unrecoverable and the sector data fields are restored with a hex 69 and an invalid CRC field of all zeros. When any routine in this utility recognizes this pattern, it does not consider the surface as defective, although data checks occur when reading it. (The term "propagated bad CRC" refers to this condition.)

After format completion, the routine displays information such as lost data conditions, defective sectors and if they were assigned alternatives, reclaimed sectors, and data fields recovered. It also logs and displays data fields having propagated bad CRCs, but does not log them as errors.

**Note:** *You can suppress the logging and display of factory defects (see CP653).*

**Routine 03 – Fixed Head Formatting.** This routine functions like Routine 02 except that it accesses the fixed head surfaces. If the routine detects a defective sector, it uses the pushdown method to reassign sector addresses; if it reclaims previously flagged defective sectors, it restores all sector addresses within that track to the normal (physical = logical) sequence.

**Note:** *If the routine creates any sector addresses by the pushdown method or removes those that were generated in this manner, it does NOT restore the original data; it replaces the data with zeros and a valid CRC field. The routine logs these conditions as reinitialized sectors.*

**Caution:** **Fixed head tracks cannot have more than one alternate sector assignment (sector 32). If more than one defect occurs on a fixed head surface, the entire track is defective. This routine displays the No Alternate Available message (PA52) for this condition. If you continue running this routine, the sector is flagged as defective with no alternate assignment.**

After format completion, the routine displays information such as lost data conditions, defective sectors and whether they were displaced or flagged as defective with no alternate assigned, and also displays reclaimed sectors and data fields recovered. It logs and displays data fields having propagated bad CRCs, but does not log them as errors.

**Routine 04 – Cylinder 64 Formatting.** This routine formats the cylinder that contains the alternate sectors assigned because of secondary moving head surface defects. Use this routine whenever: (1) invalid alternate assignment errors occur when running Routine 01 or 02, or (2) the No Alternates Available message (PA52) appears for a moving head track. The routine processes each track in ascending order for the surfaces selected. Since manufacturing flags sector 32 as defective, pushdown cannot occur on this cylinder.

**Note:** *If the PA52 message remains after executing this routine, the available alternate assignment space has been exceeded and the disk should be replaced.*

Sector 0 contains the manufacturing defect map; therefore, this routine processes sector 0 uniquely. The defect map data fields are evaluated similarly to a user data area except that the routine always leaves a map and valid CRC in both data fields.

- If one defect map cannot be fetched, it is copied from the other one.
- If both defect maps cannot be fetched, the routine creates a substitute map that contains only the model identification (byte 0) followed by all zeros. If this condition occurs, all previous manufacturing defect information for that surface is lost.

The routine performs surface analysis on the remaining unassigned and field-defective sectors. Sectors that fail surface analysis remain with the sector ID defect flag set; good sectors are made available and unassigned. The routine also performs surface analysis on those sectors having invalid alternate assignments (invalid back pointers).

**Note:** *This invalid condition occurs if the sector ID address points to another sector, but that sector does not point back.*

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## Erase

- If the previously defective sector cannot be accessed, the routine displays the Back Reference Access Error message (PA60).
- If the previously defective sector ID having either normal or pushdown addressing cannot be read, the routine displays the ID Access Error message (PA61).

If either the PA60 or PA61 message appears, run Routine 02 to regenerate the alternate sector assignments. If already done or it did not correct either condition, continue with this routine. The sector is then considered unassigned.

After format completion, the routine displays information such as sector 0 data restoration, ID errors such as invalid alternate, invalid back pointer, or unreadable, and sectors determined as defective either through field or manufacturing assignments. The routine also displays a count of the available unassigned sectors.

**Routine 05 – Moving Head Initial Formatting.** This routine is identical to Routine 02, except that it leaves zeros in the data field with valid CRC. This routine ensures that a valid CRC exists on all sectors analyzed.

**Routine 06 – Defect Map, Sector ID, and Data Field Display.** This routine displays selected sector IDs, manufacturing defect maps, and sector data fields. Each request must be manually selected, and you should be familiar with the ID and manufacturing defect map formats as explained in CP651. The routine displays the unformatted ID fields and generates a code to indicate that the ID was either read normally or from the displaced location.

To display the defect map and data fields, the routine first reads the sector data or the defect map into storage. You can then display any 16-byte segment. The data field request displays on normal 16-byte boundaries; the map request begins with byte 1 and displays byte 0 (model identification) separately.

- The Read Data Compare command fetches the manufacturing defect maps (sector values of 00 or 01).
- The Read Data Normal, Read Data Compare, or Retrieve commands access the sector data fields as follows:
  - The Read Data Normal command accesses the logical sector data fields.
  - The Read Data Compare command accesses the physical sector data fields. It first executes a Read ID-PSC command to the object sector and then uses this ID to generate the Read Data Compare command.
  - The Retrieve command always accesses a physical sector data field and is used to fetch and display those CRCs and data fields that have invalid CRCs and which cannot be accessed by the Read Data Compare command.

## Display

**Routine 07 – Data Erase.**

**Caution: This routine destroys ALL disk data, including the manufacturing defect maps and pushdown address assignments.**

**Note: Use this routine before returning a defective disk.**

This routine writes valid sector IDs in all ID fields and zeros in all data and CRC fields on all movable and fixed head surfaces. It first writes the fixed head tracks and then writes all movable head tracks starting with track 0 and ending with decimal track 359 (hex 167).

The routine displays a special warning and prompt message to prevent accidental execution; you must enter the proper response (7132) for the routine to continue.

**CP653 General Procedure for Potential Disk Storage Surface Defects**

Use this procedure when you suspect that a surface defect caused a disk problem. Analysis of the utility output should be performed by either the support center or by a service representative familiar with disk formatting and contents. Proceed as follows:

1. Identify the failing disk storage PA from either the system message, the action plan, or by asking the customer.
2. If not already done, run the tests on the failing disk storage as follows:
  - a. Using MD diskette 03, select the Free-Lance Utility. Refer to CP462, Free-Lance Utility and CP610, Common Test Invocation.
  - b. At 80BC enter PAB, where PA is the disk storage physical address. At 81BC enter 1B.
  - c. For any failure in the PA1E or PAMI formats, select the FA MAP and perform offline basic checkout option A.
3. Run the disk storage surface status (Routine 01) on all tracks of the failing disk storage as follows:
  - a. Using MD diskette 03 and the Free-Lance Utility:
    - (1) At 80BC enter 60PAC, where PA is the disk storage physical address.
    - (2) At 81BC enter 0001B.
    - (3) At PA01 enter AAAA.
    - (4) At PA02 enter AAAA.

The routine now begins and runs approximately 3 to 4-1/2 minutes for a 65mb disk. The PA33 and PA34 messages appear alternately for each 16 tracks tested, and message PA11 indicates successful routine completion. These are progress indicators that require no response.

- b. If the first two halfword counters are zero, no moving head surface defects were detected, and moving head formatting is not required. You can terminate the program by entering any character other than 2 or 9. See step c(2) below.

- c. If either of the first two halfword counters is not zero, moving head data and/or the alternate assignments were questionable and the disk requires moving head formatting.
- (1) Using CP654 and CP655, examine the output log and note those conditions that indicate field and data defects.
  - (2) Enter one of the following:
    - Enter 2 to continue with the statistics and log display.
    - Enter 9 to run Routine 02, and format the moving heads that were previously specified using the surface and track range selections.
    - Enter any value other than 2 or 9 to terminate the routine.

4. Run Routine 02 to format the moving heads as follows:

**Note:** *This routine runs automatically if invoked from Routine 01 by entering a 9 in the previous step.*

a. Using MD diskette 03 and the Free-Lance Utility:

- (1) At 80BC enter 60PAC, where PA is the disk storage physical address.
- (2) At 81BC enter 0002B.
- (3) At PA01 enter AAAA.
- (4) At PA02 enter AAAA.

The routine now begins and runs approximately 3 to 4-1/2 minutes for a 65mb disk. The actual time varies according to the number of defects. The PA33 and PA34 progress messages appear alternately for each 16 tracks tested, and the following messages indicate routine completion:

- PA20 — Sectors good; no errors detected.
- PA21 — Defects found but all defective sectors were processed successfully and data fields were restored.
- PA22 — Defective sectors found and some data field contents lost.

b. Examine the output log and statistics counters. Those sectors flagged as unformatted by Routine 01 should have been formatted by this routine.

- Defective data conditions now appear as either Sector Data Successfully Restored or as Data Lost, with an invalid CRC. The Data Lost condition is critical for customer disk restoration.
- Sectors that indicated defects are now alternately assigned if the surface was defective; if not, the sector is logged as Restored.
- Sectors that were alternately assigned before running this routine are now reclaimed if the routine determined that the surface was not defective.
- Primary (pushdown) and secondary (alternately assigned) manufacturing defects are logged as a result of both status and formatting, but are not modified by formatting.

c. If the routine detected defects (PA21 or PA22 messages), go to step 5 and run Routine 04.

d. If the routine did not detect defects (PA20 message), go to step 6 and run Routine 03.

5. Run Routine 04 to format cylinder 64 as follows:

a. Using MD diskette 03 and the Free-Lance Utility:

- (1) At 80BC enter 60PAC, where PA is the disk storage physical address.
- (2) At 81BC enter 0004B.
- (4) At PA02 enter AAAA.

The routine now begins and runs approximately 10 minutes. The actual time varies inversely with the number of assigned alternates on the cylinder. The PA33 and PA34 progress messages appear alternately for each track processed, and the following messages indicate routine completion:

- PA20 — Sectors good; no errors detected.
- PA21 — Defects found but all defective sectors were successfully restored.
- PA22 — Defective sectors found but were left with defect flags.

b. Examine the log to specifically determine the cylinder condition. Customer data cannot be restored since the alternately assigned data fields were not processed. (Routine 02 processed these fields.) Go to step 6.

6. Check the last digit of the 8130/8140 model number on the operator panel address label to determine if the disk has fixed heads:

- 8130 and 8140 Models AX2 and AX4 have one fixed-head disk drive.
- 8140 Models BX1 have one fixed-head disk drive.
- 8140 Models BX2 have two disk drives but only one with fixed heads.

For any of the above models, go to step 7; if not, terminate the routine.

7. For machines having a fixed-head disk drive, run Routine 03 to format the fixed heads as follows:

a. Using MD diskette 03 and the Free-Lance Utility:

- (1) At 80BC enter 60PAC, where PA is the disk storage physical address.
- (2) At 81BC enter 0003B.
- (4) At PA04 enter AAAA.

The routine now begins and runs approximately 6 minutes. The actual time varies according to the number of defective surfaces detected. The PA33 and PA34 progress messages appear alternately for each fixed head track processed, and the following messages indicate routine completion:

- PA20 — Sectors good; no errors detected.
- PA21 — Defects found but all defective tracks were successfully restored.
- PA22 — Defects found but some data was lost.

**Note:** *If using either DPPX or DPCX, IPL restores the lost data indicated by the PA22 message and further determination of the lost data location is not required.*

The Disk Storage Surface and Format Utility resides on MD diskette 03 and is selected and run offline by using the Free-Lance Utility. Proceed as follows:

1. Using MD diskette 03, select the Free-Lance Utility. Refer to CP462 if necessary.
2. At 80BC, enter 60PAC, where:

PA = Disk storage physical address. Valid PAs are 80 (8130 and 8140 Models AXX), 84 and 85 (8140 Models BXX), 90, A0, B0, and C0 (8101), and 91, A1, B1, and C1 (8101 Model A25).

C = C = Utility delimiter value

At 81BC, enter 00RRB, where:

RR = Routine number

- 01 = Moving Head Surface Status
- 02 = Moving Head Formatting
- 03 = Fixed Head Formatting
- 04 = Cylinder 64 Formatting
- 05 = Moving Head Initial Formatting
- 06 = Defect Map, Sector ID, and Data Field Display
- 07 = Data Erase

B = Begin

3. For Routines 01, 02, and 05, go to step 4; for Routine 03, go to step 6; for Routine 04, go to step 7; for Routine 06, go to step 8; for Routine 07, go to step 9.

4. At PA01, enter the range of tracks to be used in the format FFFFTTTTX or AAAAX, where:

FFFF = the hex value of the starting track

TTTT = the hex value of the ending track

X = F = suppress all manufacturing defect information. (If not specified or for any other value, the utility detects and logs these defects.)

The track values are entered in hex, right-justified. For a single track, enter the same starting and ending track value. The maximum range is 00–359 decimal or 00–167 hex. The utility skips track 64 when formatting if it is within the range specified.

Examples:

- To select tracks 10 through 20 (decimal), at PA01 enter 000A0014, where:  
hex 000A = decimal 10  
hex 0014 = decimal 20
- To select only track 359 (decimal), at PA01 enter 01670167, where:  
hex 0167 = decimal 359
- To select all moving head tracks within the specified surface range, at PA01 enter AAAA.

5. At PA02, enter the range of surfaces to be used in the format FFTT or AAAA, where:

FF = the hex value of the starting surface

TT = the hex value of the ending surface

AAAA = AAAA = select all surfaces

The following table shows the surface, head, and byte information by model:

Machine Type	Model	Surface Range	Fixed Heads	Movable Head Byte Capacity
8130/40/01	AX1	00–04	No	29M
8130/40	AX2	01–04	Yes	23M
8130/40/01	AX3	00–0A	No	64M
8130/40	AX4	01–0A	Yes	58M
8140	BX1	01–0A	Yes	58M
8140	BX2	00–0A 01–0A	No Yes	64M 58M
8101	A25	00–0A 00–0A	No No	64M 64M

Examples:

- To select surfaces 01 through 03, at PA02 enter 0103.
- To select only surface 10 (decimal), at PA02 enter 0A0A, where:  
hex 0A = decimal 10
- To select all surfaces, at PA02 enter AAAA.

6. At PA04, enter the range of fixed heads to be used in the format FFTT or AAAA, where:

FF = the hex value of the starting fixed head

TT = the hex value of the ending fixed head

AAAA = AAAA = select all fixed heads

The fixed-heads are numbered from 00 to 07 and, if installed, all eight are present. For a single fixed head selection, enter the same starting and ending head number value.

Examples:

- To select fixed head numbers 01 through 03, at PA04 enter 0103.
- To select only fixed head number 5, at PA04 enter 0505.
- To select all fixed heads, at PA04 enter AAAA.



7. At PA02, enter the range of surfaces to be used in the format FFTT or AAAA, where:

- FF = the hex value of the starting surface
- TT = the hex value of the ending surface
- AAAA = select all surfaces

**Note:** *Since this routine is run when no more alternates are available on track 64 for all surfaces, you should normally select the AAAA option. Refer to the chart in step 5 for surface ranges.*

8. At PA36, enter one of the following:

- 1SSHTTT to display a sector ID. Go to step a.
- 2SSH to display a factory defect map. Go to step b.
- 3SSHTTT to display a data field using a normal read function. Go to step c.
- 4SSHTTT to display a data field using a read compare function. Go to step d.
- 5SSHTTT to display a data field using a retrieve function. Go to step e.

Where:

- SS = Sector to be accessed.
- H = Head (surface) to be accessed.
- TTT = track to be accessed. Enter FFF to access fixed heads.

See message PA36 in CP655 for more detail.

a. Message PA39 displays the ID exactly as read from the disk. To continue, enter one of the following:

- To display sector 0 of the same track, enter 1.
- To display the next sequentially higher ID, enter 2. (If at sector 31, this option displays sector 0.)
- To display the next sequentially lower ID, enter 3. (If at sector 0, this option displays sector 31.)
- To display the spare sector (32) ID, enter 4.
- To return to the PA36 message, enter any value other than 1, 2, 3, or 4.

b. Message PA38 displays the manufacturing defect map. See CP655 for more detail. The model identification byte (0) displays as a unique field and the remainder of the map displays in 16-byte segments, with bytes 1 through 16 displayed first. To continue, enter one of the following:

- To display the beginning (bytes 1-16) of the map, enter 1.
- To display the next 16 bytes, enter 2. (If at map displacement hex F1, this option displays location hex 01.)
- To display the previous 16 bytes, enter 3. (If at map displacement hex 01, this option displays location hex F1.)
- To display the end of the map, enter 4.
- To display a particular byte, enter 5X, where X is the displacement in hex from the present map location.
- To return to the PA36 message, enter any value other than 1, 2, 3, 4, or 5.

c. Message PA37 displays the data field in 16-byte segments as read from the disk, with bytes 0-15 displayed first. See CP655 for more detail. To continue, enter one of the following:

- To display the beginning (bytes 0-15) of the data field, enter 1.
- To display the next 16 bytes, enter 2. (If at displacement hex F0, this option displays location 00.)
- To display the previous 16 bytes, enter 3. (If at displacement 00, this option displays location hex F0.)
- To display the end of the data field, enter 4.
- To display a particular byte, enter 5X, where X is the displacement in hex from the present data field location.
- To return to the PA36 message, enter any value other than 1, 2, 3, 4, or 5.

d. Routine 06 reads the data field at the physical sector address specified.

- If the data read compare is successful, the data field is displaced the same as when using the normal read data operation as in step c.
- If the ID field of the requested sector cannot be read, this option displays the PA37 message with a request completion code of 04. When this occurs, you should display the ID and retrieve the data field.

e. The routine retrieves the data field at the physical sector address specified. This occurs regardless of the sector condition (invalid or unreadable IDs, data fields, or CRCs), and the data field displays the same as for a normal read in step c.

**9. Caution: Routine 07 overwrites (erases) the entire disk, including all manufacturing defect information. Use this routine only to destroy disk data just prior to removing the disk.**

At PA07, enter:

- 7132 to erase all disk data.
- Any other value to terminate the routine.

The routine runs for approximately 10 minutes and displays progress messages PA33 and PA34. PA71 indicates routine completion, and the first count field shows the number of sectors not overwritten successfully.

CP655 Utility Message Descriptions and Actions

The following list describes the messages used for the Disk Storage Surface Status and Format Utility, and also lists the responses to them. As not all messages occur for each routine, they are so indicated.

Message	Used in Routine(s)	Description	Action
PA01	01, 02, 05	Prompt for track selection.	Enter hex track selection using the format AAAAX or YYYYZZZX, where: AAAA = Select all tracks X = F = Suppress all manufacturing defect information YYYY = First track tested ZZZZ = Last track tested  See CP654 for more details.
PA02	01, 02, 04, 05	Prompt for surface (moving head) selection.	Enter the hex head selection using the format AAAA or YYZZ, where: AAAA = Select all heads YY = First head selected ZZ = Last head selected  See CP654 for more details.
PA04	03	Prompt for surface (fixed head) selection.	Enter the head selection (0-7) using the format AAAA or YYZZ, where: AAAA = Select all heads YY = First head selected ZZ = Last head selected  See CP654 for more details.
PA11	01	Eight-byte surface status message, where: Bytes 0, 1 = PA11 Bytes 2, 3 = Defective sector count (same as message 1010 in the PA30 message) Bytes 4, 5 = Alternate assignment sector count Bytes 6, 7 = Number of error log entries	<ul style="list-style-type: none"> <li>● Enter 2 to display the next message (PA30).</li> <li>● Enter 9 to terminate the display and begin Routine 02. (Routine 01 only)</li> <li>● Enter any value other than 2 or 9 to terminate the display routine.</li> </ul>

Message	Used in Routine(s)	Description	Action
PA12	01-05, 07	Defective sector found during surface status. Message meaning: Bytes 0, 1 = PA12 Bytes 2, 3 = STTT, where: S = sector surface value entered TTT = track address value entered Byte 4 = sector address value and data field entered Byte 5 = sector condition description code, where: 11 = Data field 1 has invalid CRC. 12 = Data field 2 has invalid CRC. 13 = Both data fields have invalid CRC. 15 = Unreadable sector ID. 16 = Sector ID has defect flag set.	<ul style="list-style-type: none"> <li>● Enter 1 to restart display.</li> <li>● Enter 2 to display next message.</li> <li>● Enter 3 to display last message.</li> <li>● Enter 4 to display last entry.</li> <li>● Enter 5STTT to search user-requested head and track.</li> <li>● Enter D to display unformatted log entry (message PA98).</li> <li>● Enter any other value than 9 or those specified above to display the end of the log (see message PA99).</li> </ul>
PA13	01-05, 07	Sectors alternately assigned or have manufacturing pushdown address assignments. Message meaning: Bytes 0, 1 = PA13 Bytes 2, 3 = STTT, where: S = sector surface value entered TTT = track address value entered Byte 4 = sector address value and data field entered Byte 5 = sector condition description code, where: 1A = Assigned as alternate by manufacturing 1B = Field-assigned to sector 32 1C = Field-assigned to cylinder 64 1D = Pushed down by manufacturing	<ul style="list-style-type: none"> <li>● Enter 1 to restart display.</li> <li>● Enter 2 to display next message.</li> <li>● Enter 3 to display last message.</li> <li>● Enter 4 to display last entry.</li> <li>● Enter 5STTT to search user-requested head and track.</li> <li>● Enter D to display unformatted log entry (message PA98).</li> <li>● Enter any other value than 9 or those specified above to display the end of the log (see message PA99).</li> </ul>

Message	Used in Routine(s)	Description	Action
PA14	01-05, 07	<p>Invalid data field CRC because of pattern previously set by utility. (CRC generated for data field of hex 6969). NOT A LOST DATA CONDITION. Message meaning:</p> <p>Bytes 0, 1 = PA14  Bytes 2, 3 = STTT, where:</p> <p style="padding-left: 40px;">S = sector surface value entered  TTT = track address value entered</p> <p>Byte 4 = sector address value and data field entered  Byte 5 = sector condition description code, where:</p> <p style="padding-left: 40px;">11 = Invalid CRC in first data field  12 = Invalid CRC in second data field  13 = Invalid CRC in both data fields</p>	<ul style="list-style-type: none"> <li>● Enter 1 to restart display.</li> <li>● Enter 2 to display next message.</li> <li>● Enter 3 to display last message.</li> <li>● Enter 4 to display last entry.</li> <li>● Enter 5STTT to search user-requested head and track.</li> <li>● Enter D to display unformatted log entry (message PA98).</li> <li>● Enter any other value than 9 or those specified above to display the end of the log (message PA99).</li> </ul>
PA1E	All	<p>Disk error.</p> <p>Message meaning:</p> <p>Bytes 0, 1 = PA1E  Bytes 2, 3 = RREN  Bytes 4, 5 = Disk basic status, where:</p> <p style="padding-left: 40px;">PA = Disk storage physical address  1E = Error occurred  RR = Routine number  EN = Error number  = 55 = First disk access failed  = 56 = No disk interrupt after I/O operation  = 57 = Disk returned unexpected status</p> <p>This message terminates the utility.</p>	<ol style="list-style-type: none"> <li>1. Ensure that the disk configuration entry is correct.</li> <li>2. Using MD diskette 03, select the FA MAP and perform offline basic checkout option A.</li> <li>3. Request aid.</li> </ol>

Message	Used in Routine(s)	Description	Action
PA20	02-05	<p>No defects found. No formatting done.</p> <p>Message meaning:</p> <p>Bytes 0, 1 = PA20  Bytes 2, 3 = Not used = 0000  Bytes 4, 5 = Not used = 0000  Bytes 6, 7 = Number of error log entries</p>	None
PA21	02-05	<p>Defects found but all data restored.</p> <p>Message meaning:</p> <p>Bytes 0, 1 = PA21  Bytes 2, 3 = Number of sectors formatted successfully  Bytes 4, 5 = Number of data fields restored successfully (same as 0909 and 1111 fields in PA30)  Bytes 6, 7 = Number of error log entries</p>	None
PA22	02-05	<p>Defects found. All data not recovered.</p> <p>Message meaning:</p> <p>Bytes 0, 1 = PA22  Bytes 2, 3 = Number of defective sectors (same as 1010 plus 0202 through 0505 fields in PA30)  Bytes 4, 5 = Number of lost data fields (same as 0808 field in PA30 message)  Bytes 6, 7 = Number of error log entries</p>	None
PA23	02-05, 07	<p>I/O errors on read data. 128 retries exceeded. Data not recovered. LOST DATA CONDITION. Sector data left as hex 6969 with invalid CRC.</p> <p>Message meaning:</p> <p>Bytes 0, 1 = PA23  Bytes 2, 3 = STTT, where:</p> <p style="padding-left: 40px;">S = sector surface value entered  TTT = track address value entered</p> <p>Byte 4 = sector address value and data field entered  Byte 5 = sector condition description code, where:</p> <p style="padding-left: 40px;">21 = Invalid CRC in first data field  22 = Invalid CRC in second data field  23 = Invalid CRC in both data fields  24 = Data lost to end of track (fixed heads only)</p>	<ul style="list-style-type: none"> <li>● Enter 1 to restart display.</li> <li>● Enter 2 to display next message.</li> <li>● Enter 3 to display last message.</li> <li>● Enter 4 to display last entry.</li> <li>● Enter 5STTT to search user-requested head and track.</li> <li>● Enter D to display unformatted log entry (message PA98).</li> <li>● Enter any other value than 9 or those specified above to display the end of the log (message PA99).</li> </ul>

Message	Used in Routine(s)	Description	Action																				
PA24	02-05	<p>Sectors are either (1) alternately assigned (found defective by formatting), (2) reclaimed (found alternately assigned with a good surface), or (3) have pushdown deleted on fixed head tracks. The sector description code indicates this condition, but should never appear for manufacturing defects. Message meaning:</p> <p>Bytes 0, 1 = PA12 Bytes 2, 3 = STTT, where S = sector surface value entered TTT = track address value entered</p> <p>Byte 4 = sector address value and data field entered Byte 5 = sector condition description code, where: 26 = Alternately assigned defective sector 27 = Sector ID field successfully restored 28 = Sector reclaimed as not defective 29 = Unassigned defective sector 2A = Sector defective and data lost to 2B = Sector data fields successfully restored</p>	<ul style="list-style-type: none"> <li>Enter 1 to restart display.</li> <li>Enter 2 to display next message.</li> <li>Enter 3 to display last message.</li> <li>Enter 4 to display last entry.</li> <li>Enter 5STTT to search user-requested head and track.</li> <li>Enter D to display unformatted log entry (message PA98).</li> <li>Enter any other value than 9 or those specified above to display the end of the log (message PA99).</li> </ul>																				
PA30	01-05, 07	<p>Statistics counter; displayed as a single 30-byte hex message in the following format:</p> <table border="1"> <tr> <td>PA30</td> <td>0101</td> <td>0202</td> <td>0303</td> </tr> <tr> <td>0404</td> <td>0505</td> <td>0606</td> <td>0707</td> </tr> <tr> <td>0808</td> <td>0909</td> <td>1010</td> <td>1111</td> </tr> <tr> <td>1212</td> <td>1313</td> <td>1414</td> <td></td> </tr> </table> <p>Where: Bytes 0, 1 = PA30 Bytes 2-29 = Routine-dependent fields whose meanings are as follows:</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Meaning</th> </tr> </thead> <tbody> <tr> <td>0101</td> <td> <p>Total Defective Sectors: A count of all unreadable or invalid IDs, all sectors containing bad data CRC, and all sectors flagged as defective either in the field or in manufacturing, whether reassigned or not.</p> </td> </tr> </tbody> </table>	PA30	0101	0202	0303	0404	0505	0606	0707	0808	0909	1010	1111	1212	1313	1414		Field	Meaning	0101	<p>Total Defective Sectors: A count of all unreadable or invalid IDs, all sectors containing bad data CRC, and all sectors flagged as defective either in the field or in manufacturing, whether reassigned or not.</p>	<ul style="list-style-type: none"> <li>Enter 2 to display the next message (PA12 through PA24).</li> <li>Enter 9 to terminate the display and begin Routine 02 (Routine 01 only).</li> <li>Enter any value other than 2 or 9 to terminate the display.</li> </ul>
PA30	0101	0202	0303																				
0404	0505	0606	0707																				
0808	0909	1010	1111																				
1212	1313	1414																					
Field	Meaning																						
0101	<p>Total Defective Sectors: A count of all unreadable or invalid IDs, all sectors containing bad data CRC, and all sectors flagged as defective either in the field or in manufacturing, whether reassigned or not.</p>																						

Message	Used in Routine(s)	Description		Action
		Field	Meaning	
	01, 02, 04, 05	0202	<p>Manufacturing Primary Defective Sectors:</p> <p>For moving head surfaces, this count is the total number of sectors flagged defective that create sector displacement (pushdown) on a particular track.</p>	
	03		<p>For fixed head surfaces, this count is the number of track displacement (pushdown) conditions detected that have an entry in the manufacturing defect map.</p> <p><i>Note: You cannot determine if a sector was a manufacturing or a field defect by examining the sector ID fields.</i></p>	
	01	0303	<p>Field Primary Defective Sectors:</p> <p>The total count of all sectors found alternately assigned to sector 32 of the current track (not pushed down).</p>	
	02, 04, 05		<p>The total count of defective sectors left assigned to sector 32 of the current track.</p>	
	03		<p>The total field defect count of sectors left pushed down to sector 32 of the current track. Field-defective sectors do not have an entry in the manufacturing defect map.</p> <p><i>Note: This condition cannot occur for cylinder 64, which has all sector 32s flagged by manufacturing as defective and therefore cannot be alternately assigned or displaced.</i></p>	

Message	Used in Routine(s)	Description		Action
		Field	Meaning	
	01, 02, 05	0404	<p>Manufacturing Secondary Defective Sectors:</p> <p>The count of the defective sectors that are alternately assigned to cylinder 64 and which are designated by having entries in the manufacturing defect map.</p>	
	03		<p>This condition cannot occur because two or more fixed head defective sector surfaces detected by manufacturing is criteria for disk rejection.</p>	
	04		<p>The count of defective sectors that are alternately assigned to cylinder 64 and which are designated by entries in the manufacturing defect map.</p>	
	01	0505	<p>Field Secondary Defective Sectors:</p> <p>The total count of the sectors found alternately assigned to cylinder 64 and which are not in the manufacturing defect map.</p>	
	02, 05		<p>The total count of defective sectors left alternately assigned to cylinder 64 and which are designated as manufacturing defects in the defect map.</p> <p><i>Note: This count cannot be zero for fixed head surfaces if a second defect is detected on a single track. If this occurs, the PA52 message precedes this condition.</i></p>	
	04		<p>The total count of sectors determined to be defective on the cylinder, and which are not designated as manufacturing defects in the defect map. These sectors are left with the defective and reassigned (to itself) flags set in the ID field.</p>	

Message	Used in Routine(s)	Description		Action
		Field	Meaning	
	02, 04, 05	0606	<p>Sectors Reclaimed:</p> <p>The count of all sectors that were previously flagged as defective (alternately assigned or not), and which were determined to have good surfaces by the analysis portion of the routine. If the sector had been alternately assigned, the previously assigned alternate (primary or secondary) has been "unassigned" (sector ID assignment and defect flags set to zero), but not subjected to surface analysis.</p>	
	01-05	0707	<p>Invalid or Unreadable ID Fields:</p> <p>The count of all sectors for which the sector ID field could not be read (bad CRC on the Read ID request), and the count of all sectors for which the sector ID field was invalid. The format functions always attempt to restore the sector ID fields. If an ID field cannot be restored, the routine displays the PA51 message. There is no counter for ID fields that cannot be written.</p>	
	01-05	0808	<p>Unreadable Data Fields:</p> <p>This count is the total of all data fields (not sectors) for which 128 read attempts were not successful. The count does not include the "propagated bad CRC" data field count.</p>	
	01-04	0909	<p>Detected Propagated Bad CRC Data Fields:</p> <p>This count is the total of all data fields (not sectors) that were found to contain the invalid CRC code created by a previous execution of a utility format function, and is not an error condition.</p>	
	05		<p>This count is the total of the data fields (not sectors) that have been reinitialized with zeros in the data fields and with good CRC. These fields had previously contained an invalid data CRC (see field 0808) or had contained the propagated bad CRC code. All other data fields remain unmodified by this routine.</p>	

Message	Used in Routine(s)	Description		Action
		Field	Meaning	
	01-05	1010	<b>Total Field Defects:</b> This count contains the same information as field 0101, except that sectors found defective by manufacturing are not included.	
	01 02-05	1111	<b>Data Fields Restored Successfully:</b> Always zero. This count is the number of sectors that were subject to surface analysis and which had their data fields successfully restored. Generally, this occurs when a retry greater than 4 but less than 128 is necessary to read the data fields from a particular sector.	
	04 01, 03-05	1212	<b>Cylinder 64 Available Alternates:</b> This is the total count of sectors available for alternate assignment on cylinder 64. Always zero.	
		1313	<b>Wrap Flag:</b> This flag indicates that the log area has been filled, and that log data has been lost. This flag is normally zero, and if not, the PA65 message occurs.	
		1414	Not Used. Set to FFFF.	
PA33	01-05	Progress message that alternates with message PA34. Displays once for each 16 tracks processed by Routines 01, 02, and 05 and for every track processed by Routines 03 and 04. Bytes 0, 1 = PA33 Bytes 2, 3 = HTTT, where: H = head currently being processed TTT = track currently being processed		None

Message	Used in Routine(s)	Description	Action
PA34	01-05	Progress message that alternates with message PA33. Displays once for each 16 tracks processed by Routines 01, 02, and 05 and for every track processed by Routines 03 and 04. Bytes 0, 1 = PA34 Bytes 2, 3 = HTTT, where: H = head currently being processed TTT = track currently being processed	None
PA36	06	Used to invoke Routine 06 to display the defect map, IDs, and data fields.	<ul style="list-style-type: none"> <li>● Enter 1SSHTTT to display the sector ID.</li> <li>● Enter 2SSH to display the manufacturing defect map.</li> <li>● Enter 3SSHTTT to display a data field having a logical sector address.</li> <li>● Enter 4SSHTTT to display the data field of an object (current) sector.</li> <li>● Enter 5SSHTTT to display a data field having a physical sector address. Where:     SS = Sector to be displayed in hex times 2 plus the data field designated in the low bit.     H = Head (surface) to be displayed in hex. Can be 0 to A, depending on configuration.     TTT = Track to be displayed in hex. Can be 000 to 167 for moving heads and FFF for fixed heads.</li> <li>● To exit the routine, enter any value other than those specified above.</li> </ul>

Message	Used in Routine(s)	Description	Action
PA37	06	<p>Data field display. The data displays in 16-byte segments. The displacement field (bytes 6 and 7) determines which segment is displayed and has values in increments of hex 10, such as 00, 10, 20 . . . . F0 for both display normal and display compare requests.</p> <ul style="list-style-type: none"> <li>• The Read Data Normal request accesses the logical sector.</li> <li>• The Read Data Compare request first executes a Read ID PSC to the object sector. The object sector is then generated from this accessed ID field.</li> <li>• The Data Field Retrieve request immediately accesses the physical sector.</li> </ul> <p>Message meaning:            Bytes 0, 1 = PA37            Byte 2 = request completion code, where:                01 = sector data field fetched                03 = sector data field could not be read                04 = sector ID field could not be read (Read Data Compare request only)</p> <p>Byte 3 = requested data field (hex 00 to 41)            Bytes 4, 5 = H T T T, where:                H = requested head (surface) address                T T T = requested track address</p> <p>Bytes 6, 7 = displacement field            Bytes 8–23 = display data            Bytes 24–25 = CRC data for data field            Bytes 26–31 = not used</p>	<ul style="list-style-type: none"> <li>• Enter 1 to display start of data field (bytes 8-23).</li> <li>• Enter 2 to display next 16 bytes.</li> <li>• Enter 3 to display previous 16 bytes.</li> <li>• Enter 4 to display last 16 bytes.</li> <li>• Enter 5X to display a particular displacement, where X = 0 through F.</li> <li>• Enter any value other than 1, 2, 3, 4, or 5 to return to the PA36 message.</li> </ul>

Message	Used in Routine(s)	Description	Action
PA38	06	<p>Manufacturing defect map display. This map displays in 16-byte segments. The displacement field (bytes 6 and 7) determines which segment is displayed and has values in increments of hex 10, such as 01, 11, 21 . . . . F1. The last digit being a 1 allows the map display to begin after the model byte (5).</p> <p>Message meaning:            Bytes 0, 1 = PA38            Byte 2 = request completion code, where:                01 = map data field read normally                03 = map data field could not be read</p> <p>Byte 3 = requested map data field (00 or 01)            Byte 4 = H0, where:                H = requested head (surface) address</p> <p>Byte 5 = first byte of map data field (model code)            Bytes 6, 7 = displacement field            Bytes 8–23 = map display            Bytes 24–25 = CRC data for map field            Bytes 26–31 = not used</p>	<ul style="list-style-type: none"> <li>• Enter 1 to display start of map (bytes 8–23).</li> <li>• Enter 2 to display next 16 bytes.</li> <li>• Enter 3 to display previous 16 bytes.</li> <li>• Enter 4 to display last 16 bytes.</li> <li>• Enter 5X to display a particular displacement, where X = 0 through F.</li> <li>• Enter any value other than 1, 2, 3, 4, or 5 to return to the PA36 message.</li> </ul>
PA39	06	<p>Sector ID display message. Message meaning:            Bytes 0, 1 = PA39            Byte 2 = request completion code, where:                01 = sector ID read normally                02 = sector ID read from displaced field                03 = sector ID could not be read from either field</p> <p>Byte 3 = requested sector address            Bytes 4, 5 = H T T T, where:                H = requested head (surface) address                T T T = requested track address</p> <p>Bytes 6, 7 = 0000            Bytes 8–15 = unmodified sector ID            Bytes 24–31 = not used</p>	<ul style="list-style-type: none"> <li>• Enter 1 to display the sector 0 ID.</li> <li>• Enter 2 to display the next sequentially higher ID.</li> <li>• Enter 3 to display the next sequentially lower ID.</li> <li>• Enter 4 to display the sector 32 ID.</li> <li>• Enter any value other than 1, 2, 3, or 4 to return to the PA36 message.</li> </ul>

Message	Used in Routine(s)	Description	Action
PA51	02-05	Sector ID cannot be written to either the normal or displaced fields. The disk drive should be replaced. Message meaning: Bytes 0, 1 = PA51 Byte 2 = failing sector address Bytes 3, 4 = failing head and track address	<ul style="list-style-type: none"> <li>Enter any value other than 1 to terminate the routine and display the log data.</li> <li>Enter 1 to continue with the next track.</li> </ul>
PA52	02-05	No alternate sectors available for defective sector reassignment. If failure occurs in Routine 03, a second defective sector was detected on a fixed head track.	<ol style="list-style-type: none"> <li>If using Routine 02 or 05, run Routine 04.</li> <li>If still failing or if failure occurred in Routine 03, replace the disk drive.</li> </ol> <ul style="list-style-type: none"> <li>Enter any value other than 1 to terminate the routine and display the log data.</li> <li>Enter 1 to continue with the next track.</li> </ul>
PA53	04	The manufacturing defect map cannot be restored successfully. Log entries should describe the recovery errors for this sector.  <b>Note:</b> <i>Unusual circumstances occurred. For this failure, the map data fields would have to be restored successfully and then fail on a subsequent Read Data Compare operation.</i>  Message meaning: Bytes 0, 1 = PA53 Byte 2 = failing sector address Bytes 3, 4 = failing head and track address	<ul style="list-style-type: none"> <li>Enter any value other than 1 to terminate the routine and display the log data.</li> <li>Enter 1 to continue with the next track.</li> </ul>
PA56	All	I/O timeout occurred. The adapter or device failed to interrupt the processor. I/O initialization completed successfully. See also messages PA57 and PA1E. Message meaning: Bytes 0, 1 = PA1E = hardware error Byte 2 = routine number Byte 3 = 56 Bytes 4-11 = last processed FCBs Bytes 12, 13 = expected basic status Bytes 14, 15 = actual basic status Bytes 16, 17 = residual count Bytes 18, 19 = seek status Bytes 20, 21 = NFR Bytes 22, 23 = FCB status  The utility immediate terminates.	Perform the actions described in the PA1E message.

Message	Used in Routine(s)	Description	Action
PA57	All	Device or adapter check caused an I/O interrupt error. I/O initialization completed successfully. See also messages PA56 and PA1E. Message meaning:  All bytes same as PA56, except: Byte 3 = 57  The utility immediately terminates.	Perform the actions described in the PA1E message.
PA60	04	Alternate sector points back to a sector whose ID could not be read. Could not determine if the sector is a correctly assigned alternate. Message meaning: Bytes 0, 1 = PA60 Byte 2 = failing sector address Bytes 3, 4 = failing head and track address	<ol style="list-style-type: none"> <li>Note the failing ID from the message.</li> <li>For the first occurrence, enter any value other than 1 to terminate the routine and display the log data.</li> <li>Run Routines 01 and 02 using the failing head and track address to recover the alternate assignment chain if possible.</li> </ol>
PA61	04	Could not read sector ID (other than sector 0) on track 64. If sector is a correctly assigned alternate (could not be determined), continuing the routine destroys the alternate assignment data. Message meaning: Bytes 0, 1 = PA61 Byte 2 = failing sector address Bytes 3, 4 = failing head and track address	<ol style="list-style-type: none"> <li>Enter any value other than 1 to terminate the routine and display the log data.</li> <li>Run Routines 01 and 02 to recover the alternate assignment chain if possible.</li> <li>Enter 1 to continue with next track.</li> </ol>
PA65	01, 02, 03, 05, 07	Error log defective sector area full. 510 sector defects have been recorded. The sector being processed when this message appears is the last log entry; therefore, terminating the routine does not lose data. If continuing, no further logging occurs but the routine continues normally and increments the statistics counters.  <b>Note:</b> <i>Hardware problems can exist if the log contains entries for all or most all sectors or entries for specific sector patterns. If the message appears in Routine 07, serious adapter or other hardware problems most likely exist.</i>	<ol style="list-style-type: none"> <li>Enter any value other than 1 to terminate the routine and display the log data.</li> <li>Examine the output log.</li> <li>Again run the routine beginning at a track and surface to overlay the last sector logged on the initial pass.</li> <li>Enter 1 to continue with next track.</li> </ol>



Message	Used in Routine(s)	Description	Action
PA66	01, 02, 03, 05	Neither manufacturing defect map could be read. If continuing, the routine assumes that no manufacturing secondary defects or fixed head defects exist. Message meaning: Bytes 0, 1 = PA66 Bytes 2, 3 = surface containing the failing defect map	<ul style="list-style-type: none"> <li>Enter 1 to continue with next track.</li> <li>Enter any other value to terminate routine and display log data.</li> </ul>
PA67	01, 02, 03, 05	Defect map model byte does not correspond to configuration table. Probable configuration table error. Message meaning: Bytes 0, 1 = PA67 Bytes 2, 3 = surface containing the failing model byte	<ul style="list-style-type: none"> <li>Enter 1 to continue with next track.</li> <li>Enter any other value to terminate routine and display log data.</li> </ul>
PA70	07	Data erase routine input caution message.	<ul style="list-style-type: none"> <li>Enter 7132 to erase (overwrite) the disk.</li> <li>Enter any other value to terminate the routine.</li> </ul>
PA71	07	Data erase routine complete. Sectors labeled Defective/Unassigned in error log. See also PA24 and PA29. Message meaning: Bytes 0, 1 = PA71 Bytes 2, 3 = XXXX Bytes 4, 5 = 0000 Bytes 6, 7 = YYYY  Where: XXXX = Sectors not successfully overwritten (should be 0000). YYYY = Number of error log entries.	<ul style="list-style-type: none"> <li>Enter 2 to display statistics (PA30 message).</li> <li>Enter any value other than 2 to terminate the routine.</li> </ul>
PA81	01, 02, 05	Invalid response for the track entry.	Enter any response to return to the PA01 entry.
PA82	01, 02, 05	Invalid response for the surface entry.	Enter any response to return to the PA02 message.
PA83	01, 02, 05	Invalid response for the track range entry (first value greater than second).	Enter any response to return to the PA01 message.
PA84	01, 02, 03, 05	Invalid response for either the head (PA04) or surface (PA02) entry (first value greater than second).	Enter any response to return to either the PA02 or PA04 message.
PA85	03	No fixed heads configured for the device. Routine terminated.	Ensure that the device entry in the configuration table is correct.

Message	Used in Routine(s)	Description	Action
PA86	03	Invalid response for the head entry.	Enter any response to return to the PA04 message.
PA98	06	<p>Unformatted log entry display. This message displays all available information concerning a particular sector, but is more difficult to interpret than a formatted log entry.</p> <p>Message format:</p> <p>Bytes 0, 1 = PA98 Bytes 2–5 = Complete formatted log entry Bytes 6–9 = Flags, where: Byte 6 = Found data states Bit 0 = primary or alternate sector ID could not be read (I/O error) Bit 1 = invalid sector ID (not an alternate assignment) Bit 2 = sector defective and unassigned or defined as primary defect by pushdown Bit 3 = always zero, which defines a valid log entry Bit 4 = invalid data CRC on first data field Bit 5 = invalid data CRC on second data field Bit 6 = propagated bad CRC on first data field Bit 7 = propagated bad CRC on second data field Byte 7 = Found abnormal conditions Bit 0 = sector has primary defect Bit 1 = sector has secondary defect Bit 2 = sector has manufacturing defect Bit 3 = sector has invalid assignment Bit 4–7 = not used = 0000 Byte 8 = Modified data states Bit 0 = fixed head track data lost (reinitialized data fields) Bit 1 = sector data fields recovered successfully Bit 2 = not used = 0 Bit 3 = not used = 0 Bit 4 = invalid data CRC left on first data field (should not occur)</p>	<ul style="list-style-type: none"> <li>Enter 1 to restart the routine.</li> <li>Enter 2 to display the next message.</li> <li>Enter 3 to display the last message.</li> <li>Enter 4 to display the last entry.</li> <li>Enter 5HTTT to locate a head and track, where: H = head (surface) value TTT = track value</li> <li>Enter D to display the corresponding formatted message (PA12, PA13, PA14, PA23, PA24, or PA71).</li> <li>Enter any value other than those specified above and 9 to display the log end (PA99) message.</li> </ul>

Message	Used in Routine(s)	Description	Action																
		<p>Bit 5 = invalid data CRC left on second data field (should not occur)</p> <p>Bit 6 = propagated bad CRC left on first data field</p> <p>Bit 7 = propagated bad CRC left on second data field</p> <p>Byte 9 = Changed structures</p> <p>Bit 0 = sector ID field recovered</p> <p>Bit 1 = sector reclaimed</p> <p>Bit 2 = sector assigned as the field primary defect (assigned to sector 32 of the current track)</p> <p>Bit 3 = not used = 0</p> <p>Bit 4 = sector flagged defective</p> <p>Bit 5 = sector alternately assigned</p> <p>Bit 6 = sector defective and left unassigned</p> <p>Bit 7 = sector defective and track pushed down (fixed heads only)</p> <p>Bytes 10–13 = Current physical sector (object sector), which identifies the physical sector that contains the defect. The format is:</p> <table border="1"> <thead> <tr> <th>Byte 10</th> <th>Byte 11</th> <th>Byte 12</th> <th>Byte 13</th> </tr> </thead> <tbody> <tr> <td>01234567</td> <td>01234567</td> <td>01234567</td> <td>01234567</td> </tr> <tr> <td>Random Values</td> <td>Sector/Data</td> <td>Head</td> <td>Track</td> </tr> <tr> <td>VVVVVVVV</td> <td>0WWWWWWW</td> <td>00YYYYY</td> <td>Z ZZZZZZZ</td> </tr> </tbody> </table> <p>Bytes 14–17 = Original sector ID as found</p> <p>Bytes 18–21 = Final sector ID as left by utility formatting</p> <p>These fields are logged as unmodified for a read or a written ID field. FFFFFFFF displays if the data is unavailable, such as those with an unreadable ID. The original sector ID is the contents of the object sector ID field when first sensed by the utility. The final sector ID is the value left in the object sector ID field after format completion. The final ID is not used when sensing sector status (Routine 01), and neither the original nor final ID fields are used in Routine 07.</p> <p>See CP651 for sector format.</p>	Byte 10	Byte 11	Byte 12	Byte 13	01234567	01234567	01234567	01234567	Random Values	Sector/Data	Head	Track	VVVVVVVV	0WWWWWWW	00YYYYY	Z ZZZZZZZ	
Byte 10	Byte 11	Byte 12	Byte 13																
01234567	01234567	01234567	01234567																
Random Values	Sector/Data	Head	Track																
VVVVVVVV	0WWWWWWW	00YYYYY	Z ZZZZZZZ																

Message	Used in Routine(s)	Description	Action
PA99	06	End of display log reached.	<ul style="list-style-type: none"> <li>● Enter 1 to restart routine.</li> <li>● Enter 3 to display last entry.</li> <li>● Enter 5HTTT to locate a head and track, where: H = head (surface) value TTT = track value</li> <li>● Enter 9 to terminate the display and begin Routine 02. (Routine 01 only.)</li> <li>● Enter any value other than 1, 3, or 9 to terminate the routine.</li> </ul>
PAFF	All	Response not recognized by utility. This should never appear.	Record and report the unformatted display information.

CP656 Defective Sector Identification

How to Identify a Defective Sector Using the DPPX Error Log

Refer to CP750 for the DISPLAY.ERROR LOG command and its operation and options. Obtain the log records for the failing disk storage and select one of the following commands to search and display the log:

- To display all disk storage records for the failing disk storage, use the "LOCATE MULT DA1 (pa)" command where pa = disk storage address.
- To display one disk storage record at a time, use the "LOCATE NEXT DA1 (pa)" command, where pa = the disk storage address. To display the next record, press Enter.

The following shows the format of the DPPX disk storage error log records:

Disk – Class = 5, Subclass = 1, Device Type = P

```
CLASS 05 SUBCLASS 01 OPTION 22
DATE YY.DDD TIME HH/MM/SS
PA (2) SCA (3) DT (4)
CRC (7) COMPSTAT (8) ARC (9)
DATA (11) RES (12) CNT (13)
IOEP (14) ADWA (15)
CA (16) CPR (17) FRWA (18)
RES (19)
EXTENDED DATA
D01 2425 D02 2627 D03 2829 D04 3031
D05 3233 D06 3435 D07 3637 D08 3839
D09 4041 D10 4243 D11 4445 D12 4647
D13 4849
```

Refer to the Chapter 5 FA section for a complete field description.

To identify potential surface problems from the log record, examine the log record ARC (adapter return code) field, defined as follows:

ARC	Description
00	Normal completion
02	FRB busy
04	Machine check
*06	Error correction successful; possible marginal data area present
10	Program exception
11	FRB
*19	Record not found; possible sector ID problem
1A	Multi sector count error
1B	Write protected sector
20	Unexpected interrupt
21	Adapter parity error

ARC	Description
2A	FCB time out
*2B	Seek check; possible sector ID problem
*33	Data CRC error or primary sector
*39	Data CRC error on alternate sector
*3A	ID CRC error on primary sector
*3B	ID CRC error on alternate sector
62	File not ready
63	Data unsafe
68	Speed out of tolerance

\*Potential surface problem.

For any log records associated with potential surface problems, obtain the surface and track address from field D08. Convert this value to the utility input track and surface values by using either the following charts or Figure CP656-1.

D08 Definition

D08 hex digit	First Byte							Second Byte								
	First				Second			Third				Fourth				
D08 bits	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
D08 position value	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Surface position value		1*	8	4	2	1										
Track position value								1	8	4	2	1	8	4	2	1

\*A bit in this position indicates a fixed head; surface position values 4, 2, and 1 indicate which fixed head (0 through 7). The track position value has no significance when a fixed head is indicated.

Example: D08 = 29 24

D08 hex digit	First Byte							Second Byte								
	2				9			2				4				
D08 bits	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
D08 position value	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
D08 bit value	0	0	1	0	1	0	0	1	0	0	1	0	0	1	0	0
Surface position value			8		2											
Track position value								1			2			4		

PA02 Utility surface input = 0A  
 PA01 Utility track input = 01 2 4

Note: D08 digits 2 and 3 do not require conversion; only digits 0 and 1.

For a conversion table for D08 to utility input, see Figure CP656-1.

After determining the track and surface input values, run Routine 01 on the indicated tracks. Refer to CP654 "Utility Operation" for run procedure and to the paragraph "How to Interpret Routine 01 Surface Status Output" under CP657.

**Note:** If no log records indicate a surface problem, you can run the surface status on all tracks and all surfaces of the disk storage, if necessary.

D08, D15 or nnnn Values	PA02 Surface Input	PA01 Track Input*	PA04 Fixed Head Surface Input
00 XX	00	00 XX	
01 XX	00	01 XX	
04 XX	01	00 XX	
05 XX	01	01 XX	
08 XX	02	00 XX	
09 XX	02	01 XX	
0C XX	03	00 XX	
0D XX	03	01 XX	
10 XX	04	00 XX	
11 XX	04	01 XX	
14 XX	05	00 XX	
15 XX	05	01 XX	
18 XX	06	00 XX	
19 XX	06	01 XX	
1C XX	07	00 XX	
1D XX	07	01 XX	
20 XX	08	00 XX	
21 XX	08	01 XX	
24 XX	09	00 XX	
25 XX	09	01 XX	
28 XX	0A	00 XX	
29 XX	0A	01 XX	
40 XX			00
44 XX			01
48 XX			02
4C XX			03
50 XX			04
54 XX			05
58 XX			06
5C XX			07

\*The XX value for the PA01 input is the same as the XX value in the D08 or D15 fields.

Figure CP656-1. Conversion of D08 (DPPX) and D15 (DPCX) Log Entries or DPPX HDIP0030P Messages to Format Input Values

**How to Identify a Defective Sector Using the DPCX Condition/Incident Log**

Refer to CP830 for the DPCX SYSLERR Utility and how to use it. Obtain the log records for the failing disk storage as follows:

Use SYSLERR option 5 – SCAN BY PA

At message: "SEE SYSLERR OPTION GROUP"

Enter 5PA where:

PA is the address of the failing disk storage

At message: "SEE SYSLERR OPTION GROUP"

Enter 1Y, where:

Y = 0 = The log records are outputted one at a time by reentering 10.

= 1 = The log records are outputted continuously.

The format of the DPCX disk storage Condition/Incident Log record is as follows:

(1) 5-TYPE	(2) I-REC	(4) SEQ-XXXX	(5) PA-XX	(5) LA-XX
(47) D1-XX	(48) D2-XX	(49) D7-XX	(50) D4-XX	
(51) D5-PL	(52) D6-XX	(53) D7-XX	(54) D8-XX	
(76) D9-XXXXXX				
(55) D10-XXXX	(56) D11-XXXX	(57) D12-XXXX		
(58) D13-XXXX	(59) D14-XXXX	(60) D15-XXXX		
(61) D16-XXXX	(62) D17-XXXX	(63) D18-XXXX		
(64) D19-XXXX	(65) D20-XXXX	(66) D21-XXXX		
(67) D22-XXXX	(68) D23-XXXX	(69) D24-XXXX		
(70) D25-XXXX	(71) D26-XXXX	(72) D27-XXXX		
(73) D28-XXXX	(74) D29-XXXX	(75) D30-XXXX		

Refer to the Chapter 5 FA section for a complete field description.

To identify potential surface problems from the log record, examine the log record D4 field (adapter return code), defined as follows:

D4-ARC	Description
00	Normal completion
02	FRB busy
04	Machine check
*06	Error correction successful; possible marginal data area present
10	Program exception
11	FRB
*19	Record not found; possible sector ID problem
1A	Multi-sector count error
1B	Write protected sector
20	Unexpected interrupt
21	Adapter parity error
2A	FCB time out
*2B	Seek check; possible sector ID problem
*33	Data CRC error on primary sector
*39	Data CRC error on alternate sector
*3A	ID CRC error on primary sector
*3B	ID CRC error on alternate sector
62	File not ready
63	Data unsafe
68	Speed out of tolerance

\*Potential surface problem.

For any log records associated with potential surface problems, obtain the surface and track address from field D15. Convert the value to the utility input track and surface values by using either the following charts or Figure CP656-1.

D15 Definition

D15 hex digit	First Byte				Second Byte			
	0	1	2	3	4	5	6	7
D15 bits	0	1	2	3	4	5	6	7
D15 position value	8	4	2	1	8	4	2	1
Surface position value		*	8	4	2	1		
Track position value							1	8

\*DPCX does not support fixed heads. A bit in this position indicating fixed heads is incorrect.

Example: D15 = 29 24

D15 hex digit	First Byte				Second Byte			
	2	9	2	4	0	1	2	3
D15 bits	0	1	2	3	4	5	6	7
D15 position value	8	4	2	1	8	4	2	1
D15 bit value	0	0	1	0	1	0	0	1
Surface position value			8	2				
Track position value							1	2

PA02 Utility surface input = 0A  
 PA01 Utility track input = 01 2 4

**Note:** D15 digits 2 and 3 do not require conversion; only digits 0 and 1.

For a conversion table for D15 to utility input, see Figure CP656-1.

After determining the track and surface input values, run Routine 01 on the indicated tracks. Refer to CP654 "Utility Operation" for run procedure and to the paragraph "How to Interpret Routine 01 Surface Status Output", under CP657.

**Note:** If no log records indicate a surface problem, you can run the surface status on all tracks and all surfaces of the disk storage, if necessary.

**How to Identify a Defective Sector Using DPPX Message HDIP0030P**

The following list describes the HDIP0030P message format and meaning:

HDIP0030P PA = nn, DA = nn, DT = aa, DEFECTIVE DISK  
SECTOR DETECTED – ERROR CODE = nn mm,  
SEEK ADDRESS = nnnn

Where:

- PA = Disk storage physical address
- Error Code = nn = Adapter complete status
- = mm = Adapter return code
- = 06 = Error correction successful
- = 19 = Record not found
- = 2B = Seek check
- = 33 = Data CRC error on primary sector
- = 39 = Data CRC error on alternate sector
- = 3A = ID CRC error on alternate sector

Seek Address = nnnn

nnnn hex digit	First Byte								Second Byte							
	0				1				2				3			
nnnn bits	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
nnnn position value	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
Surface position value		1*	8	4	2	1										
Track position value								1	8	4	2	1	8	4	2	1

\*A bit in this position indicates a fixed head; surface position values 4, 2, and 1 indicate which fixed head (0 through 7). The track position value has no significance when a fixed head is indicated.

Example: nnnn = 29 24

nnnn hex digit	First Byte								Second Byte							
	2				9				2				4			
nnnn bits	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
nnnn position value	8	4	2	1	8	4	2	1	8	4	2	1	8	4	2	1
nnnn bit value	0	0	1	0	1	0	0	1	0	0	1	0	0	1	0	0
Surface position value			8		2											
Track position value								1			2			4		

PA02 Utility surface input = 0A  
PA01 Utility track input = 01 2 4

Note: nnnn digits 2 and 3 do not require conversion; only digits 0 and 1.

For a conversion table for nnnn to utility input, see Figure CP656-1.

Obtain the seek address from the message, and convert the value to the utility input track and surface values.

After determining the track and surface input values, run Routine 01 on the indicated track. Refer to CP654 "Utility Operation" for run procedure and also to the paragraph "How to Interpret Routine 01 Surface Status Output" under CP657.

*CP657 Interpreting the Output from the Routines*

**How to Interpret Routine 01 Surface Status Output**

Message PA30 lists the summary counter statistics. CP655 "Utility Messages" describes the format and field definitions.

Fields 0202, 0303, 0404, and 0505 are the counters of the primary or secondary defective sectors that have been previously corrected by sector reassignment. The count values in these fields are normal and do not indicate a problem unless the values are excessive for the range selected. As a guideline, count values approaching an average of 1 for each 20 tracks analyzed indicate a potential performance problem caused by an accumulation of defective sectors. In addition, numbers approaching the guideline in fields 0404 and 0505 could indicate a minimal reserve of available alternate sectors on track 64. For either case, run Routine 02 on previously analyzed tracks and attempt to recover any erroneously assigned alternate sectors. Also, if counter 0404 and 0505 values are high, run Routine 04 and attempt to recover any defective sectors on track 64.

Field 0707 is the count of unreadable sector IDs. These are not allowed; they definitely indicate a surface problem and that formatting is required.

Field 0808 is the count of unreadable or marginal data fields. These sectors require formatting to determine if the data area is actually defective, and whether sector reassignment is required. To identify the defective sectors, display the sector log (PA31), and locate log entries with description codes of either hex 90 or A0.

Obtain the surface and track address from bytes 2 and 3. Using Figure CP657-1, convert the values to those required for input to Routine 02, then run Routine 02 on the defective tracks. Use "How to Interpret Routine 02 Moving Head Format Output" (which follows) to interpret results.

PA31 Bytes 2 and 3	PA01* Track Input	PA02 Surface Input
00 XX	00 XX	00
01 XX	01 XX	00
02 XX	00 XX	01
03 XX	01 XX	01
04 XX	00 XX	02
05 XX	01 XX	02
06 XX	00 XX	03
07 XX	01 XX	03
08 XX	00 XX	04
09 XX	01 XX	04
0A XX	00 XX	05
0B XX	01 XX	05
0C XX	00 XX	06
0D XX	01 XX	06
0E XX	00 XX	07
0F XX	01 XX	07
10 XX	00 XX	08
11 XX	01 XX	08
12 XX	00 XX	09
13 XX	01 XX	09
14 XX	00 XX	0A
15 XX	01 XX	0A

\*The XX value for the PA01 input is the same as the XX value in byte 3.

**Figure CP657-1. Conversion of PA31 Message (Sector Log Entry) Bytes 2 and 3 to Format Input Values**

#### How to Interpret Routine 02 Moving Head Operational Format Output

Routine 02 normally completes with messages PA20, PA21, PA22, PA51, and PA52. The full description and subsequent actions are described in "Utility Messages" (CP655). In some cases it may be necessary to examine the Summary Counter Statistics (PA30) and the Sector Log Entry (PA31) to obtain further information. The PA30 and PA31 message format and field definitions are also described in CP655.

**PA30 Interpretation Routine 02.** Summary counter fields 0202, 0303, 0404, and 0505 are the counts of the primary or secondary defective sectors that have been previously corrected by sector reassignment. Count values are the same as what would have been detected by Routine 01, Surface Status, and represent what Routine 02 found before formatting was attempted.

Field 0606 identifies which of the sectors identified and counted in fields 0303 and 0505 were recovered by Routine 02. If you were running Routine 02 because fields 0303, 0404, or 0505 exceeded the failure guidelines (1 for each 20), field 0606 provides a direct indication of the effect of Routine 02. If field 0505 still exceeds the guidelines, you should run Routine 04 and attempt to recover any potential or misassigned alternate sectors on track 64.

Field 0808 identifies the number of unreadable data fields that were detected prior to formatting. Counts in this field indicate a possible customer detected problem.

Field 0909 identifies how many unreadable sector IDs or data areas actually have a defective surface after performing analysis. The sector log should be examined to determine the exact nature of the problem and the sector address.

Field 1010 identifies how many defective data fields were restored correctly after formatting the sector. If this value does not match field 0808, then the customer must restore the data. The sector log (PA31) must be examined to identify which sectors require data restoration.

**PA31 Interpretation Routine 02, Sector Log.** Routine 02 generates a sector log entry for each unusual condition found. If formatting is required, additional log entries are generated for each formatting action performed. Therefore, multiple log entries are presented for sectors that require formatting, which describe the condition of the sector and the actions of the utility for that sector.

Description codes 00, 40, 60, 90, and A0 signify the initial condition found for the primary sector. The entry contains the address of the primary sector. If the primary sector was assigned to an alternate, the alternate sector is checked and description codes 30, 90, or A0 is presented for any unusual alternate sector condition found. The address in the entry is the alternate sector address.

Description codes 20, 70, 71, 80, C0, and D0 signify the actions taken by Routine 02 to correct a surface condition. The address in the entries can be that of either the primary sector or the assigned alternate, depending on where the defect was found. These log entries immediately follow the "unusual condition found" code described above.

**Examples:**

- Primary factory defect found at sector 7, surface 6, track 36.  
Log entry = 000E 0C24
- Secondary factory defect found at sector 9, surface C, track 36.  
Log entry = 4012 0C24
- Field defect found at sector 14, surface 6, track 36.  
Log entry = 601C 0C24
- Sector was not found to be defective and was reclaimed.  
Log entry = 201C 0C24
- Sector data was readable and was restored.  
Log entry = 701C 0C24

Message format: PA31 000E 0C24 4012  
                                   0C24 601C 0C24  
                                   201C 0C24 701C  
                                   0C24 FFFF FFFF

In general, the sector log requires interpretation only when message PA22 has occurred, which indicates that formatting is complete but some data was not restored. (Incorrect CRC was written in the data fields.) This data must be restored by the user, and identification of these sectors could be required to aid in restoration. To locate these sectors, search the sector log for all D0 description codes. The address in the entry indicates the unrestored sector. Notice that each sector has two data fields and that a D0 entry is provided for each unrestored data field.

A secondary usage of the sector log would be to determine how a particular sector defect was resolved.

**CP660 How to Run Diagnostic Link Series (DLS) Tests on an 8809**

DLS tests for tape can be run either online or offline:

- To run offline, using MD diskette 03, select the TA MAP and perform offline basic checkout option A.
- To run online, refer to CP810 "How to Log On and Run DPCX Online Tests".
  - a. At 80BC, enter PADAB
  - b. At 81BC, enter 1B
    - where: PA = physical address of tape adapter
    - DA = tape drive address (can be obtained from top of tape drive)

Failures are indicated in the format:

PAXE RREN SYNC XXXX

For errors other than the type shown above, return to Chapter 1, ST210.



## CP700 DPPX Testing and Fault Isolation Procedures

### CP710 How to Log On and Off an 8100/DPPX System

To log on to an interactive session that is operating under the DPPX command facility, use a logon command and the service representative user ID and password. Follow the logon procedures for the machine type you are using.

#### How to Log On and Off from a 3276, 3278, and 8775

To log on:

1. While holding down the ALT key, press the SYSREQ key.
2. When ( ) appears in the operator information area, enter LOGON.CF SYSUFE 123456 LOGMODE(SYSDFLT).
3. Press the ENTER key to transmit the logon command to the system.
4. While holding down the ALT key, press the SYSREQ key.

The system responds with ENTER COMMAND.

**Note:** Every time you press ENTER, the ( ) symbols appear in the operator information area. If the system is not busy, the symbols appear momentarily. However, if the system is busy, the symbols remain on the screen until the system can accept your entry.

To log off:

1. While holding down the ALT key, press the SYSREQ key.
2. Enter LOGOFF.
3. Press the ENTER key.
4. While holding down the ALT key, press the SYSREQ key.

This ends your terminal session.

#### How to Log On and Off from a 3277

To log on:

1. Press the TEST REQ key.
2. Press the CLEAR key.
3. Enter LOGON.CF SYSUFE 123456 LOGMODE(SYSDFLT).
4. Press the ENTER key.

The system responds with ENTER COMMAND.

**Note:** Whenever you press the ENTER, CLEAR, or TEST REQ key, the INPUT INHIBITED indicator turns on (at the right side of the screen). If the system is not busy, input inhibited is a momentary indication. However, if the system is busy, the INPUT INHIBITED indicator remains on until the system can accept your entry. You cannot enter new information into the system as long as the INPUT INHIBITED indicator is on the screen.

To log off:

1. Press the TEST REQ key.
2. Press the CLEAR key.
3. Enter LOGOFF.

This ends your terminal session.

#### How to Log On and Off from a 3643

To log on:

1. Press the ATTN/SYS REQ key. The INPUT INHIBITED indicator turns on.
2. When the INPUT INHIBITED indicator turns off, press the CLEAR key.
3. Enter LOGON.CF SYSUFE 123456 LOGMODE(SYSDFLT).
4. Press the ENTER key.

The system responds with ENTER COMMAND.

**Note:** Whenever you press the ENTER, CLEAR, or ATTN/SYS REQ key, the INPUT INHIBITED indicator turns on (the left side of the keyboard). If the system is not busy, input inhibited is a momentary indication. However, if the system is busy the INPUT INHIBITED indicator remains on until the system can accept your entry. You cannot enter new information into the system as long as the INPUT INHIBITED indicator is on.

To log off:

1. Press the ATTN/SYS REQ key. The INPUT INHIBITED indicator comes on.
2. When INPUT INHIBITED turns off, press the CLEAR key.
3. Enter LOGOFF.

This ends your terminal session.

#### How to Log On and Off from a 3767

To log on:

1. Press the SYS REQ key.
2. When the PROCEED indicator comes on, enter LOGON.CF SYSUFE 123456 LOGMODE(SYSDFLT).
3. Press the RETURN key. The PROCEED indicator turns off.

The system responds with ENTER COMMAND. It also turns the PROCEED indicator on to inform you that you can enter a command.

To log off:

1. Press the SYS REQ key.
2. Enter LOGOFF.
3. Press the EOB key.

This ends your terminal session.

#### How to Log On and Off from a 2741

To log on:

1. Enter LOGON.CF SYSUFE 123456 LOGMODE(SYSDFLT).
2. Press the RETURN key.

The system responds with ENTER COMMAND.

To log off:

1. Enter \*\*LOGOFF.
2. Press the RETURN key.

This ends your terminal session.

**CP720 Running DPPX Distributed System Environment Tests (DSET) Using the Verify Command**

The VERIFY Command which runs under DSET, provides online testing for the display/printer feature, the 36XX terminals, and devices attached to communications ports.

The adapter under test for communications and 36XX terminals must have been defined to the system by the define command DAPSAL. (The define command for the display/printer adapter is DADAP.) These features must be activated by the ACTIVATE.ADAPTER, ACTIVATE.NET, or ACTIVATE.NGROUP commands, and the device under test must be activated by the ACTIVATE.NET or the ACTIVATE.NGROUP commands. If the device is already active with another task, then it must be deactivated by the appropriate DEACTIVATE.NET or DEACTIVATE.NGROUP commands before invoking the DSET VERIFY command. Use the DISPLAY.DEVICE command to determine if the device is available.

1. Log on from an interactive terminal as the service representative (see CP710).
2. When the 8100 responds with ENTER COMMAND, enter:

ASSOCIATE.DEVICE RNAME CNAME

Where:

RNAME = A one to eight character name defined by the customer.

CNAME = Connection name or logical name. For online testing, CHIFTEST is recommended.

*Note: The associate command must be reexecuted each time a new device is tested. Also, prior to using the ASSOCIATE command when an additional terminal is to be tested, the FREE command must be performed in the following form:*

FREE CHIFTEST

3. Press Enter.
4. When the 8100 responds with Enter command, enter one of the following according to the device type to be tested:

- For Communications: (SDLC adapter)

VERIFY.STATION Operands  
 Repeat (nn)  
 Data (text)  
 Data Dup (nn)

Where:

Repeat (nn) = The number of times the test is to be run.

Data (text) = Any text string containing 0123456789abcdef with a maximum of 64.

Data Dup (nn) = The number of times data is to be duplicated or concatenated to make up the total text string. Specified as a decimal number 1 to 508. The system default number is 508.

For expanded routine descriptions and specific routine numbers, refer to the Chapter 6, 8100 references section in the 364X terminal MIM.

- For Display/Printers

VERIFY.3270\* Operands

Repeat (nn)

Routine (Routine Number) = R0 = (xx)

Where:

Repeat (nn) = The number of times the test is to run. The system default number is 1.

Routine (routine number) = R0 = (XX) = Test routine to be invoked. Using zero, run all except selectable and manual intervention routines. The system default number is 0.

\*Use the VERIFY.3270 command to invoke test routines for all 3270 devices. As the command has an alias for each device under test, V3270, V3277, V3284, V3286, and V3287, and V3288 invokes the same VERIFY command.

The following steps can be used when testing the display/printer feature. Enter:

1. DEFINE.ADAPTER to create a profile for the display/printer adapter. (DADAP).
2. D32771 to create a profile for the 3277 Mod 1.
3. D32772 to create a profile for the 3277 Mod 2.
4. DDAPP2 to create a profile for the 3284, 3286, 3287 and 3288 Mod 2 printers.
5. ACTIVATE.ADAPTER to activate the adapter during the DADAP step.

For expanded routine descriptions and specific routine numbers, refer to Section 4 of the 8100 Attachment Manual for the display/printer device.

- For 36XX Terminals

VERIFY.4X Operands  
 Repeat (nn)  
 Bypass (yes/no)  
 Data (text)  
 Data Dup (nn)  
 Routine (Routine number) = R0 = XX

Where:

- 4X = any one of the seven 36XX terminals (3641, 3642, 3643, 3644, 3645, 3646, 3647).
- Repeat (nn) = the number of times the test is to be repeated. (Decimal 1–99).
- Bypass (yes/no) = Manual Intervention tests are run or bypassed. The system default value bypasses the MI tests.
- Data (text) = the message text used in the test I/O message, which for a:
- 3641 = a string of keyboard characters with a maximum of 22.
  - 3642 = a string of characters with a maximum of 47.
  - 3643 = a string of keyboard characters with a maximum of 64.
  - 3644 = a string of characters with a maximum of 22.
  - 3645 = a string of characters with a maximum of 64.
  - 3647 = a string of characters with a maximum of 22.
- The system default value is blank for all terminals except the 3645, which is abcdefghijklmnopqrstuvwxyz0123456789.
- Data dup (nn) = The number of times the data is to be duplicated or concatenated to make the I/O test pattern, which for a:
- 3641 = decimal 1 to 22\*
  - 3642 = decimal 1 to 47\*
  - 3643 = decimal 1 to 99\*
  - 3644 = decimal 1 to 22\*
  - 3645 = decimal 1 to 99\*
  - 3647 = decimal 1 to 22\*
- \*The buffer size determines the maximum character input. If data multiplied by the Data dup field exceeds the buffer size, input greater than the buffer size is lost.
- Routine number R0 identifies the test to be invoked. If using zero, all routines except those that require normal intervention are invoked in sequence.

## CP730 Error Log Data Analysis (ELDA) and How to Use It

ELDA is a simple-to-use method to locate device-related error log records for initial problem determination. A simple inquiry syntax permits you to locate format, and display 8809 error-log records. You require ELDA to analyze whether 8809 failures are caused by the device or the tape media.

It is necessary to examine the ELDA output to determine if the failures seem to be associated with a particular tape drive or a particular tape volume (media). For example, if different tape volumes have failures on only one device, the tape drive is probably failed. If one tape volume has failures on different drives the tape media is probably bad. You also can use ELDA to determine when a tape volume or device was last used. A user installation can request a report for a specific date to monitor the general condition of 8809 devices and tape volumes. If this is done on a regularly scheduled basis (e.g., analyze the previous processing day), the continual good condition of devices and volumes can be maintained.

Sense byte data from the device and status codes from the adapter (logged to the DPPX error log when the error occurred) generate a symptom code (SC). These SCs are the primary entry method for 8809 Magnetic Tape Unit maintenance.

Invoke ELDA by using a DPPX command sequence and an operand that indicates the selection criteria. It is possible to select 8809 records by device address, date, record type, and volume serial. (See CP732.) Selected records match all specified selection criteria; if a record partially meets the selection criteria, it is not selected. If selection is based on volume serial, it begins with the device address specified in a dismount record and ends when the corresponding mount record is encountered.

Incomplete error information exists for currently mounted volumes and devices. Therefore, it is not logical to request the VOL, or volume serial selection for error records related to a currently mounted volume, because no dismount record exists.

The error log records are processed first-in, first-out (FIFO). Selection begins with the current record and continues until all records are outputted according to criteria selection.

There are three output heading lines: report heading line, selection parameter line, and column heading line. The output is an 80-character line, directed to a printer, print image data set, or terminal, for each selected record. Error-log records written after ELDA is invoked are scanned last. Error-log records overwritten after ELDA is invoked are lost. Incomplete error-log records (e.g., segmented record with a missing segment) are not scanned.

**CP731 How to Invoke ELDA**

1. Log on an interactive terminal as the service representative (see CP710).
2. When the 8100 responds with ENTER COMMAND, enter:  
ASSOCIATE.RSDS SYSERROR CNAME(CERROR) and press ENTER.
3. When the 8100 again responds with ENTER COMMAND, enter ELDA and the desired operands as defined in CP732.
4. When the ELDA processing is finished and after ENTER COMMAND has appeared, enter:  
FREE CERROR and press ENTER.
5. When the 8100 responds with ENTER COMMAND, enter:  
FREE COUT and press ENTER.
6. To print the log, when the 8100 again responds with ENTER COMMAND, enter:  
ASSOCIATE.LU resource.name CNAME(COUT) and press ENTER.  
Where:  
resource.name = the logical name of the output device.  
For example, if you wanted to print ELDA output to a 3289 that has a logical name of SYSNET01.L0103L1E, enter:  
ASSOCIATE.LU SYSNET01.L0103L1E CNAME(COUT)

**CP732 ELDA Operands and Examples**

You invoke ELDA by entering the predefined command ELDA and the following operands:

**Operand Description**

8809	Is a required positional parameter that specifies that only 8809 error-log records are to be processed.
LINECOUNT(XX)	Specified as the number of output lines per page. The default value is 60 and the valid range is from 10 to 99.
SEARCH(XXXX)	Specified as the number of logical records to be scanned. The scan stops at either logical end of data or when search limit is reached. An "OR" relationship exists with the SELECT keyword. Satisfaction of the SELECT parameter terminates ELDA, and the SEARCH operand default is all error log records. The value 0000 is reserved.
SELECT(XXXX)	Specified as the number of detail output lines to be produced. An "OR" relationship exists with the SEARCH keyword. Satisfaction of the SEARCH parameter terminates ELDA, and the SELECT operand default is all error log records. The value 0000 is reserved.
VOL(XXXXXX)	Specified by using the volume serial number. This is an optional parameter with no default value.
ADDR(XXXXXX)	Specified by using the adapter address and device address. This is an optional parameter with no default value.

DATE(YYDDD)	Specified by using the Julian date, which is an error log record option. This is an optional parameter with no default value.
TYPE(XX)	Specified by using the record type. This is an optional parameter with no default value.  The XX values are: PE = permanent error CO = counter overflow VM = volume mount VD = volume dismount VX = volume dismount/mount

**Examples for Using ELDA**

- Entering ELDA 8809 with no selection operand formats and displays all 8809 records in the error log at the invoking terminal.
- Entering ELDA 8809 SEARCH(100) SELECT(10) causes 8809 records in the error log to be formatted and displayed until either (1) 100 DPPX error-log records have been searched, (2) 10 records which match the selection criterion have been formatted and displayed, or (3) an end of data condition occurred.
- Entering ILDS 8809 ADDR(040100) causes 8809 records in the error log to be formatted and displayed if they have a device address of 040100.
- Entering ELDA 8809 DATE(79210) causes 8809 records in the error log to be formatted and displayed if they have a date of 79210.
- Entering ELDA 8809 VOL(002844) causes 8809 records in the error log to be formatted and displayed if they have a volume serial 002844 or are logically related to volume serial 002844. A volume dismount record starts a relationship and a volume mount terminates a relationship. A given volume serial can only have one logical relationship at a particular point in time.
- Entering ELDA 8809 SEARCH(91000) TYPE(PE) formats and displays up to 1000 permanent tape error log records.
- Entering ELDA 8809 SELECT(50) TYPE(CO) formats and displays up to 50 tape counter overflow error records.

**CP733 ELDA Messages**

The following are typical ELDA messages. For more information on these and other ELDA messages refer to *DPPX/Base Messages and Codes*, SC27-0407.

```
HDWE0010D: INPUT DATA SET NOT VALID
HDWE0020D: OUTPUT DEVICE NOT VALID
HDWE0030E: DPPX ERROR-LOG RECORD FORMAT ERROR
HDWE00401: INCOMPLETE DPPX ERROR-LOG LOGICAL RECORD
HDWE00501: MISMATCHED DPPX MOUNT/DISMOUNT RECORD
HDWE0060E: ELDA SYMPTOM CODE GENERATION TABLE NOT VALID
```

For HDWE0265 through HDWE0276 messages, refer to *DPPX/Base Messages and Codes*, SC27-0407.

**CP734 ELDA Output Format and Meaning (ELDA Report)**

The following listing is an example of the output generated by using ELDA:

**DPPX ERROR LOG RECORD ENTRIES FOR 8809**

SELECTION PARAMETERS = \*

DATE	TIME/SEQ	DEV	ADDR	VOLSER	RT	MD	TRE	TWE	SIOS	RTRY	EGAP	VC	OR	SC
YYDDD	HH MM SS	XXXX	XXXXX	XXXXXXXX	XX	XX	XXXX	XXXX	XXXXX	XXXX	XXXX	XX	XX	XXXX (first record)
-	- - -	-	-	-	-	-	-	-	-	-	-	-	-	-
YYDDD	HH MM SS	XXXX	XXXXX	XXXXXXXX	XX	XX	XXXX	XXXX	XXXXX	XXXX	XXXX	XX	XX	XXXX (last record)

Where:

- \* = Parameters specified for ELDA selection. (see CP732)
- SEQ = The sequence number of the error record when the time is not logged.
- DEV = Device type
- ADDR = The adapter address and the secondary component address of the device.
- VOLSER = The volume serial number of the tape reel mounted on the device.
- RT = Record type:
  - PR = Permanent read error
  - PW = Permanent write error
  - EC = Equipment check
  - CO = Counter overflow
  - VM = Volume mount
  - VD = Volume dismount
- MD = Mode:
  - SS = 12.5 ips short gap
  - SL = 12.5 ips long gap
  - HS = 100 ips short gap
  - HL = 100 ips long gap
- TRE = Temporary read errors
- TWE = Temporary write errors
- SIOS = Start I/O operations
- RTRY = Read retries
- EGAP = Erase gaps (write retries)
- VC = Velocity checks
- OR = Overruns
- SC = Symptom code
- YYDDD = The year and the Julian date (Example: 78289)
- HH MM SS = The hour, minute, and second of the time of the log entry.

**CP740 DPPX Error Log Records**

The 8100 system-resident disk storage drive contains the DPPX error log, which records selected system events. IBM has defined certain error records as listed below, and the customer can also define and log error records by programming. All records are identified by their Class and Subclass; hardware I/O records are further identified by Device Type.

Some error records can be lost if (1) the error recovery modules could not get a buffer to log the record, or (2) the 8100 went into a "hard wait" condition and the error log manager could not get the record to the log. In case (2), a record should have been logged in a processor storage; if it was, it can be obtained by either of two methods:

1. Take a standalone dump of the system prior to IPL.
2. IPL using DPPX, and, at the 0200 prompt message, specify 03PA, where PA specifies the physical address of the system-resident device. This loads the record from processor storage location BF200 into the error log.

The following listing describes the DPPX error log records according to class and subclass:

Class	Subclass	Error Record Type
01	01	Program exception on I/O second level interrupt handler (SLIH)
01	02	Program exception on primary program status vector (PSV)
01	03	Program exception on secondary program status vector (PSV)
02	01	RECFMS data
02	03	Transmission errors
03	01	Program IPL
03	02	Primary or manual IPL
04	01	Environment manager failure
04	02	Tape mount/dismount record
04	04	I/O buffer shortages
05	01	Hardware I/O error
05	02	System check on primary program status vector (PSV)
05	03	System check on secondary program status vector (PSV)
05	06	3630 System I/O Device
C8	01	Standalone I/O processor hardware error
C9	01	Standalone I/O processor I/O error
E2	01	Standalone I/O processor software error

Refer to CP741 through CP748, which describe the hardware-related error record types in detail.

**CP741 DPPX System Check/Program Exception Error Log Records**

The following error log format and byte description applies to DPPX error log records generated because of:

- A program exception on the I/O secondary level interrupt handler.
- A program exception on a primary program status vector.
- A program exception on a secondary program status vector.
- A system check on a primary program status vector.
- A system check on a secondary program status vector.

In this record format, the Class (A) and Subclass (B) designations are variables that depend on the record type you want to select:

A = 1 = Program exception  
 = 5 = System check

- A and B = 1, 1 = Program exception on I/O secondary level interrupt handler
- A and B = 1, 2 = Program exception on primary program status vector
- A and B = 1, 3 = Program exception on secondary program status vector
- A and B = 5, 2 = System check on primary program status vector
- A and B = 5, 3 = System check on secondary program status vector

The following shows the format of the Class and Subclass error log records described above:

**RECORD FORMAT – HEADER 1**

```

CLASS A SUBCLASS B OPTION 00
DATE YY.DDD TIME HH/MM/SS
EIRV (6) PAV (7) CPL/LPL (8)
MASTER MASK (9) COMMON MASK (10)
IOIRV (11) PIRV (12) ACV (13)
PSV:1A          (14) (14) (14) (14)
PSV:CI/REG/CF  (15) (16) (17) (18)
PRSH00 _____ PRSL00 _____
PRSH02 _____ PRSL02 _____
PRSH04 _____ PRSL04 _____
PRSH06 _____ PRSL06 _____
PRSH08 _____ PRSL08 _____
PRSH10 _____ PRSL10 _____
PRSH12 _____ PRSL12 _____
PRSH14 _____ PRSL14 _____
SRSH16 _____ SRSL16 _____
SRSH18 _____ SRSL18 _____
SRSH20 _____ SRSL20 _____
SRSH22 _____ SRSL22 _____
SRSH24 _____ SRSL24 _____
SRSH26 _____ SRSL26 _____
SRSH28 _____ SRSL28 _____
SRSH30 _____ SRSL30 _____
    
```

**\*FAILING ENVIRONMENT HDEMECB**

```

_____
_____
_____
_____
_____
    
```

**\*FAILING THREAD HDRATCB**

```

_____
_____
_____
_____
_____
    
```

**\*FAILING ACTIVATION STACK HDRAASE**

```

_____
_____
_____
_____
    
```

**\*FAILING LET**

```

_____
_____
    
```

**\*USERID or START NAME**

\_\_\_\_\_

Where:

- PRSH = primary register set high
- PRSL = primary register set low
- SRSH = secondary register set high
- SRSL = secondary register set low

\*Used for secondary program status vector only.

## RECORD MEANING

The following explains the byte meanings for the Class and Subclass records described above:

( 6 ) EIRV — Error Interrupt Request Vector, defined as follows:

- Bit 0 = I/O control check — a data check was detected on information transferred from an I/O device to the channel.
- Bit 1 = I/O timeout check — either the channel did not receive an expected control signal response from a device within the allowable time interval, or a control signal response from a device has been held active beyond the allowable time interval.
- \*Bit 2 = Storage data check — a data check was detected in information fetched from processor storage
- Bit 3 = Exception — either a program exception was detected while a primary PSV is active, or a channel exception was detected during a channel I/O operation.
- Bit 4 = Channel I/O check — set in conjunction with bits 0–3 and 5 when the indicated system check results from a channel I/O operation.
- \*Bit 5 = Internal control check — an equipment malfunction has occurred in either the processor instruction/execution unit, channel, or floating-point feature (if installed).
- Bit 6 = Instruction address modifier
  - 1 = instruction address field contains the address of the first halfword of the instruction.
  - 0 = instruction address field contains a value 2 greater than the address of the first halfword of the instruction.
- Bit 7 = 0 = Reserved

\*If bits 2 and 5 are set, then an internal data check was detected in information fetched either from a principal or adjunct register or from the translation table.

( 7 ) PAV — Program Activation Vector — indicates which PSV/ACV pair (primary or secondary) is introduced when the processor gives control to a new priority level, defined as follows.

- \*Bit 0 = 1 = Level 0
- Bit 1 = 1 = Level 1
- Bit 2 = 1 = Level 2
- Bit 3 = 1 = Level 3
- Bit 4 = 1 = Level 4
- Bit 5 = 1 = Level 5
- Bit 6 = 1 = Level 6
- Bit 7 = 1 = Level 7

\*If bit = 0 primary PSV/ACV pair for level is introduced.  
= 1 secondary PSV/ACV pair for level is introduced.

( 8 ) CPL/LPL—Current and Last Priority Level, defined as follows.

- Bit 0 = 0
- Bits 1–3 = Current Priority Level
- Bit 4 = 0
- Bits 5–7 = Last Priority Level

( 9 ) Master Mask — controls priority levels 1–7 as a group (defines whether all levels can interrupt or only level 0), defined as follows:

- Bits 0–6 = 0 = Not used
- Bit 7 = 0 = Only level 0 can interrupt
- = 1 = All levels can interrupt

(10) Common Mask—provides individual control for each priority level 0–7 (defines which level can interrupt), defined as follows:

- Bit 0 = 1 = Level 0 priority enabled
- Bit 1 = 1 = Level 1 priority enabled
- Bit 2 = 1 = Level 2 priority enabled
- Bit 3 = 1 = Level 3 priority enabled
- Bit 4 = 1 = Level 4 priority enabled
- Bit 5 = 1 = Level 5 priority enabled
- Bit 6 = 1 = Level 6 priority enabled
- Bit 7 = 1 = Level 7 priority enabled

(11) IOIRV — I/O Interrupt Request Vector — reflects an interrupt request generated by an I/O device on a specific level, defined as follows:

- Bit 0 = 1 = Level 0 I/O interrupt request pending
- Bit 1 = 1 = Level 1 I/O interrupt request pending
- Bit 2 = 1 = Level 2 I/O interrupt request pending
- Bit 3 = 1 = Level 3 I/O interrupt request pending
- Bit 4 = 1 = Level 4 I/O interrupt request pending
- Bit 5 = 1 = Level 5 I/O interrupt request pending
- Bit 6 = 1 = Level 6 I/O interrupt request pending
- Bit 7 = 1 = Level 7 I/O interrupt request pending

(12) PIRV — Programmed Interrupt Request Vector — reflects an interrupt request generated by a program on a specific level, defined as follows:

- Bit 0 = 1 = Level 0 programmed interrupt request pending
- Bit 1 = 1 = Level 1 programmed interrupt request pending
- Bit 2 = 1 = Level 2 programmed interrupt request pending
- Bit 3 = 1 = Level 3 programmed interrupt request pending
- Bit 4 = 1 = Level 4 programmed interrupt request pending
- Bit 5 = 1 = Level 5 programmed interrupt request pending
- Bit 6 = 1 = Level 6 programmed interrupt request pending
- Bit 7 = 1 = Level 7 programmed interrupt request pending

(13) ACV – Address Control Vector – defines the size of logical address space available to a program associated with the corresponding PSV. It is a 4-byte field of which the 8100 uses the last two bytes, defined as follows:

Bits 16–30 = Origin size

Bit 31 = Translation control bit

= 0 = the logical address points directly to a location in processor storage.

= 1 = the logical address used to locate an entry in the translation table that points to a 2048-byte block of processor storage.

(14) PSV:IA – PSV Instruction Address – the first 32 bits (0–31) of the Program Status Vector. This is the instruction address (IA), which is the logical address of the storage location containing the first halfword of the next instruction.

The current PSV controls instruction sequencing, defines general register assignments, and holds the status of the COU in relation to the executing program. It is associated with the ACV.

(15) to (18) PSV:CI/REG/CF – Program Status Vector – the last 32 bits (32–63) of the program status vector, defined as follows:

(15) Bits 32–35 = 0

Bit 36 = Storage operand address range

= 1 = 32-bit storage addresses

Bit 37 = Instruction address range (IAR)

= 1 = 32-bit instruction address

Bits 38,39 = Program mode

= 00 = Master

= 01 = Supervisor

= 11 = Input/Output

= 10 = Application

(16) Bits 40–47 = Program Information Code (PIC), defined as follows:

1 M 0 XXX 00

Where:

Bit 40 = 1 = identifies program exception

Bit 41 = M = Instruction Address Modifier

where:

M = 0 = The instruction address field (bits 0–31) of the PSV contains a value 2 greater than the address used to fetch the first halfword of an instruction associated with a program exception.

M = 1 = The instruction address field (bits 0–31) of the PSV contains an address used to fetch first halfword of an instruction associated with a program exception.

Bits 42–45 = Program Exception Code (PEC) which identifies the cause of the exception as follows:

0000 – Specification exception

0001 – Access exception

0010 – Operation exception

0100 – Address exception

0101 – Register indirect exception

0110 – Fixed-point-overflow exception

0111 – Floating-point exception

Bits 46,47 = 0 = Reserved

(17) (18) Bit 48 = Z Bit\*

Bit 49 = H Bit\*

Bits 50–55 = Secondary register set number – the binary number of the secondary register set assigned to the program.

Bit 56 = C Bit\*

Bit 57 = V Bit\*

\*ZHCV condition indicators reflect the results of arithmetic, logical, and I/O operations and are defined as follows:

1XXX = Z = 1 = Condition indicated = 8

01XX = ZH = 01 = Condition indicated = 4

00XX = ZH = 00 = Condition indicated = 2

XXX1 = V = 1 = Condition indicated = 1

XX1X = C = 1 = Condition indicated = 0

Bits 58–63 = Primary register set number – the binary number of the primary register set assigned to the program.



**CP742 DPPX RECFMS Data Error Log Records**

The DISPLAY.STATISTICS command, when requested, places the RECFMS data in the DPPX error log. DISPLAY.STATISTICS retrieves, stores, and displays maintenance data from a 3276 cluster physical unit (PU).

The following shows the format and meaning of this Class 2, Subclass 1 error log record:

**RECORD FORMAT**

CLASS 02 SUBCLASS 01 OPTION 00

DATE YY.DDD TIME HH/MM/SS

DOMAIN (2) RESOURCE NAME (3)

HEADER (4) STAT TYPE (5)

MESSAGE (6)

**RECORD MEANING**

(2) Domain = Logical domain name

(3) Resource name = Logical resource name

(4) Header = Bytes 0–7 of RECFMS Data – RECFMS Header – 8 bytes, defined as follows:

Bytes 0–2 = hex 410384

Bytes 3, 4 = CSM target ID as specified in byte 5, bits 2–3

Bytes 5, 6

Bits 0–1 = Reserved

Bits 2–3 = CSM target ID descriptor

00 = 00 = Byte 4 contains local address for PU, and byte 3 is reserved

01 = 01 = Bytes 3, 4 contain network address

Bits 4–15 = PRID

Byte 7

Bit 0 = 0 = Unsolicited

1 = 1 = Replay request

Bit 1 = Reserved

Bits 2–7 = 000000 = Reserved

000001 = Type 1 = Link test statistics

000010 = Type 2 = Summary error data

000011 = Type 3 = Communications adapter data

000100 = Type 4 = PU/LU-dependent data

000101 = Type 5 = EC levels

(5) Statistics type = Byte 7 of RECFMS Data – RECFMS Type Data, defined as follows:

Type 1 = Link test statistics

Type 2 = Summary error data

Type 3 = Communicaitons adapter data

Type 4 = PU/LU-dependent data

Type 5 = EC levels

(6) Message

= Depends on statistics type (field 5 and field 4, byte 7, bits 2–7) and defined as follows:

STATISTICS TYPE 1 – Link Test Statistics – Message is 15 bytes long, and the CSM target ID in header is a PU.

Bytes 8–11 of RECFMS = bits 0–11 = block number  
bits 12–31 = ID number of sending PU

Bytes 12, 13 of RECFMS = Reserved

Bytes 14, 15 of RECFMS = Counter – the number of times the SDLC-S station has received an SDLC Test command.

Bytes 16, 17 of RECFMS = Counter – the number of times the SDLC station has transmitted an SDLC test response.

STATISTICS TYPE 2 – Summary Error Data – Message is 15 bytes in length, the CSM target ID in header is a PU.

Bytes 8–11 of RECFMS = Bits 0–11 = block number  
Bits 12–31 = ID number of sending PU

Bytes 12, 13 of RECFMS = Reserved

Byte 14 of RECFMS = Summary counter validity mask

Bit 0–1 = Machine check counter is valid

Bit 1–1 = Communications check counter valid

Bit 2–1 = SNA error counter valid

Bit 3–7 = Reserved

Bytes 15, 16 of RECFMS = Reserved

Bytes 17, 18 of RECFMS = Machine check counter

Bytes 19, 20 of RECFMS = Communications check counter

Bytes 21, 22 of RECFMS = Count of SNA negative responses

STATISTICS TYPE 3 – Communications Adapter Data

Bytes 8–11 of RECFMS = Bits 0–11 = block number  
Bits 12–31 = ID number of sending PU

Bytes 12, 13 of RECFMS = Reserved

Byte 14 of RECFMS = Adapter type, defined as follows:

01 = BSC link adpater

02 = SDLC link adapter

03 = SDLC type 3 link adapter

04 = SDLC type 4 link adapter

The following byte descriptions apply to STATISTICS TYPE 3, Adapter Types hex 03 and 04.

Byte 15 of RECFMS — Communications adapter counter validity mask, defined as follows:

- Bit 0 = 1 = Total transmitted frames counter valid
- Bit 1 = 1 = Write retry counter valid
- Bit 2 = 1 = Total received frames counter valid
- Bit 3 = 1 = FCS error counter valid
- Bit 4 = 1 = Command reject counter valid
- Bit 5 = 1 = DCE error counter valid
- Bit 6 = 1 = Nonproductive timeout counter valid
- Bit 7 = 1 = Reserved

Bytes 16, 17 of RECFMS = Reserved

Bytes 18, 19 of RECFMS = Total transmitted frames counter — the total number of SDLC I-frames transmitted successfully.

Bytes 20, 21 of RECFMS = Write retry counter — the number of retransmissions of one or more SDLC I-frames.

Bytes 22, 23 of RECFMS = Total received frames counter — the number of SDLC-frames successfully received.

Bytes 24, 25 of RECFMS = FCS error counter — the number of SDLC I-frames received with FCS errors.

Bytes 26, 27 of RECFMS = Command reject counter — the number of CMDP responses and invalid commands received.

Bytes 28, 29 of RECFMS = DCE error counter — the number of DCE transmit failures and data set ready drops.

Bytes 30, 31 of RECFMS = Nonproductive timeout counter — the number of 30-second inactivity timeouts that occurred

STATISTICS TYPE 5 — BC Levels — Message is n bytes long, and the CSM target ID is a PU.

Bytes 8–11 of RECFMS = bits 0–11 = block number  
bits 12–31 = ID number of sending PU

Bytes 12, 13 of RECFMS = Reserved

Bytes 14–n of RECFMS = Implementation — defined data that describes the hardware, micro-code, and programming levels.

The following byte descriptions apply to STATISTICS TYPE 3, Adapter Types hex 01 and 02.

Byte 15 of RECFMS — Communications adapter counter validity mask, byte 1, defined as follows:

- Bit 0 = 1 = Nonproductive timeout counter valid
- Bit 1 = 1 = Idle timeout counter valid
- Bit 2 = 1 = Write retry counter valid
- Bit 3 = 1 = Overrun counter valid
- Bit 4 = 1 = Underrun counter valid
- Bit 5 = 1 = Connection problem counter valid
- Bit 6 = 1 = FCS error counter valid
- Bit 7 = 1 = Primary station termination counter valid

Byte 16 of RECFMS — Communication adapter counter validity mask, byte 2, as follows:

- Bit 0 = 1 = Command reject counter valid
- Bit 1 = 1 = DCE error counter valid
- Bit 2 = 1 = Write timeout counter valid
- Bit 3 = 1 = Invalid status counter valid
- Bit 4 = 1 = I/O machine check counter valid
- Bit 5 = 1 = Reserved
- Bit 6 = 1 = Reserved
- Bit 7 = 1 = Reserved

Byte 17 of RECFMS — Reserved

Byte 18 of RECFMS — Nonproductive timeout counter

Byte 19 of RECFMS — Idle timeout counter

Byte 20 of RECFMS — Write retry counter

Byte 21 of RECFMS — Overrun counter

Byte 22 of RECFMS — Underrun counter

Byte 23 of RECFMS — Connection problem counter

Byte 24 of RECFMS — FCS error counter

Byte 25 of RECFMS — Primary station termination counter

Byte 26 of RECFMS — Command reject counter

Byte 27 of RECFMS — DCE error counter

Byte 28 of RECFMS — Write timeout counter

Byte 29 of RECFMS — Invalid status counter

Byte 30 of RECFMS — I/O machine check counter

## CP743 DPPX Transmission Error Log Records

DPPX Communication Services generates this Class 2, Subclass 3, error log record when either an SNA message violates SNA protocol or the message destination is unknown.

The following shows the format and meaning of the transmission error log record:

### RECORD FORMAT

CLASS 02 SUBCLASS 03 OPTION 00

DATE YY.DDD TIME HH/MM/SS

MESSAGE (2)

### RECORD MEANING

(2) Message = A hex display of the transmission header (TH), request/response header (RH), sense data, and the request/response unit (RU). The message length is up to 20 hex bytes, depending upon the length of the individual components. The system error log stores this message and displays it, by using DISPLAY.ERRORLOG as contiguous data regardless of varying component lengths.

The following is a general description for each component of the message. For further information, refer to form SC30-3112.

#### 1. Transmission Header (TH)

Byte 0 of the TH identifies the FID type, defined as follows:

Byte 0

Bits 0–3 = 0000 = FID0  
          = 0001 = FID1  
          = 0010 = FID2  
          = 0011 = FID3

#### FID1

Byte 0

Bits 0–3 = 0001  
Bits 4, 5 = MPF – Mapping field, defined as follows:  
          10 = First segment of a BIU  
          00 = Middle segment of a BIU  
          01 = Last segment of a BIU  
          11 = Complete BIU

Bit 6 = Reserved  
Bit 7 = EFI – expedited flow indicator, defined as follows:  
          0 = Normal flow  
          1 = Expedited flow

Byte 1 = Reserved

Bytes 2, 3 = DAF – destination address field – a two-byte network address that specifies the BIU destination network addressable unit (NAU).

Bytes 4, 5 = OAF – origin address field – a two-byte network address that specifies the originating NAU.

Bytes 6, 7 = SNF – sequence number field – the numerical identifier for the associated BIU.

Bytes 8, 9 = DCF – data count field – a binary count of the number of bytes in either the BIU or the BIU segment associated with the TH, not including the system in the TH itself.

#### FID2 (See also FID1.)

Byte 0

Bits 0–3 = 0010  
Bits 4, 5 = MPF  
Bit 6 = Reserved  
Bit 7 = EFI

Byte 1 = Reserved

Byte 2 = DAF – one-byte local address of destination NAU

Byte 3 = OAF – one-byte local address of originating NAU

Bytes 4, 5 = SNF

#### FID3 (See also FID1.)

Byte 0

Bits 0–3 = 0011  
Bits 4, 5 = MPF  
Bit 6 = Reserved  
Bit 7 = EFI

Byte 1 = LSID – Local session ID, defined as follows:

Bit 0 = 0 = PU  
          = 1 = LU

Bit 1 = 0 = SSCP  
          = 1 = LU

Bits 2–7 = Local address

#### 2. Request/Response Header (RH)

Bit 0 of byte 0 identifies the request or response, defined as follows:

Bit 0 = 0 = Request header  
Bit 0 = 1 = Response header

#### Request Header

Byte 0

Bit 0 = 0  
Bits 1, 2 = RU category, defined as follows:  
          00 = FM data (FMD)  
          01 = Network control (NC)  
          10 = Data flow control (DFC)  
          11 = Session control (SC)

Bit 3 = Reserved  
 Bit 4 = FI – Format indicator, defined as follows:  
     0 = No FM header, for LU-LU sessions or character – coded without NS header for network services  
     1 = FM header follows, for LU-LU sessions or field formatted with NS header (NSH) for network services  
 Bit 5 = SDI – Sense data indicator, defined as follows:  
     0 = sense not included  
     1 = sense included  
 Bit 6 = BCI – Begin chain indicator, defined as follows:  
     0 = not first in chain  
     1 = first in chain  
 Bit 7 = BCI – End chain indicator, defined as follows:  
     0 = not last in chain  
     1 = last in chain  
 Byte 1  
 Bit 0 = DR1I – Definite response 1 indicator, defined as follows:  
     0 = not DR1  
     1 = DR1  
 Bit 1 = Reserved  
 Bit 2 = DR2I – Definite response 2 indicator, defined as follows:  
     0 = not DR2  
     1 = DR2  
 Bit 3 = ERI – Exception response indicator  
 Bits 4, 5 = Reserved  
 Bit 6 = QRI – Queued response indicator, defined as follows:  
     0 = response bypasses TC queues  
     1 = enqueue response in TC queue  
 Bit 7 = PI – Pacing indicator, defined as follows:  
     0 = not PAC  
     1 = PAC  
 Byte 2  
 Bit 0 = BBI – Begin bracket indicator, defined as follows:  
     0 = not begin bracket  
     1 = begin bracket  
 Bit 1 = EBI – End bracket indicator, defined as follows:  
     0 = not end bracket  
     1 = end bracket  
 Bit 2 = CDI – Change direction indicator, defined as follows:  
     0 = do not change direction  
     1 = change direction  
 Bit 3 = Reserved  
 Bit 4 = CSI – code selection indicator, defined as follows:  
     0 = code 0  
     1 = code 1

Bit 5 = EDI – Enciphered data indicator, defined as follows:  
     0 = RU is not enciphered  
     1 = RU is enciphered  
 Bit 6 = PDI – Padded data indicator, defined as follows:  
     0 = RU is not padded  
     1 = RU is padded  
 Bit 7 = Reserved

Response Header (See also Request Header.)

Byte 0

Bit 0 = 1  
 Bits 1, 2 = RU category  
 Bit 3 = Reserved  
 Bit 4 = FI  
 Bit 5 = SDI  
 Bits 6, 7 = 1

Byte 1

Bit 0 = DR1I  
 Bit 1 = Reserved  
 Bit 2 = DR2I  
 Bit 3 = RTI – Response type indicator, defined as follows:  
     0 = positive  
     1 = negative  
 Bits 4, 5 = Reserved  
 Bit 6 = QRI  
 Bit 7 = PI

Byte 2 = Reserved

3. Sense Data – In general, defined as follows:

Byte 0 = Category – defined in hex as follows:  
     80 = path error  
     40 = RH usage error  
     20 = state error  
     10 = request error  
     08 = request reject  
     00 = user sense data only

Byte 1 = Modifier – A function of category. Refer to form SC30-3112 for information.

Byte 2, 3 = Sense code specific information or user-defined data.

4. Request/Response Unit (RU)

Generally the RU is end-user data or control information generated by an SNA protocol machine. Refer to form SC30-3112 for information.

### CP744 DPPX System Conditions (IPL) Error Log Records

An IPL record is logged after each IPL. Programmed IPL error log records are indicated by Subclass 1 records; primary or manual IPL records are indicated by Subclass 2.

#### RECORD FORMAT

CLASS 03 SUBCLASS X OPTION 00

DATE YY.DDD TIME HH/MM/SS

SYSTEM IPL INFORMATION

IPL DATA (2) PA (3)

SYSTEM ID (4) LOAD ID (5)

IPL STATE (6)

#### RECORD MEANING

- Subclass = 1 = Programmed IPL error log record  
          2 = Primary or manual IPL error log record
- (2) IPL Data = Defined as follows:  
          Bit 0 = Reserved  
          Bit 1 = Reserved  
          Bit 2 = 1 = Tests run  
                  0 = Tests not run  
          Bit 3 = 1 = Storage registers cleared  
                  0 = Storage registers not cleared  
          Bit 4 = Unused  
          Bits 5–7 = IPL device type code
- (3) PA = Physical Adapter Address from which IPL was invoked.
- (4) System ID = ID of system IPL'ed. For each system ID, there is a corresponding system parameter list module with the name SYSPARxx in the system fetch library or system delta fetch library depending on load ID specified. XX is the system ID ranging from hex 00 to hex FF.
- (5) Load ID = System library ID. It specifies library to be used to load system modules. There are three options:  
          00 – System fetch library  
          01 – System delta fetch library  
          02 – Both system fetch and system delta fetch library with priority given to the delta fetch library.
- (6) IPL State = Defined as follows:  
          Bit 0 = 1 = Manual mode IPL  
          Bit 1 = 1 = Program mode IPL  
          Bit 2 = 1 = Primary mode IPL  
          Bit 3 = 1 = IPL valid latch  
          Bit 4 = Reserved  
          Bit 5 = 1 = Power-on reset sequence, defined as follows:  
          Bits 6–7   00 – Mode switch = primary, keylock = Enable or not installed  
                      01 – Mode switch = manual, keylock = Enable or not installed  
                      10 – Mode Switch = manual, keylock = Secure  
                      11 – Mode Switch = manual, keylock = Power Only

### CP745 DPPX Environment Manager Failure Error Log Records

The DPPX Environment Manager generates this error log record when it cannot terminate the environment requested. The following shows the format and meaning of this Class 4, Subclass 1, error log record:

#### RECORD FORMAT

CLASS 04 SUBCLASS 01 OPTION 00

DATE YY.DDD TIME HH/MM/SS

ENVIRONMENT MANAGEMENT FAILURE LOGGED

SRC = (2) PRC = (3)

#### RECORD MEANING

- (2) SRC = Source return code – identifies the DPPX/Base processor, macro, or module that failed.
- (3) PRC = Primary return code – defined as follows:  
Bits 0–3 = Failure indicator –  
          0000 = Successful or partially successful operation (PRC = hex 0000 through 7FFF)  
          0001 = Failure code from unsuccessful operation (PRC = hex 8000 through FFFF)
- Bits 4–7 = System code – defined as follows:  
          0 = Unqualified success  
          1 = Qualified success  
          2 = Caller error or parameter violation  
          3 = Temporary resource shortage  
          4 = Authority failure ,  
          8 = I/O function failure  
          C = Internal system error  
          B = Program exception or system check  
          F = Catastrophic error
- Bits 8–15 = Process qualifier – where:  
          00–7F = DPPX/Base  
          80–FF = IBM licensed program

**CP746 DPPX Tape Mount/Dismount Error Log Records**

DPPX Media Services generates this record when mount and dismount commands are issued to labeled tapes. The mount and dismount record contains the physical adapter address and device address of the 8809, thereby bracketing any statistical data recorded in the DPPX error log for the tape and drive. The record is used to associate the tape volume serial ID, physical adapter and device addresses, and statistical data. The following shows the format and meaning of this Class 4, Subclass 2, error log record:

**RECORD FORMAT**

CLASS 04 SUBCLASS 02 OPTION 00

DATE YY.DDD TIME HH/MM/SS

PA (2) SCA (3) DT (4)

VOLID (5) M/D (6)

**RECORD MEANING**

- (2) PA = Physical adapter address – one byte in hex
- (3) SCA = Secondary component address – physical device address – two bytes in hex
- (4) DT = Device type = T (hex 40E3)
- (5) VOLID = Volume serial tape ID – six bytes in EBCDIC
- (6) M/D = Mount/dismount indicator:  
M = Mount  
D = Dismount

**CP747 DPPX I/O Buffer Shortage Error Log Records**

DPPX Communication Services generates this record when all buffers are in use for a specific environment and the system cannot transmit the SNA message.

**RECORD FORMAT**

CLASS 04 SUBCLASS 04 OPTION 00

DATE YY.DDD TIME HH/MM/SS

BUFFER SHORTAGE FOR SUBPOOL (2)

ENVIRONMENT (3)

WHILE TRANSMITTING MESSAGE:

MESSAGE (4)

**RECORD MEANING**

- (2) Subpool ID
- (3) Environment ID = Environment ID of resource where buffer storage exists.
- (4) Message = First 20 bytes of the SNA message lost. It consists of the transmission header (TH), the request/response header (RH), the sense data, and the request/response unit (RU). Refer to CP743, "DPPX Transmission Error Log Records" for a complete description of this field.

**CP748 DPPX Hardware I/O Error Log Record Formats**

Within the DPPX Class 5, Subclass 1, records, the following are defined by Device Type:

Class	Subclass	Device Type	Error Record Type	MIM Section
05	01	A	Display/printer	AD
05	01	B	BSC	CA
05	01	C	2741	CA
05	01	F	System control facility	SC
05	01	G	Diskette	DA
05	01	H	SDLC secondary	CA
05	01	M	SDLC primary	CA
05	01	P	Disk	FA
05	01	T	Tape	TA
05	01	Y	ASR/TTY	CA

The following lists the error log record formats for the DPPX Class 5 Subclass 1 and Subclass 6 hardware errors. Refer to the associated Chapter 5 reference material in the XX300 sections listed above for format description.

**Note:** When printed and also when using a terminal having less than an 80-character line length, the formats appear as follows. If using a terminal having at least an 80-character line length, DISPLAY.ERRORLOG places two records on each line.

In all of the following record formats, the number of "X" designations determines the field size (one byte = two Xs).

The following information applies to all device types:

Abbreviations	Meaning
YY.DDD	Year - Julian date
HH/MM/SS	Hours/Minutes/Seconds
PA	Adapter physical address
SCA	Secondary component addr (physical device/sta addr)
DT	Device type
CRC	FDM request code
COMPSTAT	Completion status
ARC	Adapter return code
DATA	Data address
RES	Reserved
CNT	Byte count/block size
IOEP	I/O interrupt entry point
ADWA	Adapter work area address
CA	Channel address
CPR	Channel pointer register
FRWA	Function request work area
RES	Reserved
BCLE	Buffer control list element

EXTENDED DATA = Contents of the FRWA or sense and status registers

**Display Printer – Class = 5, Subclass = 1, Device Type = A**

```
CLASS 05 SUBCLASS 01 OPTION 24
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT A
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
```

**BSC – Class = 5, Subclass = 1, Device Type = B**

```
CLASS 05 SUBCLASS 01 OPTION 28
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT B
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XX
```

**2741 – Class = 5, Subclass = 1, Device Type = C**

```
CLASS 05 SUBCLASS 01 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT C
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
```

**System Control Facility -- Class = 5, Subclass = 1, Device Type F**

```
CLASS 05 SUBCLASS 01 OPTION 21
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT F
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX D12 XXXX
D13 XXXX D14 XXXX
```

## Diskette – Class = 5, Subclass = 1, Device Type = G

```

CLASS 05 SUBCLASS 01 OPTION 66
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT G
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
BCLE XX XX XXXX XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX D12 XXXX
D13 XXXX D14 XXXX D15 XXXX D16 XXXX
D17 XXXX D18 XXXX

```

## SDLC Secondary – Class = 5, Subclass = 1, Device Type = H

```

CLASS 05 SUBCLASS 01 OPTION 25
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT H
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX

```

## SDLC Primary – Class = 5, Subclass = 1, Device Type = M

```

CLASS 05 SUBCLASS 01 OPTION 23
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT M
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX D12 XXXX

```

## Disk – Class = 5, Subclass = 1, Device Type = P

```

CLASS 05 SUBCLASS 01 OPTION 22
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT P
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX D12 XXXX
D13 XXXX D14 XXXX D15 XXXX D16 XXXX

```

## Tape – Class = 5, Subclass = 1, Device Type = T

```

CLASS 05 SUBCLASS 01 OPTION 67
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT T
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX
BCLE XX XX XXXX XXXXXXXX
EXTENDED DATA
D01 XXXX D02 XXXX D03 XXXX D04 XXXX
D05 XXXX D06 XXXX D07 XXXX D08 XXXX
D09 XXXX D10 XXXX D11 XXXX D12 XXXX
D13 XXXX D14 XXXX D15 XXXX D16 XXXX
D17 XXXX D18 XXXX D19 XXXX D20 XXXX
D21 XXXX D22 XXXX D23 XXXX D24 XXXX
D25 XXXX D26 XXXX D27 XXXX D28 XXXX
D29 XXXX D30 XXXX D31 XXXX D32 XXXX
D33 XXXX D34 XXXX D35 XXXX D36 XXXX
D37 XXXX D38 XXXX D39 XXXX D40 XXXX
D41 XXXX D42 XXXX D43 XXXX D44 XXXX
D45 XXXX D46 XXXX D47 XXXX

```

## ASR/TTY – Class = 5, Subclass = 1, Device Type = Y

```

CLASS 05 SUBCLASS 01 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT Y
CRC XX COMPSTAT XX ARC XX
DATA XXXXXXXX RES XXXX CNT XXXX
IOEP XXXXXXXX ADWA XXXXXXXX
CA XX CPR XX FRWA XXXXXXXX
RES XXXXXXXX

```

## 3641, 3643, 3646, 3647 – Class = 5, Subclass = 6, Device Type = M

```

CLASS 05 SUBCLASS 06 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT M
SUB XX STAT XX

```

## 3642 – Class = 5, Subclass = 6, Device Type = M

```

CLASS 05 SUBCLASS 06 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT M
SUB XX STAT XX CMD XX CHST XX

```

## 3644 – Class = 5, Subclass = 6, Device Type = M

```

CLASS 05 SUBCLASS 06 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT M
CHAN XX CMD/STA XX EC1 XX EC2 XX

```

## 3644 – Class = 5, Subclass = 6, Device Type = M

```

CLASS 05 SUBCLASS 06 OPTION 00
DATE YY.DDD TIME HH/MM/SS
PA XX SCA XXXX DT M
CHAN XX TYP CC
D01 XX D02 XX D03 XX D04 XX
D05 XX D06 XX D07 XX D08 XX
D09 XX D10 XX D11 XX D12 XX
D13 XX D14 XX D15 XX D16 XX

```



## CP750 DISPLAY.ERRORLOG Command and How to Use It

This command retrieves error records stored in the DPPX system error log. Sections CP751 through CP753 explain how to print and display DPPX error log information. Once obtained, refer either to CP740, or to the Chapter 5 section that corresponds to the device, for the error log format and meaning.

### CP751 How to Print the Error Log

To print a copy of the error log, you need to use the DISPLAY.ERRORLOG command as described either in CP752 or CP753, and also do some additional procedures as described below. In either case you must perform the following:

1. Log on from an interactive terminal as the service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, enter:

```
ASSOCIATE.LU resource.name CNAME(LOGOUT) LOGMODE(SYSDFLT)
and press ENTER.
```

Where:

resource.name = the logical name of the printer used to print the error log.  
Obtain this from the customer.

For example, if you were to obtain a copy of the error log from a 3289 which had a logical name of SYSNET01.L0103L1E, enter:

```
ASSOCIATE.LU SYSNET01.L0103L1E CNAME(LOGOUT)
LOGMODE(SYSDFLT)
```

- a. If you are using the DISPLAY.ERRORLOG command directly (without CLISTS) as defined in CP752, perform the following when the 8100 responds with ENTER COMMAND:  
Enter: DISPLAY.ERRORLOG TARGET or DERR TARGET and press ENTER.  
When the 8100 responds with ENTER SUBCOMMAND, refer to the subcommands listed in CP752.
- b. If you are using the DISPLAY.ERRORLOG command with IBM-supplied CLISTS as described in CP753, perform the following when the 8100 responds with ENTER COMMAND:

Enter: P1(TARGET) on all CLISTS invoked.

For example, to use the SYSIEPA CLIST to search the error log for Class 5, Subclass 1 records with an adapter PA of hex 87, enter:

```
CALL.CLIST SYSICL.SYSIEPA P1(TARGET) P2(87)
```

3. In either case, when you are finished searching the error log, enter:  
FREE LOGOUT and press ENTER.

## CP752 How to Display the DPPX Error Log without Using CLISTS

1. Log on an interactive terminal as the service representative. (Refer to CP710.)
2. 8100 responds with ENTER COMMAND.
3. Enter ASSOCIATE.RSDS SYSERROR CNAME (CERROR) and press ENTER.
4. 8100 responds with ENTER COMMAND.
5. Enter DISPLAY.ERRORLOG or DERR and press ENTER.
6. 8100 responds with ENTER SUBCOMMAND.

The ASSOCIATE.RSDS command associates or binds a relative sequential data set (SYSERROR), to a program symbolic name (CERROR). If you either entered the command parameters (SYSERROR,CERROR) incorrectly, or if the name of the system error log was changed, or the error log data set was deleted then either of the following system messages displays:

```
(RC = 101C8802)
      or
HDHC0052I DATA SET NOT FOUND
      (RC = 0F528251)
```

If this message appears, repeat steps 3 through 5. If message appears again after repeating steps 3 through 5, then ask the 8100 system administrator for the name of the DPPX error log data set and substitute this name in place of SYSERROR in step 3.

7. Go to the DISPLAY.ERRORLOG subcommand that you want to use: LOCATE, NULL, RESET, or END.

### LOCATE Subcommand

Use the LOCATE subcommand to scan the error log for specific error records and to determine how many records are stored in the DPPX error log.

**How to Determine the Total Number of Records in the Error Log.** When the 8100 responds with ENTER SUBCOMMAND, enter:

```
LOCATE MULT NOFORMAT and press ENTER. The 8100 responds with:
      HDU0E004I nnnn RECORD(S) FOUND
      HDUE0005I POSITIONED AT START OF LOG
```

Where:

nnnn = the number of the records in the log

**How to Locate by Class.** When the 8100 responds with ENTER SUBCOMMAND, perform one of the following actions:

- To display all the records found for a particular class, enter:

```
LOCATE MULT CL(cc) and press ENTER,
```

Where:

cc = record class

For example, to display all the Class 5 records in the log, enter:

```
LOCATE MULT CL(5)
```

**Note:** Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE subcommand to do this.

- To display the next record found for a particular class, enter:

```
LOCATE NEXT CL(cc) and press ENTER,
```

Where:

cc = record class

For example, to display the next Class 5 record, enter:

```
LOCATE NEXT CL(5)
```

**How to Locate by Class and Subclass.** When the 8100 responds with ENTER SUBCOMMAND, perform one of the following actions:

- To display all the records found for a particular class and subclass, enter:

```
LOCATE MULT CL(cc) SC(ss) and press ENTER.
```

Where:

cc = record class

ss = record subclass

For example, to display all Class 5 Subclass 1 records in the log, enter:

```
LOCATE MULT CL(5) SC(1)
```

**Note:** Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE subcommand to do this.

- To display the next record found for a particular class and subclass, enter:

```
LOCATE NEXT CL(cc) SC(ss) and press ENTER,
```

Where:

cc = record class

ss = record subclass

For example, to display the next Class 5 Subclass 1 record, enter:

```
LOCATE NEXT CL(5) SC(1)
```

- To determine the number of records of a particular class and subclass, enter:

```
LOCATE MULT NOFORMAT CL(cc) SC(ss) and press ENTER,
```

Where:

cc = record class

ss = record subclass

For example, to determine the number of Class 5 Subclass 1 records stored in the error log, enter:

```
LOCATE MULT NOFORMAT CL(5) SC(1)
```

**Note:** Specify record class and subclass operands as decimal values, even though DISPLAY.ERRORLOG displays them as hex. To specify a class such as C9, you must either convert it to decimal or enter X 'C9'.

**How to Locate by Adapter Address.** When the 8100 responds with ENTER SUBCOMMAND, perform one of the following actions:

- To display all Class 5 Subclass 1 records with a particular physical adapter address, enter:

LOCATE MULT DA1(pa) and press ENTER,

Where:

pa = physical adapter address in hex

For example, to display all Class 5 Subclass 1 records with a physical adapter address of hex 21, enter:

LOCATE MULT DA1(21)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE sub-command to do this.*

- To display the next Class 5 Subclass 1 records found having a particular physical adapter address, enter:

LOCATE NEXT DA1(pa) and press ENTER,

Where:

pa = physical adapter address in hex

For example, to display the next Class 5 Subclass 1 record in the error log with a physical adapter address of hex 21, enter:

LOCATE NEXT DA1(21)

- To determine the number of Class 5 Subclass 1 records in the error log with a particular adapter address, enter:

LOCATE MULT NOFORMAT DA1(pa) and press ENTER,

Where:

pa = physical adapter address in hex

For example, to determine the number of Class 5 Subclass 1 records in the error log with a physical chapter address of hex 21, enter:

LOCATE MULT NOFORMAT DA1(21)

**How to Locate by Adapter and Device Address.** The SCA field of a Class 5 Subclass 1 record contains the device address. When the 8100 responds with ENTER SUBCOMMAND, perform one of the following actions:

- To display all Class 5 Subclass 1 records with a particular physical adapter and device address, enter:

LOCATE MULT DA1(pa,da) and press ENTER,

Where:

pa = physical adapter address in hex

da = physical device adapter in hex

For example, to display all Class 5 Subclass 1 records with a physical adapter address of hex 21 and a physical device address of hex AB, enter:

LOCATE MULT DA1(21,AB)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE sub-command to do this.*

- To display the next Class 5 Subclass 1 record found having a particular physical adapter and device address, enter:

LOCATE NEXT DA1(pa,da) and press ENTER,

Where:

pa = physical adapter address in hex

da = physical device address in hex

For example, to display the next Class 5 Subclass 1 record found in the error log having a physical adapter address of hex 21 and a physical device address of hex AB, enter:

LOCATE NEXT DA1(21,AB)

- To determine the number of Class 5 Subclass 1 records in the error log with a particular adapter and device address, enter:

LOCATE MULT NOFORMAT DA1(pa,da) and press ENTER,

Where:

pa = physical adapter address in hex

da = physical device address in hex

For example, to determine the number of Class 5 Subclass 1 records in the error log with a physical adapter address of hex 21 and a physical device address of hex AB, enter:

LOCATE MULT NOFORMAT DA1(21,AB)

#### How to Locate by Date and Time

**Note:** *Error records are only time- and date-stamped if: (1) the system operator sets the date and time clock by using the SET.DATE and SET.TOD commands after every IPL and (2) Timer Management is part of the DPPX operating system for time stamping.*

When the 8100 responds with ENTER SUBCOMMAND, perform one of the following actions:

- To display all records with a particular date, enter:

LOCATE MULT DATE1(yr,day) and press ENTER,

Where:

yr = Julian year in the range of 0 to 99

day = Julian day in the range of 1 to 366

For example to display all records logged on April 25, 1979, enter:

LOCATE MULT DATE1(79,115)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT.operand in the LOCATE sub-command to do this.*

- To display records with a particular date and time, enter:

LOCATE MULT DATE1(yr,day) TIME1(hh,mm,ss) and press ENTER,

Where:

yr = Julian year in the range of 0 to 99

day = Julian day in the range of 1 to 366

hh = hour expressed as continental time in the range 0 to 23

mm = minute expressed as continental time in the range 0 to 59

ss = second expressed as continental time in the range 0 to 59.

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE sub-command to do this.*

Within the TIME1 operand field, mm and ss are optional. If ss is included, then all prior operands must be specified. If mm is included, then hh must have a value.

For example, to display the next record found in the error log for April 25, 1979, after 7 P.M., enter:

LOCATE NEXT DATE1(79,115) TIME1(19)

- To display records with a particular date, time, Class, and Subclass, enter:

LOCATE NEXT CL(cc) SC(ss) DATE1(yr,day) TIME1(hh,mm,ss) and press ENTER,

Where:

cc = record class

ss = record subclass

yr = Julian year in the range of 0 to 99

day = Julian day in the range of 1 to 366

hh = hour expressed as continental time in the range of 0 to 23

mm = minute expressed as continental time in the range of 0 to 59

ss = second expressed as continental time in the range of 0 to 59

To display all records meeting the specified parameters, include the MULT operand. To display the next record meeting the LOCATE parameter, include the NEXT operand. The TIME1 operands are optional, but when one is included, all prior operands must be specified.

For example, to display the next record that is a Class 5 Subclass 1 entry and was logged on April 25, 1979, after 7 P.M., enter:

LOCATE NEXT CL(5) SC(1) DATE1(79,115) TIME 1(19)

- To display records with a particular date, time, and adapter address, enter:

LOCATE NEXT DA1(pa) DATE1(yr,day) TIME1(hh,mm,ss) and press ENTER,

Where:

pa = physical adapter address in hex

yr = Julian year in the range of 0 to 99

day = Julian day in the range of 1 to 366

hh = hour expressed as continental time in the range of 0 to 23

mm = minute expressed as continental time in the range of 0 to 59

ss = second expressed as continental time in the range of 0 to 59

To display all records meeting the specified parameters, include the MULT operand. To display the next record in the error log meeting the LOCATE parameter, include the NEXT operand. The TIME1 operands are optional but when one is included, all prior operand must be specified.

For example, to display all records in the error log for a Class 5 Subclass 1 record with a physical adapter address of hex 21 recorded on April 25, 1979, after 7 P.M., enter:

LOCATE MULT DA1(21) DATE1(79,115) TIME1(19)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE sub-command to do this.*

- To display records logged between two time/dates, enter:

LOCATE MULT DATE1(yr,day) TIME1(hh,mm,ss) DATE2(yr,day) TIME2(hh,mm,ss) and press ENTER,

Where:

yr for DATE1 = Julian year in the range of 0 to 99. This is the starting year.

day for DATE1 = Julian day in the range of 1 to 366. This is the starting day.

hh for TIME1 = hour expressed as continental time in the range of 0 to 23. This is the starting hour.

mm for TIME1 = minute expressed as continental time in the range of 0 to 59. This is the starting minute.

ss for TIME1 = second expressed as continental time in the range of 0 to 59. This is the starting second.

yr for DATE2 = Julian year in the range of 0 to 99. This is the ending year.

day for DATE2 = Julian day in the range of 1 to 366. This is the ending day.

hh for TIME2 = hour expressed as continental time in the range of 0 to 23. This is the ending hour.

mm for TIME2 = minute expressed as continental time in the range of 0 to 59. This is the ending minute.

ss for TIME2 = second expressed as continental time in the range of 0 to 59. This is the ending second.

The TIME1 and TIME2 operands are optional, but if one of the delimiters for either operand is used, then all preceding parameters for that operand must be used. For example, if minutes are expressed for TIME2, then hours for TIME2 must also be used.

For example, to display all error records recorded in the log between 7 P.M. on April 25, 1979, and 8 A.M. on April 26, 1979, enter:

LOCATE MULT DATE1(79,115) TIME1(19) DATE2(79,116) TIME2(7,59)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE subcommand to do this.*

**How to Locate Error Records Using Variable Data.** DISPLAY.ERRORLOG can accept up to 16 bytes of variable data as search parameters if you use the offset operand. The input search data is assumed to be character; however, a hex value can be specified. The offset value designates the decimal number of bytes into a record that is necessary to specify the field with which you want to compare. A typical use for this option would be to search the error log for Class 5 Subclass 1 records using the device type as the search parameter. To use this DISPLAY.ERRORLOG option, you must know the exact location of the error log bytes with which you want to compare (see Figures CP752-1 through CP752-3). The following paragraphs and figures help to explain this error log option and determine displacements.

In order to effectively use the OFFSET operand of the LOCATE subcommand, you need to know the structure of the error record (how it is stored in the DPPX error log). For that purpose, Figures CP752-1 through CP752-3 are used to determine these decimal displacements for all fields of hardware I/O error log records (Class 5 Subclass 1).

Logically a Class 5 Subclass 1 record can be grouped into five parts, defined as follows:

1. Header - 14 bytes – standard for all DPPX error log entries.
2. Device type - 2 bytes – standard for all Class 5 Subclass 1 error log records.
3. Function request block (FRB) - 32 bytes – this or an equivalent is standard for all Class 5 Subclass 1 error log records.
4. Buffer control list element (BCLE) - 8 bytes – optional for certain adapters.
5. Extended data - n bytes – optional, defined by each adapter, and contained in the "D" fields of all Class 5 Subclass 1 error log records.

Figure CP752-1 identifies the decimal displacements for the standard (header, device type, and FRB) fields of the DPPX Class 5 Subclass 1 error log records. Figure CP752-2 identifies the decimal displacements of the extended data ("D") fields for adapters that do not use the BCLE. Figure CP752-3 identifies the decimal displacements for those adapters that use both a BCLE and extended data fields.

Field	Description	Decimal Displacement
CLASS	Record class	2
SUBCLASS	Record subclass	3
OPTION	Option mask	4
DATE	Date of entry into log	
TIME/SEQ NO.	Time stamp or sequence number	
PA	Physical adapter address	16
SCA	Physical device address	42 Note 1
DT	Device type (identifies an adapter type)	14 Note 2
CRC	FDM request code (identifies the function executed by the FDM)	17
COMPSTAT	FRB completion status	18
ARC	Adapter return code (identifies adapter status)	19
DATA	FDM count or data field	20
RES	FDM reserved field	24
CNT	Count of number of bytes transferred or additional pointers	26
IOEP	FDM I/O interrupt entry point	28
ADWA	Address of adapter work area	32
CA	Channel address	40
CPR	Channel pointer register number	41
FRWA	Address of function request work area	36
RES	FDM reserved field	44

**Notes:**

1. *The device address is stored in the second byte of the SCA field; therefore, use a displacement of 43 when using the OFFSET operand.*
2. *Device type is two bytes of character data. The first byte is blank (hex 40). The OFFSET operand cannot locate variable data when the first byte is blank; therefore, either use a displacement of 15 and one byte of character data when using the OFFSET operand, or convert the field into hex and use the hex value as a data input.*

**Figure CP752-1. Class 5 Subclass 1 Error Log Record Standard Field Displacements**

Field	Decimal Displacement
1st byte of D01 field	48
1st byte of D02 field	50
1st byte of D03 field	52
1st byte of D04 field	54
1st byte of D05 field	56
1st byte of D06 field	58
1st byte of D07 field	60
1st byte of D08 field	62
1st byte of D09 field	64
1st byte of D10 field	66
1st byte of D11 field	68
1st byte of D12 field	70
1st byte of D13 field	72
1st byte of D14 field	74
1st byte of D15 field	76
1st byte of D16 field	78
1st byte of D17 field	80
1st byte of D18 field	82

Note: The above extended data fields are adapter-dependent. Refer to the appropriate Chapter 5 section for their description and meaning.

Figure CP752-2. Class 5 Subclass 1 Error Log Record Field Displacements (BCLE not used)

Field	Decimal Displacement
Byte 0 of BCLE (Flag)	48
Byte 1 of BCLE (Command)	49
Bytes 2-3 of BCLE (Count)	50
Bytes 4-7 of BCLE (Address or data)	52
1st byte of D01 field	56
1st byte of D02 field	58
1st byte of D03 field	60
1st byte of D04 field	62
1st byte of D05 field	64
1st byte of D06 field	66
1st byte of D07 field	68
1st byte of D08 field	70
1st byte of D09 field	72
1st byte of D10 field	74
1st byte of D11 field	76
1st byte of D12 field	78
1st byte of D13 field	80
1st byte of D14 field	82
1st byte of D15 field	84
1st byte of D16 field	86
1st byte of D17 field	88
1st byte of D18 field	90
1st byte of D19 field	92
1st byte of D20 field	94
1st byte of D21 field	96
1st byte of D22 field	98

Note: For a description of field content, refer to the individual adapter sections of Chapter 5.

Figure CP752-3. Class 5 Subclass 1 Error Log Record Field Displacements (BCLE used)

Field	Decimal Displacement
1st byte of D23 field	100
1st byte of D24 field	102
1st byte of D25 field	104
1st byte of D26 field	106
1st byte of D27 field	108
1st byte of D28 field	110
1st byte of D29 field	112
1st byte of D30 field	114
1st byte of D31 field	116
1st byte of D32 field	118
1st byte of D33 field	120
1st byte of D34 field	122
1st byte of D35 field	124
1st byte of D36 field	126
1st byte of D37 field	128
1st byte of D38 field	130
1st byte of D39 field	132
1st byte of D40 field	134
1st byte of D41 field	136
1st byte of D42 field	138
1st byte of D43 field	140
1st byte of D44 field	142
1st byte of D45 field	144
1st byte of D46 field	146
1st byte of D47 field	148

When the 8100 responds with ENTER SUBCOMMAND:

- To scan the error log on Class 5 Subclass 1 records for device type (all similar device types) enter:

LOCATE MULT CL(5) SC(1) OFFSET(15) DATA(dt) and press ENTER,

Where:

dt = second character of the device type

- To display all records found for attached disk adapters on a particular 8100, enter:

LOCATE MULT CL(5) SC(1) OFFSET(15) DATA(P) and press ENTER.

- To display a Class 5 Subclass 1 record with an adapter return code (ARC) value of hex 04, enter:

LOCATE NEXT CL(5) SC(1) OFFSET(19) DATA(X'04')

In the second example, just the character P was entered. In the third example, hex data was entered requiring single quotes (') and the hex (X) representation.

*Note: Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using this option. Include the NOFORMAT operand in the LOCATE subcommand to do this.*

#### NULL Subcommand

Use the NULL subcommand as a response to repeat the last LOCATE subcommand entered. There are no operands for this subcommand. This function is intended for use with the NEXT operand on the LOCATE subcommand.

To use the NULL subcommand, when the 8100 responds with ENTER SUBCOMMAND after a LOCATE was entered, press ENTER.

If no previous LOCATE subcommand was entered, then DISPLAY.ERRORLOG prompts you for another subcommand. For example, to display Class 5 Subclass 1 records containing an adapter address of hex 21 one at a time, when the 8100 responds with ENTER SUBCOMMAND, enter:

LOCATE NEXT DA1(21) and press ENTER.

1. The 8100 responds with either the next record it finds that contains an adapter address of hex 21, or the prompt

HDUE00031 NO MATCHING RECORD (S) FOUND RETURNED TO START OF LOG.

2. When the 8100 responds with ENTER SUBCOMMAND, if step 1 above displayed a Class 5 Subclass 1 record with an adapter address of hex 21, then press ENTER to display the next Class 5 Subclass 1 record with an adapter address of hex 21. Otherwise, enter the next subcommand.

#### RESET Subcommand

The RESET subcommand resets the error record pointer to the start of the error log data set (the newest entry).

To use the RESET subcommand, when 8100 responds with ENTER SUBCOMMAND:

1. Enter RESET and press ENTER.

2. The 8100 responds with

HDUE00051 POSITIONED AT START OF LOG ENTER SUBCOMMAND.

#### END Subcommand

The END subcommand terminates DISPLAY.ERRORLOG. Use the subcommand when you are finished displaying error log records.

When the 8100 responds with ENTER SUBCOMMAND:

1. Enter END and press ENTER.

2. When the 8100 responds with ENTER COMMAND, enter FREE CERROR and press ENTER.

### CP753 How to Display the DPPX Error Log Using CLISTS

CLISTS are a predefined group of DPPX commands and subcommands that perform specific operations and eliminate the need for entering individual commands. There are seven CLIST functions:

- **SYSIEDA** – Scans the error log for Class 5 Subclass 1 records using the physical adapter address and device address as the search parameters, and displays the first five records that satisfy the parameters.
- **SYSIEDAM** – Scans the error log for Class 5 Subclass 1 records using the physical adapter address and device address as the search parameters. It displays either (1) a number indicating how many records were found, (2) all the log entries found that satisfy the parameters specified, or (3) the first record found that satisfies the parameters specified.
- **SYSIEPA** – Scans the error log for Class 5 Subclass 1 records using the physical adapter address as the search parameter, and displays the first five records found that satisfy the parameter.
- **SYSPIEPAM** – Scans the error log for Class 5 Subclass 1 records using the physical adapter address as the search parameter. It displays either (1) a number indicating how many records were found, (2) all the log entries found that satisfy the parameter specified, or (3) the first record found that satisfies the parameter specified.
- **SYSIEGA** – Scans the error log for Class 5 Subclass 1 records using the physical adapter address and group address as the search parameters. It displays either (1) a number indicating how many records were found, (2) all the log entries found that satisfy the parameters specified, or (3) the first record found that satisfies the parameters specified.

**Note:** *The SYSIEGA CLIST is useful only for SDLC primary error log records.*

- **SYSIEGEN** – Scans the error log for any Class or Subclass record. It displays the first record found that satisfies the search parameters, as well as the next 10 consecutive records immediately following it.
- **SYSIETIM** – Scans the error log using Class, Subclass, time, and date as the search parameters. It displays either (1) a number indicating how many records were found, (2) all the log entries found that satisfy the parameters specified, or (3) the first record found that satisfies the parameters specified.

Each time you use a CLIST function, it invokes the DISPLAY.ERRORLOG command and begins the record search at the start of the error log. Consecutively invoking a particular CLIST function displays the same error records, unless new records that meet the search parameters were written into the error log between CLIST invocations. Typically, you can use a CLIST function to first review the display for an overall understanding of record format and content, and then invoke it a second time for specific records. All records are searched on a last-in, first-out basis.

The following paragraphs explain how to use these CLIST functions.

#### How to Use SYSIEDA

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, enter:

CALL.CLIST SYSICL.SYSIEDA P2(aa) P3(dd) and press ENTER,

Where:

aa = physical adapter address in hex

dd = physical device address in hex

For example, to search the error log for a Class 5 Subclass 1 record with an adapter PA of hex 93 and a device address of hex 00, enter:

CALL.CLIST SYSICL.SYSIEDA P2(93) P3(00)

#### How to Use SYSIEDAM

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:

- To determine the number of Class 5 Subclass 1 records for a specific adapter and device physical address, enter:

CALL.CLIST SYSICL.SYSIEDAM P2(aa) P3(dd) and press ENTER,

Where:

aa = physical adapter address in hex

dd = physical device address in hex

For example, to determine the number of Class 5 Subclass 1 records found for an adapter PA of hex 93 and a device address of hex 00, enter:

CALL.CLIST SYSICL.SYSIEDAM P2(93) P3(00)

- To display all the Class 5 Subclass 1 records found for a specific adapter and device physical address, enter:

CALL.CLIST SYSICL.SYSIEDAM P2(aa) P3(dd) P5(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

dd = physical device address in hex

For example, to display all Class 5 Subclass 1 records found for an adapter PA of hex 93 and a device address of hex 00, enter:

CALL.CLIST SYSICL.SYSIEDAM P2(93) P3(00) P5(FORMAT)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using the above option. If an excessive number of records exist, use the SYSIEDA CLIST to display the next five records of the selected adapter and device address.*



- To display the next Class 5 Subclass 1 record found for a specific adapter and device physical address, enter:

CALL.CLIST SYSICL.SYSIEDAM P2(aa) P3(dd) P4(NEXT) P5(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

dd = physical device address in hex

#### How to Use SYSIEPA

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, enter:

CALL.CLIST SYSICL.SYSIEPA P2(aa) and press ENTER,

Where:

aa = physical adapter address in hex

For example, to search the error log for Class 5 Subclass 1 records with an adapter PA of hex 87, enter:

CALL.CLIST SYSICL.SYSIEPA P2(87)

#### How to Use SYSIEPAM

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:

- To determine the number of Class 5 Subclass 1 records for a specific adapter physical address, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(aa) and press ENTER,

Where:

aa = physical adapter address in hex

For example, to determine the number of Class 5 Subclass 1 records in the log for an adapter PA of hex 87, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(87)

- To display all the Class 5 Subclass 1 records found for a specific adapter physical address, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(aa) P4(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

For example, to display all the Class 5 Subclass 1 records found for an adapter PA of hex 87, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(87) P4(FORMAT)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using the above option. If an excessive number of records exist, use the SYSIEPA CLIST to display the next five records of the selected adapter PA.*

- To display the next Class 5 Subclass 1 record found for a specific adapter physical address, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(aa) P3(NEXT) P4(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

For example, to display the next Class 5 Subclass 1 records found for an adapter PA of hex 87, enter:

CALL.CLIST SYSICL.SYSIEPAM P2(87) P3(NEXT) P4(FORMAT)

#### How to Use SYSIEGA

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:

- To determine the number of Class 5 Subclass 1 records for a specific SDLC primary adapter and group physical address, enter:

CALL.CLIST SYSICL.SYSIEGA P2(aa) P3(X'gg') and press ENTER,

Where:

aa = physical adapter address in hex

gg = group address in hex

For example, to determine the number of Class 5 Subclass 1 records found for an adapter PA of hex 81 and a group address of hex 30, enter:

CALL.CLIST SYSICL.SYSIEGA P2(81) P3(X'30')

- To display all the Class 5 Subclass 1 records found for a specific SDLC primary adapter and group physical address, enter:

CALL.CLIST SYSICL.SYSIEGA P2(aa) P3(X'gg') P5(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

gg = group address in hex

For example, to display all Class 5 Subclass 1 records found for an adapter PA of hex 81 and a group address of hex 30, enter:

CALL.CLIST SYSICL.SYSIEGA P2(81) P3(X'30') P5(FORMAT)

**Note:** *Once the display of all records begins, it cannot be interrupted. You should, therefore, determine the number of records that satisfy the search parameters before using the above option.*

- To display the next Class 5 Subclass 1 record found for a specific SDLC primary adapter and group address, enter:

CALL.CLIST SYSICL.SYSIEGA P2(aa) P3(X'gg') P4(NEXT) P5(FORMAT) and press ENTER,

Where:

aa = physical adapter address in hex

gg = group address in hex

## How to Use SYSIEGEN

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, enter:  
CALL.CLIST SYSICL.SYSIEGEN P2(c) P3(s) and press ENTER,  
Where:  
c = record class  
s = record subclass  
For example:
  - To display the next IPL record found and the ten records immediately following it, enter:  
CALL.CLIST SYSICL.SYSIEGEN P2(3) P3(2)
  - To display the next system check record found and the ten records immediately following it, enter:  
CALL.CLIST SYSICL.SYSIEGEN P2(5) P3(2)

## How to Use SYSIETIM

1. Log on an interactive terminal as a service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:
  - To determine the number of records by Class and Subclass within a specific time and date range, enter:  
CALL.CLIST SYSICL.SYSIETIM P2(c) P3(s) P6(Y1) P7(D1) P8(H1) P9(Y2) P10(D2) P11(H2)  
Where:  
c = record class  
s = record subclass  
Y1 = last two digits of year of the oldest entry in range  
D1 = Julian date of the oldest entry in range  
H1 = continental time in hours of the oldest entry in range  
Y2 = last two digits of year of the oldest entry in range  
D2 = Julian date of the oldest entry in range  
H2 = continental time in hours of the oldest entry in range  
For example, to determine the number of Class 5 Subclass 1 records logged between 12 noon on May 2, 1979, and 5:00 PM on May 3, 1979, enter:  
CALL.CLIST SYSICL.SYSIETIM P2(5) P3(1) P6(79) P7(122) P8(12) P9(79) P10(123) P11(17)
  - To display all the records by Class and Subclass within a specific time and date range, enter:  
CALL.CLIST SYSICL.SYSIETIM P2(c) P3(s) P5(FORMAT) P6(Y1) P7(D1) P8(H1) P9(Y2) P10(D2) P11(H2) and press ENTER

## Where:

c = record class  
s = record subclass  
Y1 = last two digits of year of the oldest entry in range  
D1 = Julian date of the oldest entry in range  
H1 = continental time in hours of the oldest entry in range  
Y2 = last two digits of year of the oldest entry in range  
D2 = Julian date of the oldest entry in range  
H2 = continental time in hours of the oldest entry in range

For example, to display all the Class 5 Subclass 1 records logged between 12 noon on May 2, 1979, and 5:00 PM on May 3, 1979, enter:

```
CALL.CLIST SYSICL.SYSIETIM P2(5) P3(1) P5(FORMAT) P6(79) P7(122)
P8(12) P9(79) P10(123) P11(17)
```

## CP754 DISPLAY.ERRORLOG Messages

The following DPPX messages can occur when using the DISPLAY.ERRORLOG command:

- HDUE00031 NO MATCHING RECORD(S) FOUND – RETURNED TO START OF LOG  
A LOCATE subcommand scanned the entire error log and found no records matching the search parameter entered. Reissue the LOCATE subcommand to ensure that the original search parameter was correctly specified. If message reappears, then no records exit.
- HDUE0041 nnnn RECORD(S) FOUND  
Where: nnnn = the decimal number of records in the error log matching a search parameter.  
The message provides a count of the number of error records in the log meeting a search parameter.
- HDUE00051 POSITIONED AT START OF LOG  
Message is issued as the result of a RESET subcommand and after HDUE00031.
- HDUE00061 DEVICE ADDRESS INCOMPATIBLE WITH CLASS/SUBCLASS  
A LOCATE subcommand has a device address specified as search parameter, but the class and/or subclass specified is not Class 5 and/or Subclass 1. Reissue the LOCATE subcommand without using class and subclass operands, since the default is 5/1 when a device address is specified.
- HDUE00071 INVALID DISPLAY.ERRORLOG SUBCOMMAND  
The subcommand specified was invalid or incorrect. Reissue the subcommand and ensure that the subcommand and operands are valid.
- HDUE00091 INVALID DATE OR TIME ENTERED  
The LOCATE subcommand was issued with an invalid value for the DATE1, TIME1, and/or TIME2 operands, and was rejected. Correct the input and reissue the LOCATE subcommand.
- HDUE00101 INPUT DATA SET RETURNED INVALID SIZE  
A size other than 256 was returned in the CRB when connected to the input data set CERROR. Ensure that the data set specified in the ASSOCIATE.RSDS command was correct. Reissue with the correct data set specified.

CP760 Not Used

## CP770 DPPX Test Commands and How to Use Them

**Note:** When entering any DPPX command information that uses the parentheses symbols, ( ), ( should NOT be preceded by a space, and ) should ALWAYS have a space following it.

### CP771 DISPLAY.ADAPTER Command

To use the DISPLAY.ADAPTER command, which displays adapter status, you should know the adapter logical name (the name used when the adapter was defined).

The following information is displayed as command output:

- Adapter logical name
- Adapter status
  - Active: adapter has been activated and can be used.
  - Inactive: adapter name not found in the list of active adapters.
  - Deactivating: adapter is in process of being deactivated.
  - Not operative: adapter is not usable.

The following information is displayed for active adapters:

- Primary interrupt
- Physical adapter address
- Number of devices that are connected to the adapter
- Number of devices that are disconnected

### How to Use DISPLAY.ADAPTER

1. Log on an interactive terminal as the service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:
  - To display the status of all adapters, enter:  
DISPLAY.ADPATER \* and press ENTER.  
For example, to display the status of all the active adapters on the 8100, enter:  
DISPLAY.ADAPTER \*
  - To display the status on one particular adapter, enter:  
DISPLAY.ADAPTER aaaaaaaa and press ENTER,  
Where:  
aaaaaaaa = logical adapter name used by customer when adapter was defined

For example, to display the status of the disk adapter whose logical adapter name is "adapdisk", enter:

DISPLAY.ADAPTER adapdisk

## DISPLAY.ADAPTER Messages

The following messages can occur while using the DISPLAY.ADAPTER command:

- HDIU0010I ADAPTER=aaaaaaa ACTIVE PA=aa LEVEL=n DEVICES CONNECTED=nn1 DISCONNECTED=nn2

Where:

- aaaaaaa = logical adapter name
- aa = physical adapter address in hex
- n = interrupt level assigned
- nn1 = number of devices connected to the adapter
- nn2 = number of devices disconnected on the adapter

The above message is presented for active adapters.

- HDIU0011I ADAPTER=aaaaaaa INACTIVE

Where:

- aaaaaaa = logical adapter name

The adapter for which DISPLAY.ADAPTER was issued cannot be found in the list of active adapters.

- HDIU0012I ADAPTER=aaaaaaa DEACTIVATING

Where:

- aaaaaaa = logical adapter name

The adapter for which DISPLAY.ADAPTER was issued is in the process of deactivating.

- HDIU0013I ADAPTER=aaaaaaa NOT OPERATIVE

Where:

- aaaaaaa = logical adapter name

The adapter for which DISPLAY.ADAPTER was issued is among the active adapters but has been marked as not operative by DPPX.

### CP772 DISPLAY.DEVICE Command

Use the DISPLAY.DEVICE command to display status of devices on a particular adapter. To display the status of a particular device, you need to know its logical name (the name used when the device was defined). You also need to know the logical name of the adapter on which the device is attached.

The following information is displayed as command output:

- Fully qualified device name (logical adapter/device name)
- Device status
  - Connected – Device is connected and active on the adapter
  - Inoperative – Device is unusable.
  - Not connected – Device is not connected.
  - Adapter inactive – Adapter specified using DISPLAY.DEVICE is not active.

**How to Use DISPLAY.DEVICE**

1. Log on an interactive terminal as the service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, perform one of the following options:

- DISPLAY.DEVICE aaaaaaa \* and press ENTER,

Where:

aaaaaaa = logical adapter name used by customer when the adapter was defined

**Note:** If the logical adapter name is not known, issue the DISPLAY.ADAPTER command using the "\*" operand to determine the logical name by cross-referencing to the physical adapter address.

For example, to display the status of all active devices on the display adapter whose logical name is adapterm enter:

DISPLAY.DEVICE adapterm. \*

- To display the status of a particular device on an adapter, enter:

DISPLAY.DEVICE aaaaaaa.ddddddd and press ENTER,

Where:

aaaaaaa = logical adapter name used by customer when the adapter was defined

ddddddd = logical device name used by customer when the device was defined

For example, to display the status of 3277 whose logical name is 3277OA and is attached to an adapter whose logical name is adapterm, enter DISPLAY.DEVICE adapterm.3277OA.

**DISPLAY.DEVICE Messages**

The following messages can occur while using the DISPLAY.DEVICE command:

- HDIU0015I DEVICE=aaaaaaa.ddddddd CONNECTED DA=dd

Where:

aaaaaaa = logical adapter name

ddddddd = logical device name

dd = physical device address in hex

The above message is presented for devices connected to the indicated adapter.

- HDIU0016I DEVICE=aaaaaaa.ddddddd INOPERATIVE DA=dd

Where:

aaaaaaa = logical adapter name

ddddddd = logical device name

dd = physical device address in hex

The above message is presented for inoperative (not usable) devices on the indicated adapter.

- HDIU0017I DEVICE=aaaaaaa.ddddddd NOT CONNECTED

Where:

aaaaaaa = logical adapter name

ddddddd = logical device name

The above message is presented when a requested device was not connected.

- HDIU0011I ADAPTER=aaaaaaa INACTIVE OR UNDEFINED

Where:

aaaaaaa = logical adapter name

The adapter for which DISPLAY.DEVICE was issued is inactive (cannot be found in the list of active adapters).

**CP773 DISPLAY.NETWORK Command**

DISPLAY.NETWORK displays the status of network resources. To use the command, you need to know the logical names of the resources to be displayed. Information displayed by DISPLAY.NETWORK includes:

- Physical unit (PU)
  - Active/inactive status
  - PU type (1, 2, 4, or 5)
  - Link name associated with this PU for PU types 1, 2, and 4
  - Subarea ID of a PU for PU types 4 and 5
  - Associated subarea PU names
  - Network Address, if active
- Logical unit (LU)
  - Active/inactive status
  - Associated PU name
  - Current session count
  - Network address, if active
- SDLC link
  - Active/inactive status
  - List of PUs attached to this link
  - Network address, if active

**How to Display the Status of a Physical Unit (PU)**

1. Log on an interactive terminal as the service representative. (Refer to CP710.)
2. When the 8100 responds with ENTER COMMAND, enter:

DISPLAY.NETWORK ddddddd.rrrrrrr or DN ddddddd.rrrrrrr and press ENTER,

Where:

ddddddd = logical domain name of PU

rrrrrrr = logical resource name of PU

For example, to display the status of an 8775 attached to a loop having a logical domain PU name of "domain 21" and a logical resource PU name of "PU8775", enter:

DISPLAY.NETWORK domain21.PU8775



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## CP800 DPCX Testing and Fault Isolation Procedures

DPCX provides online testing for the following adapter and device interfaces, but not the entire device, by using the SYSTCM Utility:

- Display/printer adapters.
- All devices attached to display/printer adapters.
- Communications adapters.
- All devices attached to communications adapters on either data link-attached or directly-attached loops, which also includes link level tests.

### CP810 How to Log On and Run DPCX Online Tests

DPCX tests can be invoked online from:

- the 8130/8140 basic operator panel (BOP)
- a 3276 Control Unit/Display Station
- a 3277 Display Station
- an 8775 Display Station

Sections CP811 through CP814 describe how to log on and log off the 8100 and invoke DPCX online from the above devices.

### CP811 How to Log On and Run DPCX Online Tests from the BOP

**Note:** The 8130/8140 BOP display must be blank to invoke the DPCX online tests from the BOP, which indicates that the customer application is running.

When invoking the onlines from the BOP, perform the following procedure. When the 80BC prompt message is displayed, refer to CP600 "Common Test Procedures and Messages" and proceed from there.

1. With the BOP display blank, press Enter Function.
2. The system responds with an 80BC message in the BOP display, which indicates successful loading of the DPCX online TCM.

**Note:** THE FOLLOWING EXPLAINS THE ACTIONS THAT YOU PERFORM AND SHOULD ONLY BE USED AS AN EXAMPLE. Refer to CP600 "Common Test Procedures and Messages" for additional information.

3. At the 80BC message, press Clear Display.
4. If running adapter-only tests, enter PAB and press Enter Function.
  - a. At display prompt 81BC, press Clear Display.
  - b. Enter B and press Enter Function.

The BOP indicates PAF0 when the test is running, PA1E when a failure occurs, and PA00 when the test completes successfully.
5. If running tests to a display or printer, perform the following:
  - a. Enter PAPN, where PA = the display or printer adapter address, and PN = the port address from 00-23 (in decimal).
  - b. Press Enter Data. The display becomes all zeros and the data is entered.

- c. Enter PNB, where PN is the device address, which is the same as the port address, and press Enter Function.
  - d. At prompt message 81BC, press Clear Display, enter 1B, and press Enter Function.

The BOP displays the device address and F0 when the test is running, PN3E when a failure occurs, and PA00 when the test completes successfully.
6. To display extended data, enter E and press Enter Function.
  7. To return to the 80BC prompt message after a test, enter F and press Enter Function.
  8. To return to online mode, enter D and press Enter Function.
  9. If any failures occur, find the error number in the ST200 section, determine what caused the failure, and then go to ST400 as directed for any action plans or procedures.

### CP812 How to Log On and Run DPCX Online Tests from a 3276

**Note:** It is assumed that the loop or link is operational.

1. Log on the system by holding down the ALT key and pressing the SYSTEM REQUEST key.

**Note:** To clear incorrect entries, hold the ALT key and press the PA2 key.

2. Enter L S8100 and press ENTER, then ALT, then SYSTEM REQUEST.

The system responds with the message:

ENTER ID

3. Log on as a service representative by entering 255CEDPCX and press ENTER.

The system responds with the message:

SEL PGM

4. Select the SYSTCM Utility by entering 999 and pressing ENTER.

The system responds with the message:

80BC aa bb cc

Where:

aa = PCA physical address

bb = control unit address

cc = device address (always zero)

5. For further action, go to CP600 "Common Test Procedures and Messages".
6. To log off, enter SYSOFF and press ENTER.

**Caution:** You cannot terminate a test until it either completes or an error occurs. Do not use the Terminal Clear Function Procedure to terminate SYSTCM. This could "hang" the device under test. Refer to the Free Task Option in CP822 if the device or program appears to be in this condition. Also be aware that entering a D only terminates the SYSTCM utility. You must still log off the terminal.

**CP813 How to Log On and Run DPCX Online Tests from a 3277**

1. Log on the system by entering 255CEDPCX and pressing ENTER.
2. Select the SYSTCM Utility by entering 999 and pressing ENTER.
3. The system prompts you with the following message:

80BC aa bb cc

Where:

aa = adapter physical address

bb = port address

cc = address of invoking device

4. To log off, enter SYSOFF and press ENTER.

This indicates successful TCM invocation. At this message, enter the physical address path of the device to be tested. For further action, refer to CP600 "Common Test Procedures and Messages".

**CP814 How to Log On and Run DPCX Online Tests from an 8775**

1. Log on the system by pressing the SYS REQ key while holding down the ALT key.

**Note:** To clear incorrect entries, hold the ALT key and press the PA2 key.

2. Enter L S8100, press ENTER, then ALT, then SYSTEM REQUEST. The system responds with the message:

ENTER ID.

3. Enter 255CE DPCX and press ENTER. The system responds with the message:

SEL PGM

4. Select the SYSTCM Utility by entering 999 and pressing ENTER.

5. The system prompts you with the following message:

80BC aa bb cc

Where:

aa = adapter physical address

bb = port address

cc = address of invoking device

6. To log off enter SYSOFF and press ENTER.

The 80BC message indicates successful TCM invocation. At this message, enter the physical address path of the device to be tested. For further action, refer to CP600, "Common Test Procedures and Messages".

**CP820 DPCX SYSTCM Utility and How to Use It**

This section explains:

- The use of the SYSTCM Utility for DPCX online testing.
- How to use the SYSTCM "Free Task" option to eliminate display or printer "hang" conditions and to restart tasks, subtasks, or tests.
- What to do if SYSTCM does not run.

**CP821 Using SYSTCM to Invoke DPCX Online Tests**

The SYSTCM Utility enables DPCX online testing from either an interactive terminal or the 8130/8140 BOP. The utility invokes the DPCX online TCM and uses the same common procedures at the 80BC and 81BC prompt messages, but there are DPCX-unique procedures necessary to display the 80BC prompt message. These procedures are unique to the invoking device and are discussed in CP811 through CP814. The following chart shows the devices that are used to invoke DPCX online tests and the devices that can be tested from these devices. Any device in the Invoking Device column can test any device in the Tested Device column, including tests to itself.

Invoking Device	Tested Device
8130/8140 BOP	3276
3276	3277
3277	3284
8775	3286
	3287
	3288
	3289
	8775
	8809
	129 RPQ (MK6956)

**CP822 SYSTCM Free Task Option**

This SYSTCM option is used to free a printer or terminal that has been left in a busy or "hung" condition, and permits a new task, subtask, or test to be started on that terminal or printer. It can be invoked by both customers and service representatives from either a terminal or the BOP.

A task is a function or program. A task can start a subtask, which does not require a terminal. To determine the active tasks or subtasks being used, run SYSLDEV. Refer to CP851 for SYSLDEV invocation procedures. If user is not signed on as the service representative or the control operator, the system will output 01CE 0115.

A subtask is a background task that does not necessarily use a device, therefore, you cannot force a task by using the task number. You can, however, use the 01 utility to force the address of the device used by the subtask, which releases the device and abandons the subtask.

**Note:** The control operator or the system programmer normally forces a task or subtask; the service representative should do this by using the logical address.



Use this option when either:

- A BCBC message has occurred when running online tests.
- An online test is "hung" because it was improperly terminated.
- A device appears "hung".
- A control operator message indicates that a terminal or printer is busy or in use and no task or subtask is presently active.

1. To invoke the SYSTCM free task option, perform either step a or b, according to the hang condition:

- a. If a terminal or printer is hung when running online tests, either:
  - (1) Enter D and press Enter Function on the BOP, or
  - (2) Enter D and press ENTER at the invoking terminal, then log off the system.
- b. If the hang is not associated with an online test or the previous step was unsuccessful, either use another terminal or go to step 2.

2. To invoke the SYSTCM free task option at a terminal:

- a. Logon as a service representative; enter 255CEDPCX and press ENTER.
- b. Invoke SYSTCM by entering 999 or SYSTCM.  
The system responds with message:  
80BC XXXXXX
- c. Enter 01C to free a task or 02C to free a subtask.
- d. The system responds with message:  
0110 or 0210
- e. Specify the logical address of device connected with hung task by entering Type LAB, and pressing ENTER,  
where: LA = logical device address. For a list of logical addresses refer to CP851 SYSLDEV or CP224 DPCX Addressing Conversion Reference.
- f. The system responds with message:  
0110, 0210, 0111, etc.
- g. If selected device is not in use or if the free task option cannot be performed, the system responds with message: 01CE 0113, or 02CE 0113 etc. If the user is not logged on as control operator or service representative when the free task or free subtask option is invoked, the system responds with message:  
01CE 0115 or 02CE 0115

3. To invoke the SYSTCM free task option at the BOP:

- a. With the BOP display blank, press ENTER FUNCTION.
- b. System responds with message; 80BC.
- c. Press Clear Display.
- d. Enter 01C to free a task or 02C to free a subtask and press Enter Function.
- e. System responds with message: 0110 or 0210.
- f. Enter the data necessary to free the device as follows:
  - (1) Press Clear Display.
  - (2) Enter LAB and press Enter Function. System responds with message 0110 or 0210. Hung device should now be free.

**Note:** If device was not hung in a task, the system responds with message 01CE; if device was not hung in a subtask the system responds with message 02CE.

- g. To exit SYSTCM from the BOP, enter D and press Enter Function. BOP indicators should be blank.

Message	Description	Action
0110 or 0210	The hung task (due to a logic failure) is now free. This message also occurs before the first hung task is free. Control Operator message A004 also occurs.	<ul style="list-style-type: none"> <li>● To free another terminal or printer, return to step 4.</li> <li>● To terminate the free task option: At the BOP, enter F and press Enter Function. At a terminal, enter F and press ENTER.</li> <li>● To terminate and log off, see note.</li> </ul>
0111 or 0211	Invalid function entry.	At the BOP, enter F and press Enter Function. Return to step 3 and retry. At a terminal, enter F and press ENTER. Return to step 3 and retry.
0112	An invalid LA was entered.	At the BOP, enter F and press Enter Function. Return to step 3 and retry using the correct LA. At a terminal, enter F and press ENTER. Return to step 3 and retry using the correct LA.
0212	An invalid task number was entered.	At the BOP, enter F and press Enter Function. Return to step 3 and retry using the correct task number. At a terminal, enter F and press ENTER. Return to step 3 and retry using the correct task number.
0113	Selected terminal or printer is not in use. Free task option cannot be performed.	<ul style="list-style-type: none"> <li>● If an invoking station and test terminal are hung during the running of an online test:               <ul style="list-style-type: none"> <li>– At the BOP, enter F and press Enter Function. Return to step 3 and run the free task option using the LA of the hung invoking station. See Note.</li> <li>– At a terminal, enter F and press ENTER. Return to step 3 and run the free task option using the LA of the hung invoking station. See Note.</li> </ul> </li> <li>If the terminal or printer remains hung, the 8130/8140 must be initialized to free it.</li> <li>If the hung invoking station is the BOP, use LA=09.</li> <li>● To terminate and log off, see Note.</li> </ul>
0213	Task is not in use.	To terminate and log off, see Note.
0214	Task specified is not a subtask.	At the BOP, enter F and press Enter Function. Return to step 3 and retry using the correct subtask number. At a terminal, enter F and press ENTER. Return to step 3 and retry using correct subtask number.
0115 or 0215	Someone other than a control operator or service representative attempted to use the free task option.	● Terminate and log off (see Note), then return to step 2 and use the correct ID.
0116 or 0216	Operational code error.	<ul style="list-style-type: none"> <li>● If the terminal or printer remains hung, the 8130/8140 must be initialized to free it.</li> <li>● To terminate and log off, see Note.</li> </ul>
0120 or 0220	Task not in an I/O wait state. Task is forced when it becomes active. Operational code error.	● Notify the system programmer.

**Note:** To terminate and log off:

- At the BOP, enter a D and press Enter Function.
- At a terminal, enter a D and press ENTER.  
Then log off by using the appropriate terminal logoff procedure.

**CP823 SYSTCM Invocation Error Recovery Procedures**

Certain operational failures can occur which could prevent successful SYSTCM operation. The following chart explains the procedures used to recover from errors that occur while invoking SYSTCM:

Symptom	Action
<p>No response from the program or SYSTCM.</p> <p>Could not log on 8130/8140 from a terminal. This could indicate that the program is destroyed.</p>	<ol style="list-style-type: none"> <li>1. Retry terminal logon procedure and the SYSTCM Utility.</li> </ol> <p>If failure continues:</p> <ol style="list-style-type: none"> <li>2. Retry terminal logon procedure and SYSTCM Utility from another terminal.</li> <li>3. Retry by placing 8130/8140 online, then retry terminal logon and SYSTCM Utility.</li> <li>4. Observe 8130/8140 operator panel display. If an error is indicated (see paragraph below for explanation of error indications), go to ST210 for fault isolation. If no display (blank) run all offline tests using the MD to verify correct operation.</li> <li>5. Request aid.</li> </ol>

If the display indicates PAXE or PA90\*, an error occurred. Enter an E and press Enter Function. Record the error values displayed. Continue entering E, pressing Enter Function, and recording the displayed error values until the BOP becomes blank. If pressing E and Enter Function again, the error message sequence is restarted. Use these values as an entry to the DPCX general failure index (ST210) for fault isolation.

**CP830 DPCX Error Log Utility (SYSLEERR) and How to Use It**

The SYSLEERR Utility (978) permits you to search, display, and print the contents of the DPCX Condition/Incident Log. It can be invoked only from an online DPCX terminal, and has various option selections for these log records (see CP831).

The 8100 system-resident disk storage drive contains the Condition/Incident Log, which records selected system events. An incident type and a sequence number identify each event, and the sequence numbers (1–4095) are assigned in order of occurrence. After logging record number 4095, the log wraps around to the first position, and the new records are written over any that existed previously.

**Note:** Some Condition/Incident Log records can be lost after a system power-off sequence if, before powering off, (1) the control operator did not terminate system operations normally, or (2) the service representative did not initialize the system.

\*PA90 is a manual intervention message that indicates the selected device is busy. Go to ST210 for fault isolation.

The five Condition/Incident Log record types are:

- Type 1 records, associated with adapter or device failures.
- Type 2 records, associated with system check failures.
- Type 3 records, associated with adapter or device failures that use variable format records.
- Type 4 records, associated with various system events such as system start, system abend, and system shutdown.
- Type 5 records, associated with disk storage and tape hardware failures and some tape media failures.

You can use the Condition/Incident Log to aid in fault isolation of intermittent failure when the various MAPs do not detect the failure.

**CP831 SYSLEERR Options and Option Fields**

The following options are available when using the SYSLEERR Utility:

- Search by Condition/Incident Log record type (1, 2, 3, 4, 5)
- Search by PA (Physical Address)
- Search by LA (Logical Address)
- Search by sequence range
- Search by 3276 Control Unit
- Clear Log
- Print on a Printer

**Note:** The log output is always in reverse chronological order with the most recent records outputted first. (LIFO; last in, first out)

SYSLEERR prompts the user for option field entries, which are:

- Field 6 – Determines the records to be scanned by date.
- Field 5 – Determines the PA (physical address) to be scanned for Type 1 or Type 2 records.
- Field 4 – Determines the error limit count of data link adapters on 3276 Control Units.
- Field 3 – Determines whether to scan all, a range of, or a single log record.
- Field 2 – Determines the type of record search performed (adapter/device failure, system check failure, or system events) in the record(s) specified by Field 3.
- Field 1 – Determines how to output the records.

Refer to Figure CP832-1 for option field entry examples.

**CP832 How to Invoke SYSLEERR**

**Note:** When the prompt message "SCAN/INCIDENT COUNT ARE RESET" occurs, refer to Figure CP832-2, SYSLEERR Message Description, and continue with this procedure.

1. Log on as a service representative by entering 255CEDPCX.
2. Select the SYSLEERR Utility by entering 978, and pressing ENTER.

3. When the 8100 responds with the prompt message SEE SYSLERR OPTION GROUP, go to the option field that you want to use. If you do not know which field to use, go to the Option Field 6 description. Follow the procedures, then return here and proceed with step 4.
4. After entering the selected option field, the 8100 again responds with "SEE SYSLERR OPTION GROUP". Enter 1Y (see option field 1 for Y valve) and press the ENTER key.

#### Option Field 6 (Scan by Date)

To scan log records by date, enter Option Field 6; otherwise, go to Option Field 5.

**Note:** Date records are set by the control operator using the SYSDATE function after 8100 initialization. The date records are not available unless the control operator takes this action.

To scan the log records by date:

1. Enter the start date MM/DD/YY and press ENTER.
2. Enter the start time HH/MM/SS and press ENTER.
3. Enter the stop date MM/DD/YY and press ENTER.
4. Enter the stop time HH/MM/SS and press ENTER.

Start date = the first record (oldest) to be scanned.

Stop date = the last record (most recent) to be scanned. YY = year;  
MM = month; DD = day

Start time = Time of oldest start date.

Stop time = Time of most recent stop date.  
HH = Hour (24-hour clock, 00-23; MM = minutes; SS = seconds)

Start time and stop time are optional. If you press only ENTER in response to prompts, all records for the date entered are outputted.

Example: start date – 07/04/76, stop date – 07/09/76,  
start time – 12/00/00, stop time – 14/30/00

5. Go to Option Field 2.

#### Option Field 5 (Scan by PA)

To scan error log records by PA, enter Option Field 5; otherwise, go to Option Field 4.

1. To scan by physical address (PA), enter 5PAT and press ENTER.

Where:

PA = Physical address

T = Record type

= 1 = Adapter/device failures

= 2 = System check failures

= 5 = Tape hardware/media and disk hardware failures.

If T is not entered, all Type 1 and Type 2 records are outputted for the selected PA.

#### Option Field 4 (Scan by Error Limit Tables)

Use this option only when the system has a primary communications attachment (PCA) installed. If not, go to Option Field 3.

To select this option, either:

- Enter 4WW and press ENTER.
- Enter 4WWT and press ENTER.

Where:

WW = PCA address

T = Total of all error limit tables for the PCA and the attached 3276 Control Unit.

- Enter 4WW00 and press ENTER.

Where:

WW = LA of 3276

00 = always 00

If WWT is not entered for Option Field 4, the default value outputs all error limit tables.

#### Option Field 3 (Scan by Record Quantity or Range)

Use this option only if first using Option Field 5. If 5 was not used, go to Option Field 2.

1. Perform one of the following actions, then go to Option Field 1 to scan log records.

- To scan all error log records, enter 3 and press ENTER.
- To scan a single log record, enter 3SSSS and press ENTER.

Where:

SSSS = A 4-digit decimal SEQ number that indicates the log record to be scanned.

Example: To scan record 0467, enter 30467 and press ENTER.

- To scan a range of log records, enter 3SSSSFFF and press ENTER.

Where:

SSSS = A 4-digit decimal SEQ number that indicates the first record (most recent) to be scanned.

FFFF = A 4-digit decimal SEQ number that indicates the last record (earliest) to be scanned.

Example: To scan records 0600 to 0300, enter 306000300 and press ENTER.

#### Option Field 2 (Scan by Record Type)

Enter the 2TWW value selections. If not using all values, refer to the default explanation below the selection description. Also, refer to Figure CP832-1, Option Field Entry Examples, if necessary. After specifying these values, go to Option Field 1.

1. Enter 2TWW and press ENTER.

Where:

T = Record Type

= 1 = Adapter/device failures

= 2 = System check failures

= 3 = Adapter/device failure with variable format records.

= 4 = System events

= 5 = Tape hardware, tape media, and disk hardware failures

WW = System condition number when T = 4,

or

= LA of adapter/device when T = 1, 2, 3 or 5

- If the TWW entries are not specified, all record types are outputted.
- If only 2T is entered when T = 1, 2, 3 or 5, the record type is outputted for all LAs.
- If 2T is entered when T = 4, all system events are outputted.
- If 2T is entered when T = 5, all disk and tape records are outputted.

**Option Field 1 (Output Selection)**

To use this option, enter "1Y" and press ENTER. You can then enter another option or terminate the utility. The following explains the "Y" values that specify the output operation:

Y = 0 = The selected log records are outputted one at a time at the invoking terminal.

Example: To obtain each record, enter 10 and press ENTER.

Y = 1 = If the invoking terminal is other than a 3277, the selected records are outputted continuously. If the invoking terminal is a 3277, the selected log records are outputted one at a time; to obtain each record, press PA2.

*Note: If the invoking terminal is other than a 3277, the operation cannot be terminated prematurely.*

Y = 2 = The selected records are outputted to a print data set. On successful completion of SYSLEERR (option 9), SYSPRT is invoked, and the PSN of the print data displays. To print the log, go to CP833.

*Note: Save the displayed PSN in case an error occurs during printing, or if you elect to delay printing the records.*

SYSPRT continues with the following prompt options:

- TO PRINT WITH DELETE ENTER 1.
- TO PRINT WITH KEEP ENTER 2.
- TO TERMINATE ENTER 9.

If selecting the terminate option, SYSPRT exits immediately. If selecting the print option, the system responds with the prompt message:

ENTER PRINTER LOGICAL ADDRESS

*Note: When this message occurs, SYSPRINT now has control from SYSPRT.*

If STOP is indicated on the 3277, press PA2 to obtain the next message.

Y = 3 = The selected records are counted and the result is outputted at the invoking terminal.

At this point you can terminate the SYSLEERR Utility by:

- entering 9 and pressing ENTER,
- or
- returning to step 3 of "How to Invoke SYSLEERR" (CP832) and selecting another option.

Scan Requirements	Option Field entries	Operation
Output all log records continuously on the invoking terminal for the range 0600 to 0300.	Field 3 = 306000300 Field 2 = 2 Field 1 = 11	<ul style="list-style-type: none"> <li>● On a terminal other than 3277, log records are outputted continuously for the scan range 600 to 300.</li> <li>● On 3277, one record is outputted. Stop is indicated. Press PA2 to obtain next record.</li> </ul>
Output all Type 1 records continuously on the invoking terminal for PA=80 over the range 0423 to 0009.	Field 3 = 304230009 Field 2 = 2180 Field 1 = 11	<ul style="list-style-type: none"> <li>● On a terminal other than 3277, Type 1 records are outputted continuously until the scan is complete.</li> <li>● On 3277, one record is outputted. Stop is indicated. Press PA2 to obtain the next record.</li> </ul>
Output all 8100 abend records (Type 4 Sys Cond 04) on the invoking terminal, one at a time.	Field 3 = 3 Field 2 = 2404 Field 1 = 10	<ul style="list-style-type: none"> <li>● The most recent Type 4 Sys Cond 04 record is outputted.</li> <li>● To obtain the next record, enter 10 and press ENTER.</li> <li>● To make a new option selection, reenter Fields 3, 2, and 1.</li> </ul>
Output all Type 2 records, one at a time on the invoking terminal for PA=87. Range equals the total log.	Field 3 = 3 Field 2 = 2287 Field 1 = 10	<ul style="list-style-type: none"> <li>● The most recent Type 2 record for PA=87 is outputted.</li> <li>● To obtain the next record, enter 10 and press ENTER.</li> <li>● To make a new option selection, reenter Fields 3, 2, and 1.</li> </ul>
Output the most recent record on the invoking terminal.	Field 3 = 3 Field 2 = 2 Field 1 = 10	<ul style="list-style-type: none"> <li>● The most recent record is outputted.</li> <li>● To obtain the next record, enter 10 and press ENTER.</li> <li>● To make a new option selection, reenter Fields 3, 2, and 1.</li> </ul>
Output the most recent Start/Restart record (Type 4 Sys Cond 02) on the invoking terminal.	Field 3 = 3 Field 2 = 2402 Field 1 = 10	<ul style="list-style-type: none"> <li>● The most recent start record is outputted.</li> <li>● To obtain the next start record, enter 10 and press ENTER.</li> <li>● To make a new option selection, reenter Fields 3, 2, and 1.</li> </ul>

Figure CP832-1. SYSLEERR Option Field Entry Examples

Message	Description
SEE SYSLERR OPTION GROUP	Indicates that any of the Option Fields may now be entered.
SCAN RESET	Indicates that the starting point for a log scan has been reset to the most recent record, and that any record counts in process are reset to 0. To continue, type the next option field.
A001 – SCAN COMPLETE COUNT = XXXX	Indicates the end of a scan. XXXX = the count of matching records (in decimal).
OPERATION COMPLETE	Presented at completion of a clear log operation.
ENTER PRINTER ID:	Presented when Field 1 = 12. Select printer for output by typing XX and pressing ENTER, where XX = LA of printer.
PRINT INITIATED	Printing of the log has started. Another option selection can now be made. If STOP is indicated, press RESET (on 3277, press PA to continue).
PRINTER IN USE OR UNAVAILABLE	The printer is busy. Another Option Selection can be made. If STOP is indicated, press RESET (on 3277, press PA2 to continue).
INVALID REQUEST	Either the Option Field entered or the printer ID was invalid. Reenter correctly. If STOP is indicated, press RESET (on 3277, press PA2 to continue).
RANGE INDICATION	An incorrect entry was made. Reset the terminal, and enter the correct data.
RECORDS NOT FOUND	Control operator has not used the SYSDATE Utility to set the date.
INVALID TIME DATE SEQUENCE	Control operator entered dates out of sequence
MONTH INCORRECT	The month entered is not between 1 and 12.
DAY INCORRECT	The day entered is greater than the number of days in the month.
INVALID DATE	One or more of the date numbers entered are greater than two digits, or the stop date is before the start date.
PRINT GROUP FULL	The print group entered has no more records available. To create new data sets, select the SYSIMOD Utility (934) and use option 2.

Figure CP832-2. SYSLERR Message Description

### CP833 Specific SYSLERR Operations

The following procedures show how to use the SYSLERR Utility for certain operational failures, as well as how to clear the Condition/Incident Log.

#### Failure Caused a System Abend with BOP Display FXXX

In this procedure the standard prompt and information messages have been deleted. An abend record (Type 4 Sys Cond 04) with the failing FXXX display is logged. The desired failing records are logged just prior to the abend record. To obtain this information:

1. Log on by entering 255CEDPCX.
2. Select the SYSLERR Utility by entering 978 and pressing ENTER.

3. To obtain the most recent abend record (Type 4 Sys Cond 04), do the following:

- a. Select Option Field 3 by entering 3 and pressing ENTER.
- b. Select Option Field 2 by entering 2404 and pressing ENTER.
- c. Select Option Field 1 by entering 10 and pressing ENTER.
- d. Record the SEQ (sequence) field.
- e. Record D02 and D03 field (contains FXXX abend number).

4. To obtain the records preceding the abend record, do the following:

- a. Select Option Field 3 by entering 3SSSSFFFF and pressing ENTER:

Where:

SSSS = SEQ Field recorded at step 3d.

FFFF = SEQ Field less 10. (If SSSS-10 is negative, use 4085 for the FFFF value.)

- b. Select Option Field 2 by entering 2 and pressing ENTER.
- c. Select Option Field 1 by entering 10 and pressing ENTER.

If the failing LA (logical address) is known from the abend FXXX number, or an adapter MAP has sent you here to obtain its log records, sequence back from the abend record up to 10 records.

1. Enter 10 and press ENTER for each record.
2. Look for records associated with the failing LA.
3. Record the first two records found for the failing LA.
4. Return to the action plan for the adapter MAP that sent you here.

If the failing LA is not known, output only the first two records preceding the Type 4 Cond 04 record.

1. Enter 10 and press ENTER for each record.

The LA contained in the first record should be used as the possible cause of the abend. If both records contain the same LA, use both records as the abend cause.

2. Return to the action plan for the adapter MAP that sent you here.

If records for the failing LA cannot be found within 10 records, the failure prevented a log record from being recorded. Return to the action plan that sent you here.

#### Failing LA (Logical Address) Known and No BOP Display FXXX

In this procedure, the standard prompt and information messages have been deleted. A Type 1 and/or Type 2 record is made for every adapter/device failure. In the following procedure, the log is scanned for Type 1 records (for failing LA), then scanned for Type 2 records (for failing LA). Do the following:

1. Log on by entering 255CEDPCX.
2. Select the SYSLERR Utility by entering 978 and pressing ENTER.
3. To obtain and record the most recent Type 1 records for the failing LA:
  - a. Select Option Field 3 by entering 3 and pressing ENTER.
  - b. Select Option Field 2 by entering 21LA and pressing ENTER.

Where: LA = failing LA.

  - c. Select Option Field 1 by entering 10 and pressing ENTER.

The most recent Type 1 record for the failing LA is outputted if present.

- d. To obtain previous records, enter 10 and press ENTER for each record.

**CP840 DPCX Condition/Incident (Error) Log Records**

Figures CP840-1 through CP840-5 explain the five record types, according to their field number, field name, and meaning. CP830 explains how to use the SYSLERR Utility to obtain these records.

4. To obtain and record the most recent Type 2 records for the failing LA, do the following:
  - a. Select Option Field 3 by entering 3 and pressing ENTER.
  - b. Select Option Field 2 by entering 22LA and pressing ENTER.  
Where: LA = failing LA.
  - c. Select Option Field 1 by entering 10 and pressing ENTER.  
  
The most recent Type 2 record for the failing LA is outputted if present.
  - d. To obtain previous records, enter 10 and press ENTER for each record.
5. Perform the clear log procedure.
6. If the MAP requests multiple LA records, return to step 3 and repeat the procedure for the next LA. If not, go to step 7.
7. Return to the MAP that sent you here, and use the most recent log records first in the log analysis.

**Format**

(1)	(2)	(3)	(4)	(5)
1-TYPE	I-REC	SEQ-XXXX	NA-XX	PA-XX
				LA-XX
(6)	(7)	(8)		
C-CODE-XX	B-STAT-XX	C-FR-XX		
(9)	(10)	(11)		
X-STAT1-XX	X-STAT2-XX	S-FR-XX		
(12)	(13)			
IOCB -XXXX	XXXX	RC-XX		
(15)	(16)	(17)	(18)	
D1-XXXX	D2-XXXX	D3-XXXX	D4-XXXX	

**How to Print the Condition/Incident Log**

1. Log on by entering 255CEDPCX.
2. Select the SYSLERR Utility by entering 978 and pressing ENTER.
3. System prompt message SEE SYLERR OPTION GROUP. . .then appears.
4. Enter 12 and press ENTER.
5. System prompt messages RESP PEND and STOP then appear.
6. Press the PA2 key.
7. System prompt message SEE SYSLERR OPTION GROUP. . .again appears.
8. Enter 9 and press ENTER.
9. The following system prompt message then appears:  
ASSIGN PSNX  
TO PRINT AND DELETE, ENTER 1  
TO PRINT AND KEEP, ENTER 2  
TO TERMINATE, ENTER 9
10. Enter 2 and press ENTER.
11. System prompt message ENTER PRINTER LOGICAL ADDRESS\_\_\_\_\_then appears.
12. If necessary, use the SYSLDEV Utility (898) to determine the printer logical address.
13. Enter the logical address and press ENTER.
14. System prompt message PRINT INITIATED then appears.

**How to Clear the Condition/Incident Log**

In this procedure the standard prompt and information messages have been deleted.

1. Log on by entering 255CEDPCX.
2. Select the SYSLERR Utility by entering 978 and pressing ENTER.
3. Clear the log by entering 8 and pressing ENTER. If STOP is indicated on the 3277, press PA2 to continue.
4. Terminate the SYSLERR Utility by entering 9 and pressing ENTER.

**Description**

Field	Type	Description
Field (1)	Type 1	Indicates a Type 1 record, 8100 Feature failure.
Field (2)	SEQ	A 4-digit decimal sequence number ranging from 0001 to 4095. Number indicates the relative order at which the record occurred.
Field (3)	NA	The number of functions and programs that were active at the time of the failure.
Field (4)	PA	The physical address of the adapter for which the recording was made.
Field (5)	LA	The logical address for which the recording was made.
Field (6)	C-CODE	A completion code which identifies the amount of retries performed and whether they were successful. Each MAP describes its C-Codes.
Field (7)	B-STAT	A basic status byte presented by the adapter and used by the MAPs to identify the problem.
Field (8)	C-FR	The adapter operation active at the time of the failure.
Field (9) (10)	X-STATX	X-STATX Status; X = 1 or 2 information presented by the adapter (used by MAPs).
Field (11)	S-FR	The system operation in process at the time of the failure.
Field (12) (13) (15) (16) (17) (18)		Feature dependent; MAPs identify usable fields.

**Figure CP840-1. DPCX Type-1 CIL Records**

**Format**

(1)	(2)	(3)	(4)	(5)
2-TYPE	I-REC	SEQ-XXXX	NA-XX	PA-XX LA-XX
(19)		(20)	(8)	
D21-XXXX	YYYY	LVL-XX	C-FR-XX	
(21)		(22)	(11)	
D22-XXXX	YYYY	MC-XX	S-FR-XX	
(23)	(24)	(25)		
D23-XXXX	D24-XXXX	D25-XXXX		

**Description**

Field (1)	Type 2	Indicates a Type 2 record, 8130/8140 system check.
Field (2) (3) (4) (5) (8) (11)		Same as for Type 1 record.
Field 19	D21	Program Status Vector (PSV) XXXX = Instruction Counter (IC) YYYY = See Note 1
Field 20	LVL	Bits 0-3 = Present Level Reg Bits 4-7 = Last Level
Field 21	D22	XXXX = Instruction located by IC (See Note 2) YYYY = Instruction located by IC minus 2 (See Note 2)
Field 22	MC	System check/program exception or EIRV field: <u>8 4 2 1 8 4 2 1</u> 0 1 2 3 4 5 6 7 Bit 0 = 1 = Channel detected invalid parity from an I/O device. Bit 1 = 1 = I/O timeout error. Incorrect adapter response caused either by the adapter, channel, or processor. Bit 2 = 1 = Parity error on data read from processor storage. Bit 3 = 1 = Program exception with primary PSV active, or channel exception during CHIO operation. Bit 4 = 1 = Error during CHIO operation. Used in conjunction with bits 0, 1, 2, 3, and 5. Bit 5 = 1 = Hardware error in either the processor, channel, floating-point, or the control logic associated with it. Bits 2 and 5 = 1 = Parity error on data read from either the translation table, a principal register, or an adjunct register. Bit 6 = 1 = Instruction address modifier. (See Note 1) Bit 7 = 0 = Not used.
Fields D23-D25	D23-25	Extended PSV

**Note 1:** For detailed information, see IBM 8100 Information System Principles of Operation, GA23-0031, and refer to Chapter 9.

**Note 2:** Only valid for halfword instruction.

**Figure CP840-2. DPCX Type-2 CIL Records**

**Format**

(1)	(2)	(3)	(4)	(5)
3-TYPE	I-REC	SEQ-XXXX		LA-XX
(32)	(33)	(34)	(35)	
D1-XX	D2-XX	D3-XX	D4-XX	
(36)	(37)	(38)	(39)	(40)
D5-XX	D6-XX	D7-XX	D8-XX	D9-XX
(41)		(42)		
D10-XXXX		D11-XXXX		
(43)		(44)		
D12-XXXX		D13-XXXX		
(45)		(46)		
D14-XXXX		D15-XXXX		

**Description**

Field (1)	Type 3	Indicates a Type 3 record, CA variable data incident record.
Field (2) (5)		Same as Type 1.
Field (32)	D1	System operation at the time of the error.
Field (33)	D2	Adapter operation at the time of the error.
Field (34)	D3	Completion Code.
Field (35)	D4	Reserved.
Field (36)	D5	System check code. Valid only if field 6 bit 5 = 1.
Field (37)	D6	Status flags.*
Field (38)	D7	Extended error data.*
Field (39)	D8	Set to 0.
Field (40)	D9	Reserved.
Field (41)	D10	Sense and Status information.*
Field (42)	D11	Sense and Status information.*
Field (43)	D12	Sense and Status information.*
Field (44)	D13	Sense and Status information.*
Field (45)	D14	Reserved.
Field (46)	D15	Reserved.

\*See the appropriate Chapter 5 MAP reference section XX332 for sense and status information.

**Figure CP840-3. DPCX Type-3 CIL Records**

**Format**  
 (1) (2) (26)  
 4-TYPE I-REC SEQ-XXXX SYS-COND-XX  
 (27) (28) (29) (30) (31)  
 D01-XX D02-XX D03-XX D04-XX D05-XX

**Description**

Field (1)	Type 4	System condition record
Field (2)		Same as Type 1.
Field (26)	SYS COND*	A system condition code that identifies the system event being recorded.
Field (27) (28) (29) (30) (31)	D-fields	Variable information associated with the system condition being recorded.

\*See Figure CP840-5.

**Format**  
 (1) (2) (26)  
 4-TYPE I-REC SEQ-XXXX SYS-COND-04  
 (27) (28) (29) (30) (31)  
 D01-XX D02-XX D03-XX D04-XX D05-XX

**Description**

Field (1)	Type 4	System condition record for storage parity error. (F120 abend)
Field (2)		Same as Type 1.
Field (26)	04	
Field (27) (28) (29)	D-fields	The D01 field contains the number of events active at time of abend. The D02 field contains hex 'FX'. The D03 field contains 'XX'. The hex values represent the abend number FXXX.
Field (30) (31)	D-fields	The D04 and D05 fields contain a real storage address that caused the storage parity error. Use this address and Chapter 1 Figure ST440-37 to find the defective FRU. If D04 and D05 are zero, go to BU207 and perform a storage scan. If failure is still not determined, IPL the system again.

\*See Figure CP840-5.

Figure CP840-4. DPCX Type-4 CIL Records

System Condition Code	Description	D Fields
01	System date log record. Recorded each time the date is set.	D01 = Year D02 = Month D03 = Day
02	8130 or 8140 IPL record. Recorded each time 8130 or 8140 is IPL'ed	D01 = XY X=8=manual mode IPL X=4=Program mode IPL X=2=Primary mode IPL Y=4=Power on IPL sequence
03	8130 or 8140 IPL record. Recorded each time 8130 or 8140 is IPL'ed.	D01-D05 = Code EC number
04	8130 or 8140 abend record. Recorded each time the 8130 or 8140 abends with a FXXX display.	D01 = Number of active functions D02, D03 contain FXXX abend number
05	8130 or 8140 shutdown record. Recorded each time an automatic power down occurs.	D01-D05 = Code EC number
06	Time date stamp.	D01 = Hours D02 = Minutes D03 = Seconds
07-0D	Not used.	
0E-15	Not used.	
16	Over 50 (5M) or 100 (10M) alternate sectors have been used. The record is generated for every alternate sector that exceeds threshold.	D01 = Number of active programs or functions D02, D03 = Number of storage blocks available D04 = Count of remaining alternates D05 = LA of disk that exceeded the threshold
17	Up to 32 tracks of available disk space have been lost due to a disk failure. Lost tracks can be on any disk drive. PA = disk PA	D01 = Number of active programs or functions D02, D03 = Number of storage blocks available D04 = Block ID number
18	Either the print or transaction data set has been lost due to a disk failure.	D01 = PA of failing disk D02 = Data set number that was lost
19	Not used.	
20	Communications failure.	D01-D05 contain maintenance information
21	Control command received from host is unknown.	D01-D05 = 01010A0F00
22	Control command from host is incorrect length.	D01-D05 = 01010A0F00
23	Host connect parameters rejected.	
24-30	Not used.	
31	Indicates a system change because of either removing or installing a PTF.	
32-39	Not used.	
40	Storage dump taken.	
41-84	Not used.	

Figure CP840-5. DPCX Type-4 Condition Codes



**Condition/Incident Log Type-5 Records**

This 64-byte record (Figure CP840-5) logs certain hardware and media failures. Data stored in bytes 2–13 are either printed or displayed as hexadecimal 1-byte fields, bytes 56–63 are always EBCDIC, and bytes 14–39 and 40–55 are two-byte fields.

You can obtain DPCX Type-5 log records by specifying either scan option field 2 or 5 when using SYSLERR.

**Format**

```

(1)          (2)          (4)  (5)
5-TYPE      I-REC      SEQ-XXXX  PA-XX  LA-XX

          (47)      (48)      (49)      (50)
          D1-XX      D2-XX      D3-XX      D4-XX

          (51)      (52)      (53)      (54)
          D5-PL      D6-XX      D7-XX      D8-XX

          (76)
          D9-XXXXXX

          (55)      (56)      (57)
          D10-XXXX  D11-XXXX  D12-XXXX

          (58)      (59)      (60)
          D13-XXXX  D14-XXXX  D15-XXXX

          (61)      (62)      (63)
          D16-XXXX  D17-XXXX  D18-XXXX

          (64)      (65)      (66)
          D19-XXXX  D20-XXXX  D21-XXXX

          (67)      (68)      (69)
          D22-XXXX  D23-XXXX  D24-XXXX

          (70)      (71)      (72)
          D25-XXXX  D26-XXXX  D27-XXXX

          (73)      (74)      (75)
          D28-XXXX  D29-XXXX  D30-XXXX
    
```

**Description**

Field (1)	Type 5	Indicates an extended variable incident record.
Field (2)		Same as Type 1.
Field (4)		Same as Type 1.
Field (5)		Same as Type 1.
Fields (47)–(75) (D-fields)		Variable information, and depends on the adapter that records the error. See individual adapter error logs for more detail.
Field (76)		Always in EBCDIC if used for data. If not used, it contains unprintable characters. It is always used when selected by SYSLERR.

**Figure CP840-6. DPCX Type-5 CIL Records**

**CP850 Additional DPCX Utilities and How to Use Them**

**CP851 SYSLDEV – List Device Status (898)**

The SYSLDEV Utility can be used only online and by either the service representative or the customer. It is invoked from an interactive terminal, and uses five options:

1. List devices
2. Display all tasks
3. Display tasks by task number
4. Display tasks by OIPD
5. List device by device address

To invoke the SYSLDEV Utility, perform the following steps:

**Note:** This procedure assumes that the tests are invoked from either a 3276 or 3277.

1. Log on any terminal using the service representative ID by entering 255CEDPCX and pressing ENTER.
2. Select the SYSLDEV Utility by entering 898 and pressing ENTER.
3. The 8100 then responds with the prompt message:  
TO LIST ALL DEVICES, ENTER 1  
LIST ALL TASKS, ENTER 2  
LIST TASK BY NO, ENTER 3  
LIST TASKS BY OIPD, ENTER 4  
LIST DEVICE BY DEVICE ADDRESS, ENTER 5  
TO TERMINATE, ENTER 9
4. Select an option and press ENTER, or go to step 6 to terminate.
5. The 8100 then performs the option selected. When selection is complete, return to step 3.
6. To terminate the utility, enter 9, press ENTER, and log off the system.

**Option 1 (List Devices)**

The 8100 responds with a header and lists the 8100 attached device addresses and their respective status.

LA PA DEVICE O/L RDY FPID OPID

Where:

- LA = logical device address
- PA = physical device address
- DEVICE = device type associated with LA, such as 3277-2
- O/L = is device online
- RDY = is device ready

**Note:** A device can either be online and ready, online and not ready, or not online and not ready.

**SY27-2521-3**  
**REA 06-88481**

FPID = function number if the device is being used, or SYS if a system has task control.

OPID = ID of the operator currently using the device, or SYS if a system has task control.

If the 3276 or 8775 indicates STOP, hold ALT while pressing PA2

or

If the 3277 indicates STOP, press PA2 to continue.

**Option 2 (Display All Tasks and Subtasks)**

The 8100 responds with a header and lists the tasks and the associated devices.

TASK LA READY FPID OPID

Where:

TASK = Task or subtask number

LA = Logical device address associated with the task. If LA=00, a subtask is specified

READY = Task is either ready or in wait status

FPID = Same as Option 1

OPID = Same as Option 1

If the 3276 or 8775 indicates STOP, hold ALT while pressing PA2

or

If the 3277 indicates STOP, press PA2 to continue.

**Option 3 (Display Tasks by Task Number)**

The 8100 responds with the prompt message:

ENTER TASK NO. (01-35)

Enter the task number to be displayed and press ENTER. The 8100 then responds with a header and lists the LA associated with the task and the LA status.

TASK LA READY FPID OPID

Where:

TASK = Task or subtask number

LA = Logical device address associated with the task. If LA=00, a subtask is specified

READY = Task is either ready or in wait status

FPID = Same as Option 1

OPID = Same as Option 1

**Option 4 (Display Tasks by OPID)**

The 8100 responds with the prompt message:

ENTER OPERATOR ID (01-200, 255)

Enter the operator number to be displayed and press ENTER. The 8100 then responds with a header and lists the task number, LA, device status, and FPID associated with the operator ID entered above.

TASK LA READY FPID OPID

Where:

TASK = Task and subtask number associated with the OPID selected

LA = Logical device address associated with the task. If LA=00, a subtask is specified

READY = Task is either ready or in wait status

FPID = Same as Option 1

OPID = Operator ID entered above

**Option 5 (List Device by Device Address)**

The 8100 responds with the prompt message:

ENTER DEVICE ADDRESS

**Note:** *The device address can be the PA of any 8100 adapter. For display/printer and tape, use the logical address (CP224).*

Enter XYYY, where XX = the 3276 Control Unit address and YY = the device address. Refer to Option 1 for the valid address list.

For each loop adapter, press the ENTER pushbutton. The 8100 responds with a header and lists the LA, PA, device status, and data link hardware status. For example,

2103 3278-2 YES

**SYSLDEV Failure Messages**

The following error can occur while invoking SYSLDEV:

TASK/OPID NOT ACTIVE

The task number of operator ID entered either in Option 3 or 4 was invalid or not active. To retry the option on a 3277, press PA2; on any other terminal, press RESET.

## CP852 SYSREQ – Control Operator Message Queue (908)

**Caution:** You should use this function to recover control operator messages only during initial operating system installation and if requested by the customer. When requiring these messages at other times, the 8100 control operator must perform this message recovery.

After system installation, you do not have access to the control operator ID. For security reasons, the customer normally changes this password periodically after installation.

The SYSREQ Utility prints or displays control messages from the 8100 control operator's queue, and is invoked using that ID. These messages describe the system condition or status and can prompt the control operator or service representative for additional system action. When invoked, this utility displays a single message and must be reinvoked to obtain another.

### How to Invoke SYSREQ

1. Log on from a terminal as a service representative (see CP810) except when the 8100 prompts you with:  
ENTER ID
  - a. For this message, enter 01OPID01 and press ENTER.
2. The 8100 then prompts you with the message  
SEL PGM M/O
3. After selection,  
MESSAGE WAITING now displays on either the 3276, 3277, or 8775.
4. Enter 908 and press ENTER. The 8100 responds by presenting one of the following messages:
  - MESSAGE TEXT – Can be up to six lines of up to 39 characters per line. For the next message, either press PA2 on the 3277 or RESET on any other terminal, and then perform step 3.
  - NO MESSAGE – The function is terminated.
  - STOP – Press PA2 on the 3277, or ALT and PA2 on the 3276 and 8775, and then perform step 3.

## CP853 SYSLTSD – List Tape Statistical Data (852)

The condition of the magnetic tape media affects the performance of the 8809. During use, the tape is stretched, flexed, and rubbed, causing its oxide coating to crack or to be eroded. Particles of oxide, fingerprints, and dust contaminate its surface, multiplying erosion and breaking contact between the tape and the read/write head. With statistical information, tape problems can often be separated from device problems. Also, the customer can determine when a reel of tape is causing an excessive number of errors and take the proper corrective action.

Tape statistical data (TSD) is recorded for all tape units and up to 80 volumes of tape, and is available in two forms:

- A detailed form, consisting of unit counters and volume entries.
- A summary form, containing volume entries only, in which the counts are shown in relation to 10,000. For example, 0.0003 stands for 3 errors per 10,000 tape operations.

### How to Invoke SYSLTSD

You may invoke SYSLTSD from either a 3276 or 3277. SYSLTSD is called by name or number (SYSLTSD or 852). The statistical data may be sent to the invoking device or to a 3284, 3286, 3287, 3288 (locally attached), or to 3289-3. The data may be in summary form (by volume with the counter values in percent) or in detailed form.

When SYSLTSD is invoked, it displays the following message:

FOR TSD SUMMARY, ENTER 1  
FOR TSD DETAILED, ENTER 2  
TO CLEAR TSD FILE, ENTER 8  
TO TERMINATE, ENTER 9

If Option 1 or 2 is selected, the following prompts display:

TO LIST ON TERMINAL, ENTER 1  
TO LIST ON PRINTER, ENTER 2

If Option 8 is selected, the following occurs:

- The TSD history file is cleared and SYSLTSD is terminated.
- The following message displays:  
OPERATION COMPLETE

**Note:** If Option 2 (to print TSD) had been previously selected and the printout had not completed, the message CLEAR DELAYED displays. At the conclusion of the printout, the Clear function executes and the message OPTION COMPLETE displays.

If Option 9 is selected, the following occurs:

- SYSLTSD is terminated.
- The following message displays:  
OPERATION COMPLETE

**SYSLTSD Output Format**

The following explains how Figures CP853-1 and CP853-2 relate to the selection of Options 1 and 2, and what to do to obtain them:

- When outputted to a 328X printer:
  - Figure CP853-1 shows detailed tape statistical data.
  - Figure CP853-2 (Part A) shows summary tape statistical data.

After selecting a printer as the output device, the following message appears:

ENTER PRINTER LOGICAL ADDRESS

After entering the address, the system responds with:

PRINT INITIATED

When printing is complete (up to 80 volumes can be printed), the SYSLTSD invocation option message again appears.

- When outputted to a 3277-1 display:
  - Figure CP853-2 (Part B) shows summary tape statistical data.

Press ENTER to display the next volume. You can display a maximum of 80 volume entries; at the end of these entries, the SYSLTSD invocation option message again displays.

- When outputted to a 3277-2 display:
  - Figure CP853-1 shows detailed tape statistical data.
  - Figure CP853-2 (Part A) shows summary tape statistical data.

Press ENTER to display the next volume. This displays a maximum of 16 volume entries; at the end of these entries, the SYSLTSD invocation message again displays.

TAPE STATISTICAL DATA				DATE	(1)
(2)	XX	XX	XX - XX	TAPE UNIT LA	
000000000	000000000	000000000	000000000	(3)	C01 - START I/O COUNT
0000	0000	0000	0000	(4)	C02 - WRITE SKIPS
0000	0000	0000	0000	(5)	C03 - READ RETRY
0000	0000	0000	0000	(6)	C04 - TEMPORARY READ ERROR
0000	0000	0000	0000		C05 - TEMPORARY WRITE ERROR
0000	0000	0000	0000		C06 - ADAPTER PARITY ERROR
0000	0000	0000	0000		C07 - OVERRUN
0000	0000	0000	0000		C08 - MULTITRACK ERROR
0000	0000	0000	0000		C09 - END DATA CHECK
0000	0000	0000	0000		C10 - START READ CHECK
0000	0000	0000	0000		C11 - READ BACK FAILURE
0000	0000	0000	0000		C12 - ENVELOPE CHECK
0000	0000	0000	0000		C13 - NO POINTER ERROR
0000	0000	0000	0000		C14 - CREASE ERROR
0000	0000	0000	0000		C15 - SKEW ERROR
0000	0000	0000	0000		C16 - TRACK 4 ERROR
0000	0000	0000	0000		C17 - TRACK 5 ERROR
0000	0000	0000	0000		C18 - TRACK P ERROR
0000	0000	0000	0000		C19 - VELOCITY CHECK
0000	0000	0000	0000		C20 - READ BUS PARITY CHECK

**A. Tape Unit Data (example of four tape units)**

(7)	(8)	(9)				
VOLUME ID	TAPE UNIT LA	START I/O COUNT	WRITE SKIPS	READ RETRY	TEMP READ ERROR	TEMP WRITE ERROR
ABCD01	XX	0000000	0000	0000	0000	0000
ABCD02	XX	0000000	0000	0000	0000	0000
ABCD03	XX	0000000	0000	0000	0000	0000
ABCD04	XX	0000000	0000	0000	0000	0000
ABCD05	XX	0000000	0000	0000	0000	0000

Maximum of 80 volume entries for printers and 16 for displays.

**B. Volume Statistical Data**

Note: See "SYSLTSD Output Description" for an explanation of these fields.

Figure CP853-1. Detailed Tape Statistical Data Output (328X Printer and 3277-2 Display)

(7)	(8)	(9)		
VOLUME ID	TAPE UNIT LA	START I/O COUNT	TEMP READ ERROR	TEMP WRITE ERROR
ABCD01	XX	0021067	0.0006	0.0003
ABCD02	XX	0043752	0.0022	0.0001
ABCD03	XX	0005389	0.0000	0.0007
ABCD01	XX	0032861	0.0045	0.0004
ABCD04	XX	0007835	0.0013	0.0001
Maximum of 80 volume entries				
<b>A. Summary Tape Statistical Data (328X Printer and 3277-2 Display)</b>				
(9)		(7)	(8)	
VOLUME ID		ABCD03	LA XX	
START I/O		TEMP READ	TEMP WRITE	
COUNT		ERROR	ERROR	
0053623		0.0003	0.0004	
SELECT VOLUME ID				
<b>B. Summary Tape Statistical Data (3277-1 Display)</b>				
<b>Notes:</b>				
1. If the start I/O count is less than 20, disregard error percentage. If the error percentage is high for multiple volumes on the same tape drive suspect the tape drive. If the error percentage is high for one volume on different tape drives, suspect the volume.				
2. See "SYSLTSD Output Description" for an explanation of these fields.				

**Figure CP853-2. Summary Tape Statistical Data Output**

The following explains how Figure CP853-3 relates to the selection of a unit counter or a volume ID when outputted to a display. It also explains how to obtain these displays. Refer to "SYSLTSD Output Description" below for the field meanings.

When selecting C01:

- Part A of Figure CP853-3 shows the displayed output. Only the actual number of units installed are displayed.
  - If you either press ENTER or select another unit counter, Part B of Figure CP853-3 displays.
  - If you select a volume ID, Part C displays.

When selecting C02 through C20:

- Part B of Figure CP853-3 shows the displayed output. Only the actual number of units installed are displayed.
  - If you press ENTER, Part B again displays. If all volume statistics have been displayed, the SYSLTSD invocation message again displays.

- If you select another unit counter, Figure CP853-3, Parts A and B, are again outputted.
- If you select a volume ID, Part C displays.

For an incorrect volume ID selection, the following message occurs:

VOLUME ID NOT FOUND  
SELECT COUNTER OR VOLUME ID

When selecting C99:

You terminate the scan and return to the SYSLTSD invocation message for another option selection.

**Notes:**

1. If you want to display the volume statistics and do not know the volume IDs, select unit counter C19. After the counter displays, press ENTER to begin displaying the volume statistics.
2. If statistics are to be displayed of a volume with an ID of C01–C20 or C99, enter Cxx followed by a space, thus enabling the system to distinguish between such an ID and a similar counter number.

(2)	LA	XX	XX	XX	XX
(3)	C01				
	00000000	00000000	00000000	00000000	
SELECT COUNTER OR VOLUME ID					
<b>A. Tape Unit Counter Data – LA and Start I/O Count</b>					
	LA	XX	XX	XX	XX
(4)	C02	0000	0000	0000	0000
(5)	C03	0000	0000	0000	0000
	C04	0000	0000	0000	0000
SELECT COUNTER OR VOLUME ID					
<b>B. Tape Unit Data</b>					
(7)	VOL-ID	ABCD01	(8)	LA	XX
(9)	C01	0000000	C02	0000	C03 0000
		C04 0000	C05 0000	C06	0000
SELECT COUNTER OR VOLUME ID					
<b>C. Tape Unit Data</b>					
<b>Note:</b> See "SYSLTSD Output Description" for an explanation of these fields.					

**Figure CP853-3. Tape Unit Counter or Volume ID Data Output**

**SY27-2521-3  
REA 06-88481**

**SYSLTSD Output Description**

The following field descriptions refer to Figures CP853-1 through CP853-4. All counter values are in decimal.

- (1) The date is recorded in the format MMDDYY (month, day, year).
- (2) TAPE UNIT LA – The logical address of the tape unit on which those errors occurred.
- (3) C01 – START I/O COUNT – The number of times this tape unit was given an instruction to Write or Read a block of data.
- (4) C02 – WRITE SKIPS – The number of times a retry was attempted on write data checks.
- (5) C03 – READ RETRY – The number of times a retry was attempted on read data checks.
- (6) The counters shown in Figure CP853-4 are set by tape unit and adapter sense bits. Use this figure to find the sense byte and bit and go to TA233 for a complete description of the error.
- (7) VOLUME ID – The identification number assigned to a reel of tape by the customer.
- (8) TAPE UNIT LA – The tape unit on which the reel was mounted when the errors occurred. There may be other entries for this reel if it was mounted on other tape units in the same tape subsystem.
- (9) These counters are the same as counters C01 through C05. The errors are recorded by reel of tape instead of by tape unit.

The Volume Statistics part of the printout (fields 7, 8, and 9) has 80 entries or less. The control operator receives a warning message when the 75th entry is made. When attempting to make the 81st entry, a message indicates that the file is full and error data was lost.

**How to Interpret SYSLTSD Output**

Use Figure CP853-1 as an example when interpreting volume statistical data output.

When looking at a printout, a volume containing a high numerical error value should be circled. This high value in itself may not indicate a problem; it is relative to the number of Start I/O's. A volume with an error count of 20 and a Start I/O count of 1000 may not be as bad as a volume with an error count of 5 and a Start I/O count of 100.

**Interpreting Volume Statistical Data with One Tape Unit Installed.** The only method to determine faults is a compare with other tape volumes. If only one has a high error ratio, suspect the tape volume. If several have a high error ratio, suspect the tape unit.

**Interpreting Volume Statistical Data Using One or More Tape Units.** Before determining that a tape volume is bad, check for any other entries for the same volume mounted on a different tape unit (LA). If the error ratio was low on a different unit, the possibility exists that the first tape unit is at fault. If the error ratio is high, the tape volume is at fault. To determine if the tape unit is at fault, check other volume entries with high error ratios. If most of them were mounted on the same unit, then the tape unit is most likely the cause. If they were on different units, then you may have more than one bad reel of tape.

Sense Field (6)	Name	Set by Counter	
		Byte	Bit
C04	Temporary Read Errors	1	0 (Byte 6, Bit 0 = 0)
C05	Temporary Write Errors	1	0 (Byte 6, Bit 0 = 1)
C06	Adapter Parity Errors	16	2
C07	Overrun	2	0
C08	Multitrack Errors	6	2
C09	End Data Check	6	3
C10	Start Read Check	6	4
C11	Read Back Failure	6	5 (Bit 0 = 1)
C12	Envelope Check	6	6
C13	No Track Pointer	6	1 (Bit 0 = 0)
C14	Crease Error	6	5 (Bit 0 = 0)
C15	Skew Error	6	7 (Bit 0 = 0)
C16	Track 4 Error	5	4
C17	Track 5 Error	5	5
C18	Track P Error	4	6
C19	Velocity Check	9	0, 1, or 2
C20	Read Bus Parity Check	4	1

**Figure CP853-4. Tape Unit Counter Summary**

**Corrective Action.** If a tape unit is suspected, clean the tape unit thoroughly and continue operations. After a sufficient period of time (several days or several tape mounts), print out the volume statistics and compare them with the previous printout. If the error ratio has not improved, then suspect the tape volume.

If a tape volume is suspected, then it should be copied or reconstructed using a new reel of tape.

## SYSLTSD Error Messages

The following describes the messages that result when certain error conditions occur while running the SYSLTSD Utility:

- **CLEAR DELAYED**  
A printer is still busy with the printing of the TSD. The file will be cleared after the printing has finished.
- **LA INVALID OR NOT IN THE SYSTEM**  
The logical address you entered is invalid or cannot be found in the system. You are prompted for a SYSLTSD option.
- **NO DATE SET RUN SYSDATE**  
The program terminates.
- **PRINTER IN USE OR UNAVAILABLE**  
The printer you requested is in use or is unavailable. You are prompted for a SYSLTSD option.
- **VOLUME ID NOT FOUND**  
The volume ID cannot be located (only on a 3277 Model 1). Select another volume ID, unit counter, or "C99" to terminate the scan mode.

## CP854 SYSPRINT – System Print (904)

This utility permits you to print or delete the error log by selecting a print group. You must first run the SYSRSLOG Utility to load the error log into print group 01, which can then be retrieved by this utility. Group 01, also called system group records, includes a print sequence number (PSN) range check within that group.

## How to Invoke SYSPRINT

**Note:** This procedure assumes that the tests are invoked from a 3277. When the step refers to ENTER, use the corresponding pushbutton on the invoking terminal.

To invoke the SYSPRINT Utility:

1. Log on to the system using the service representative ID by entering 255CEDPCX and pressing ENTER.
2. Select the SYSPRINT Utility by entering 904 and pressing ENTER.
3. The 8100 responds with the prompt message:  
**SEE SYSPRINT GROUP 1**  
and lists the options.
4. Enter 1, which specifies to print the print records and press ENTER.
5. The system responds with the prompt message:  
**ENTER PRINTER LOGICAL ADDRESS**
6. Enter the logical address of the printer you wish to use and press ENTER.
7. The system responds with the prompt message:  
**SEE SYSPRINT OPTION GROUP 2**  
and lists the options.
8. Enter 1, which specifies to delete the records after print, and press ENTER.
9. The system responds with the prompt message:  
**TO PROCESS A GROUP, ENTER 1**  
**TO PROCESS PSN RANGE, ENTER 2**

10. Perform either option as:

- a. To select (process) a print group, enter 1 and press ENTER. The system responds with the prompt message:

**ENTER GROUP NUMBER (01–32)**

Obtain the correct group number from the operator if not known, then enter it and press ENTER. If no group number is specified, the step defaults to group 01.

- b. To select (process) a PSN range, enter 2 and press ENTER. The system responds with the message:

**ENTER PSN – FIRST PRINT RECORD**

**ENTER PSN – LAST PRINT RECORD**

Enter the print sequence number and press ENTER. The same PSN is used for the first and last print record and is obtained from the function that saved the print records.

11. The system responds with the prompt message:

**PRINT INITIATED**

12. Reset the STOP indicator at the terminal. The print operation resumes when finding the records.

13. When the SYSPRINT utility terminates, return to step 1 to reselect the utility if necessary.

## SYSPRINT Error Messages

The following describes the messages that result when certain error conditions occur while running the SYSPRINT Utility:

- **LA INVALID OR NOT IN SYSTEM** – Verify that the correct LA was entered and the printer has been configured for the system from the SYSLDEV Utility. To continue, enter zero, then a new LA, and press ENTER. To terminate, enter 9 and press ENTER.
- **PRINTER IN USE OR UNAVAILABLE** – The printer selected is either performing another operation or has not been configured for the system. Invoke the SYSLDEV utility to verify printer status.
- **INVALID PSN NUMBER FOR SYSTEM GROUP** – An invalid print sequence number was entered. Verify the PSN source (the function that assigned the number). Reset the STOP indicator on the terminal, enter the correct PSN value, and press ENTER.
- **INVALID GROUP NUMBER FOR SYSTEM GROUP** – An invalid group number was entered. Verify the number with the control operator. Enter the correct print group number and press ENTER.

**CP855 SYSRSLOG – Request Error Log from 3276 (2620)**

The SYSRSLOG Utility is used to request error logs from a 3276. It can be used by both the control operator or the service representative and can either be displayed at the invoking terminal or placed in a print group. To print the error log, use the SYSPRINT Utility. To invoke this utility, perform the following steps:

1. Log on the system using the service representative ID by entering 255CEDPCX and press ENTER.
2. Select the SYSRLOG Utility by entering 2620 and pressing ENTER.
3. The system responds with the prompt message:  
TO LIST ON A TERMINAL, ENTER 1  
TO PUT IN PRINT GROUP, ENTER 2  
TO TERMINATE, ENTER 9.
  - a. To display the error log information at the invoking terminal, enter 1 and press ENTER. Proceed with Option 1: List on Terminal.
  - b. To place error log information in a print group, enter 2 and press ENTER. Proceed with Option 2: Put Log in Print Group.

**Note:** Option 2 requires the control operator to assign a data set print group number for the error log. You use this number during the SYSPRINT Utility to print the log.

**Option 1 (List on Terminal)**

1. The system responds with the prompt message:  
FOR SDLC LINK TESTS, ENTER 1  
SUMMARY COUNTS, ENTER 2  
COMM ADAPTER COUNTS, ENTER 3  
EC LEVELS, ENTER 5  
ALL LOGS, PRESS ENTER.
2. Enter the number of the option desired and press ENTER.
3. The system responds with the prompt message:  
ENTER CTRL UNIT ADDRESS (CA00)
4. Enter the control unit address and press ENTER.
5. The system responds with the prompt message:  
TO DELETE LOG, ENTER 1  
TO KEEP LOG, ENTER 2
6. To save the log after printing, enter 1 and press ENTER.
7. To delete the log after printing, enter 2 and press ENTER.  
The system prints the log requested and again displays the SYSRSLOG prompt messages.
8. To select another option, go to step 3.
9. To terminate the utility, enter 9, press ENTER and log off the system.

**Option 2 (Put Log in Print Group)**

1. The system responds with the prompt message:  
FOR SDLC LINK TESTS, ENTER 1  
SUMMARY COUNTS, ENTER 2  
COMM ADAPTER COUNTS, ENTER 3  
EC LEVELS, ENTER 5  
ALL LOGS, PRESS ENTER.
2. Enter the number of the option desired and press ENTER.
3. The system responds with the prompt message:  
ENTER CTRL UNIT ADDRESS (CA00)
4. Enter the control unit address and press ENTER.
5. The system responds with the prompt message:  
TO DELETE LOG, ENTER 1  
TO KEEP LOG, ENTER 2
6. To save the log after printing, enter 2 and press ENTER.
7. To delete the log after printing, enter 1 and press ENTER.
8. The system responds with the prompt message:  
ENTER GROUP NO. X  
PSN X  
ASSIGNED FOR RECFMS LOG
9. Press PA2 Key.
10. The system responds with the prompt message:  
TO LIST ON TERMINAL, ENTER 1  
TO PUT IN PRINT GROUP, ENTER 2  
TO TERMINATE, ENTER 9
11. Enter '9' and press ENTER.
12. The system responds with the prompt message:  
PRINT GROUP NO X  
PSN X  
ASSIGNED FOR RECFMS LOG
13. Press PA2 Key.
14. The system responds with the prompt message:  
ASSIGNED PSN X  
TO PRINT AND DELETE, ENTER 1  
TO PRINT AND KEEP, ENTER 2  
TO TERMINATE, ENTER 9
15. If either option is entered, the system responds with message:  
ENTER PRINTER LOGICAL ADDRESS . . .  
After entering printer logical address system will respond with message: PRINT INITIATED

**Note:** At step 6 or 7 the program could indicate PRINT GROUP FULL. If this occurs, exit SYSRSLOG and use SYSIMOD (934) option 2 to generate new data sets. Do this by entering 1 and pressing ENTER until 32 new data sets have been generated, then return to SYSRSLOG.



**SYRSLOG Record Examples**

The following are examples of log records for SYRSLOG Utility:

```

Type 1      RECFMS Maintenance Log
            SDLC Link Tests for CA00
                XID = XXXX
Tests received      XXX
Tests transmitted   XXX

Type 2      RECFMS Maintenance Log
            Summary Counts for CA00
                XID = XXXX
Machine check       XXX
Communications check XXX
Program check       XXX

Type 3      RECFMS Maintenance Log
            Communication adapter counts for CA00
Nonproductive timeout XXX
Idle timeout        XXX
Overrun             XXX
Underrun            XXX
Connection problem  XXX
FCS error           XXX
Primary terminations XXX
Command rejects     XXX
DCE error           XXX
Write timeout       XXX

Type 5      RECFMS Maintenance Log
            EC levels for CA00*
0E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
1E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
2E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
3E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
4E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
5E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
6E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
7E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
8E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
9E XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
AE XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
BE XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
CE XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
DE XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX
    
```

\*EC ship level of the three 3276 ROS card modules.  
See 3276 manual SY18-2023.

**SYRSLOG Error Messages**

The following describes the messages that result when certain error conditions occur while running the SYRSLOG Utility:

- OPERATION UNSUCCESSFUL – The adapter address specified was either invalid or was not configured for the system. Use the SYSLDEV Utility to verify the correct adapter address.
- PRINT GROUP FULL OPERATION SUCCESSFUL – No further logs can be placed in the print group until the group is either printed or deleted by using the SYSPRINT Utility. Verify that no customer data can be destroyed before attempting a delete option.
- ANOTHER TASK USING CNTL UNIT – Wait until task completes, or ask customer to terminate task (control unit busy).
- ADAPTER DEACTIVATED – The primary communications adapter (PCA) possibly failed. Attempt to reactivate the PCA using the SYSTEM Utility (903) Option 6. If reactivation fails, check control operator’s terminal for a system message number (SMN).
  - If none exists, go to ST210, “DPCX General Failure Index”. Select the communications attachment feature failure indication and perform the action plans listed.
  - If there was an SMN, go to ST222 “Control Operator Messages”, find the SMN, and perform the recommended action.
- DLA NOT CONFIGURED – Run the SYSLDEV Utility. Refer to the paragraph in CP851 “How to Invoke SYSLDEV”, and verify that no DLA is configured. If true, ask the customer to configure the DLA.
- FUNCTION NOT SUPPORTED – Certain level 3276 control units do not support the SYRSLOG Utility (2620). To determine if the 3276 is at the correct level:
  1. At the 3276, hold down the SUB-SYSTEM TEST switch and enter 6.
  2. Refer to the display on the 3276. If the 3276 has the MCCS feature, the display then instructs you to perform these actions:
    - a. Locate the K2 chip (card module) position 6.
    - b. Examine the chip number:
      - If on a loop, it is either 5892904 or 5893389.
      - If on a data link, it is 5893302.
- INVALID ADAPTER ADDRESS – Using the SYSLDEV Utility (898), list all devices. Determine if the PCA is listed. If not, ask the customer for the valid adapter address.
- LINK ERROR – Go to ST210 (DPCX General Failure Index). Find the failure indication for a single downstream control unit, and perform the recommended action.

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**Chapter 3. Locations and Tools  
(LT)**

**Introduction**

This chapter contains five sections, three of which are divided according to machine type. They enable you to locate components of the 8100 Information System and also to become familiar with the tools used to service the 8100. The sections are:

1. 8130 Locations (LT100–LT160)
2. 8140 Locations (LT200–LT262)
3. 8101 Locations (LT300–LT360)
4. Common Location Information (LT400–LT430), which contains information common to some or all of the 8100 machine types.
5. Tools (LT500–LT560), which contains information that describes the tools and test equipment used to service the 8100.

**Note:** *If the figures in this chapter do not show enough detail, refer to the associated Chapter 5 MAP reference material for additional information.*

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			LT430-2.	8101 Address Labels . . . . .	3-LT-30
			LT510-1.	Maintenance Device . . . . .	3-LT-31
			LT520-1.	Teleprocessing Data Analysis Tool and Switch Settings . . . . .	3-LT-32
			LT531-1.	DB Meter . . . . .	3-LT-32
			LT550-1.	General Logic Probe . . . . .	3-LT-33

**Abbreviations**

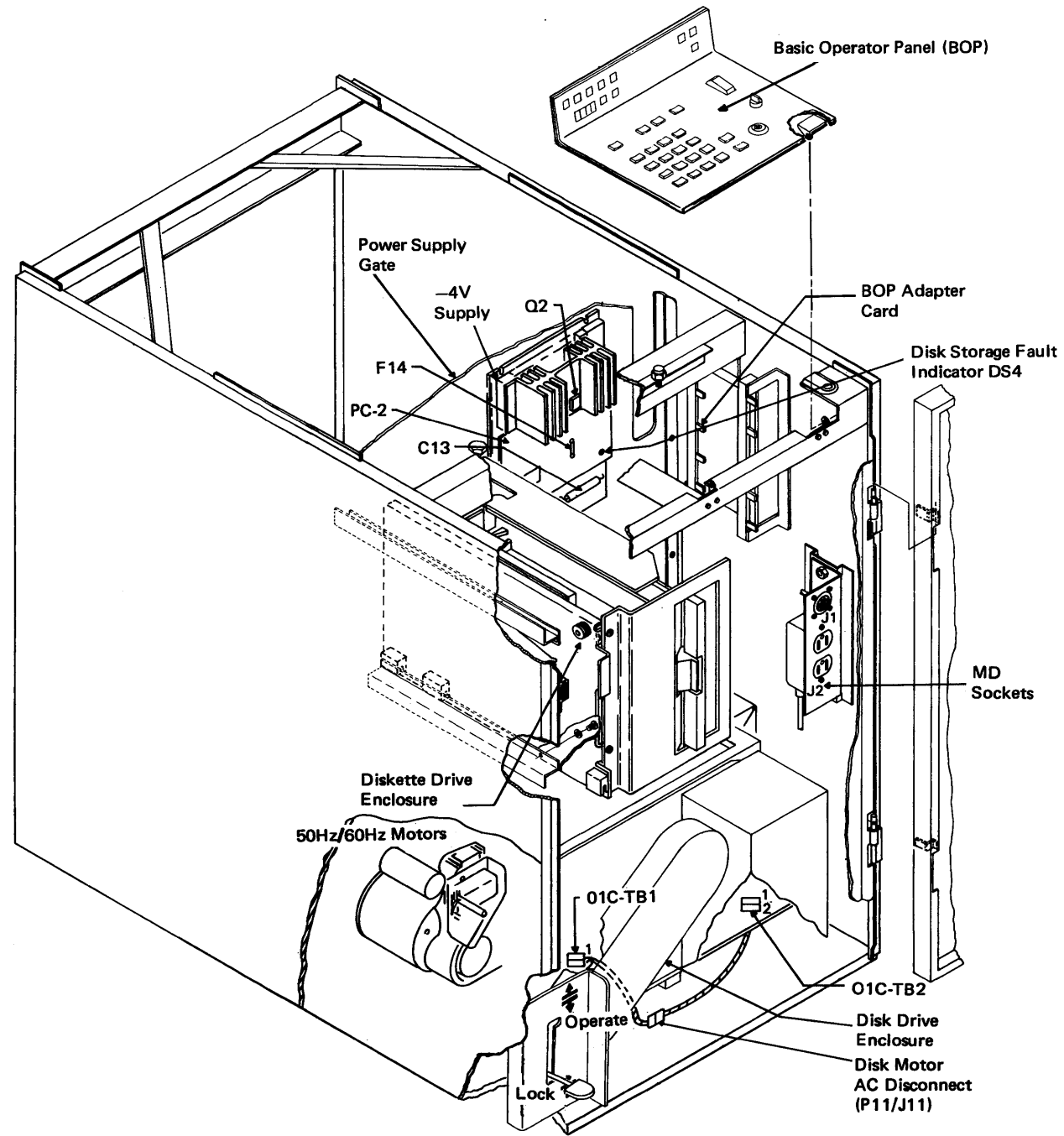
BSC	Binary Synchronous Communication
DPPX	Distributed Processing Programming Executive
I/O	input/output
MAP	Maintenance Analysis Procedure
MD	Maintenance Device
PA	physical address
P/N	part number
PSCF	Primary System Control Facility
ROS	read-only storage
SCF	System Control Facility
SDLC	Synchronous Data Link Communications
SS	Start-Stop
SSCF	Secondary System Control Facility
TDAT	teleprocessing data analysis tool

**LT100 8130 Locations**

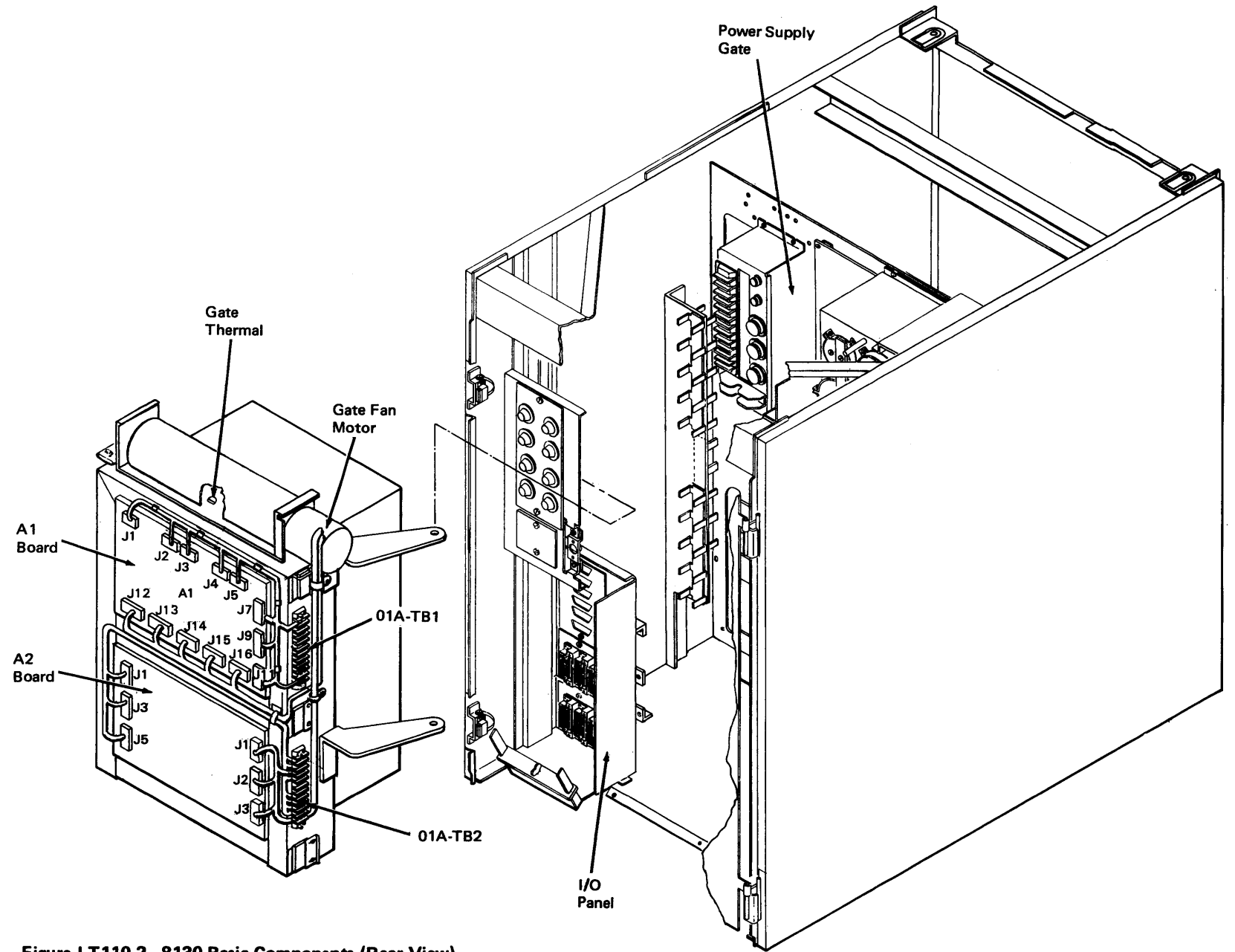
**LT110 8130 Basic Hardware Components**

Figures LT110-1 and LT110-2 show the 8130 basic hardware components as viewed from the front and rear, respectively.

*Note: For more detailed diagrams, refer to the individual sections in Chapter 5.*



**Figure LT110-1. 8130 Basic Components (Front View)**



**Figure LT110-2. 8130 Basic Components (Rear View)**

**LT120 8130 Gate and I/O Panel Designations**

Figures LT120-1 and LT120-2 show the 8130 gate and I/O panel designations as viewed from the front and rear, respectively, and also describe their function.

Gate Designation	Gate Function
01A	System logic gate and boards
01B	Basic operator panel adapter card
01C	Disk storage
01D	Diskette storage
01F	Basic operator panel
01G	Power
01H	MD socket and AC convenience outlets
01T	I/O Panel

I/O Panel Designation	I/O Panel Function
01T-A	Transmit level switches for integrated modems
01T-B	Not used
01T-C	Communications connectors
01T-D	Second lobe loop connectors
01T-E	SCF signal bus connectors for cables to 8101 or 8809 Model 1B

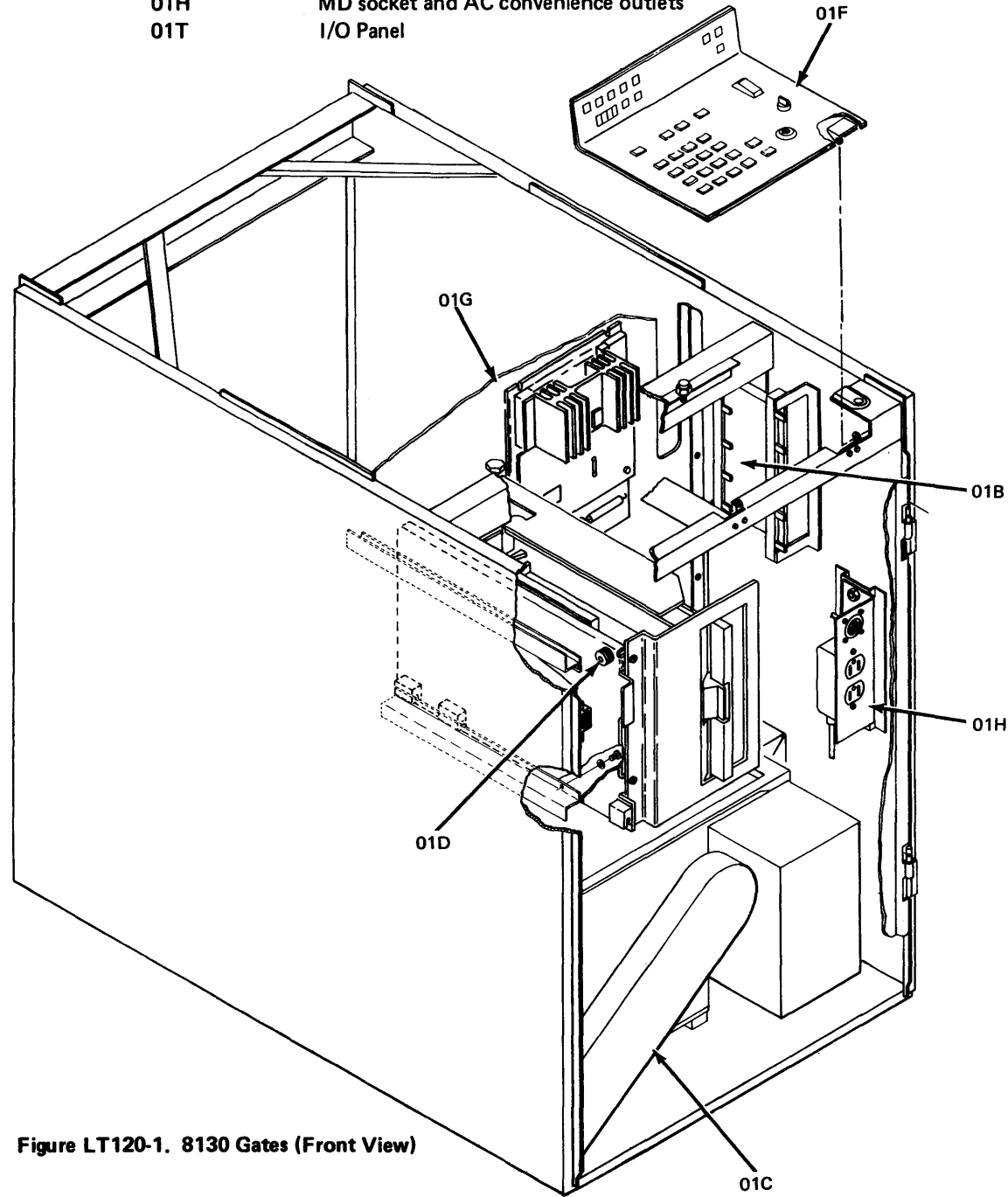


Figure LT120-1. 8130 Gates (Front View)

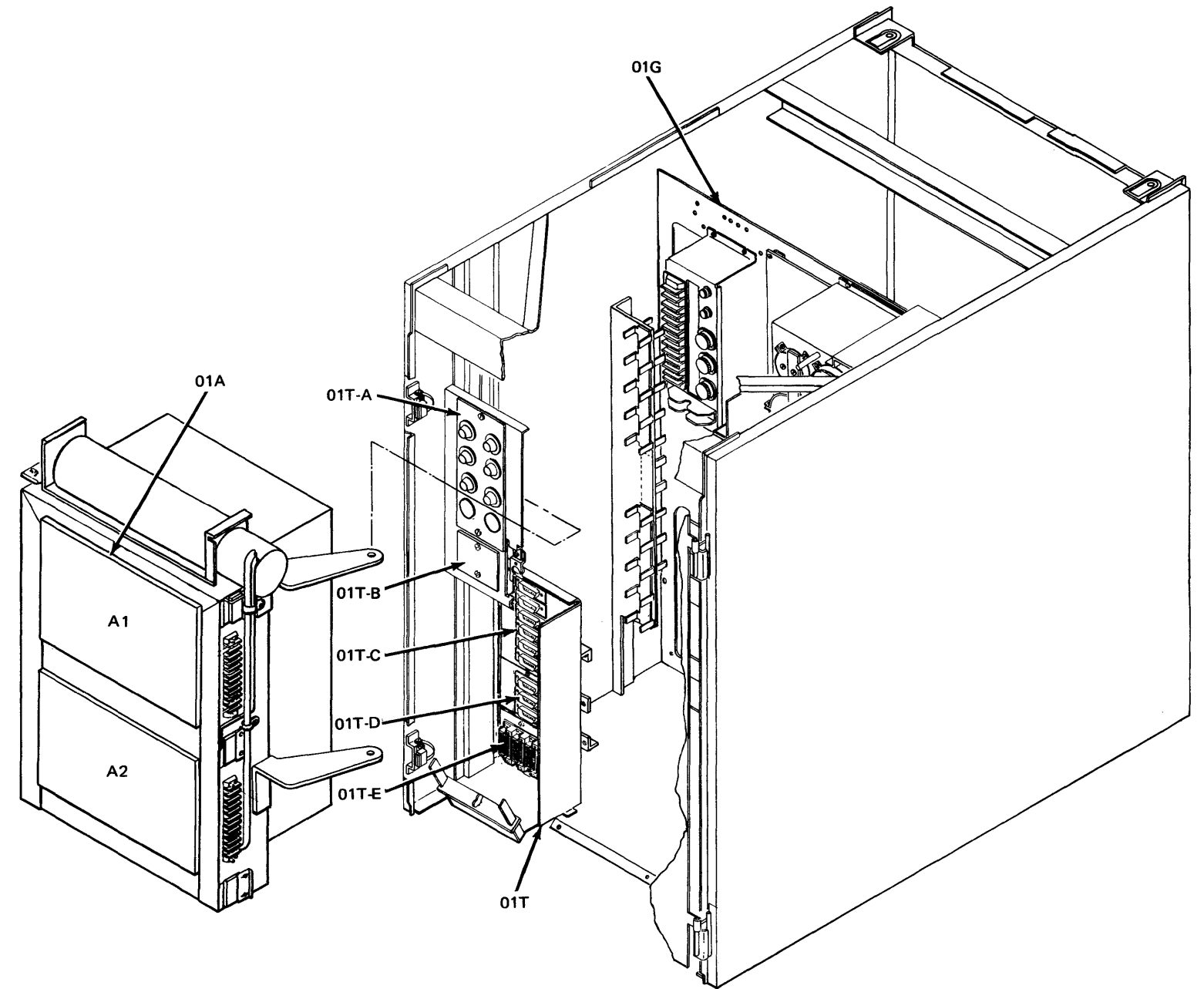


Figure LT120-2. 8130 Gates (Rear View)



## LT130 8130 I/O Panel Components

Figure LT130-1 shows the 8130 I/O panel. This figure includes all possible features that can be installed, and therefore all machines might not appear with all components. In this instance, the affected areas use a blank panel.

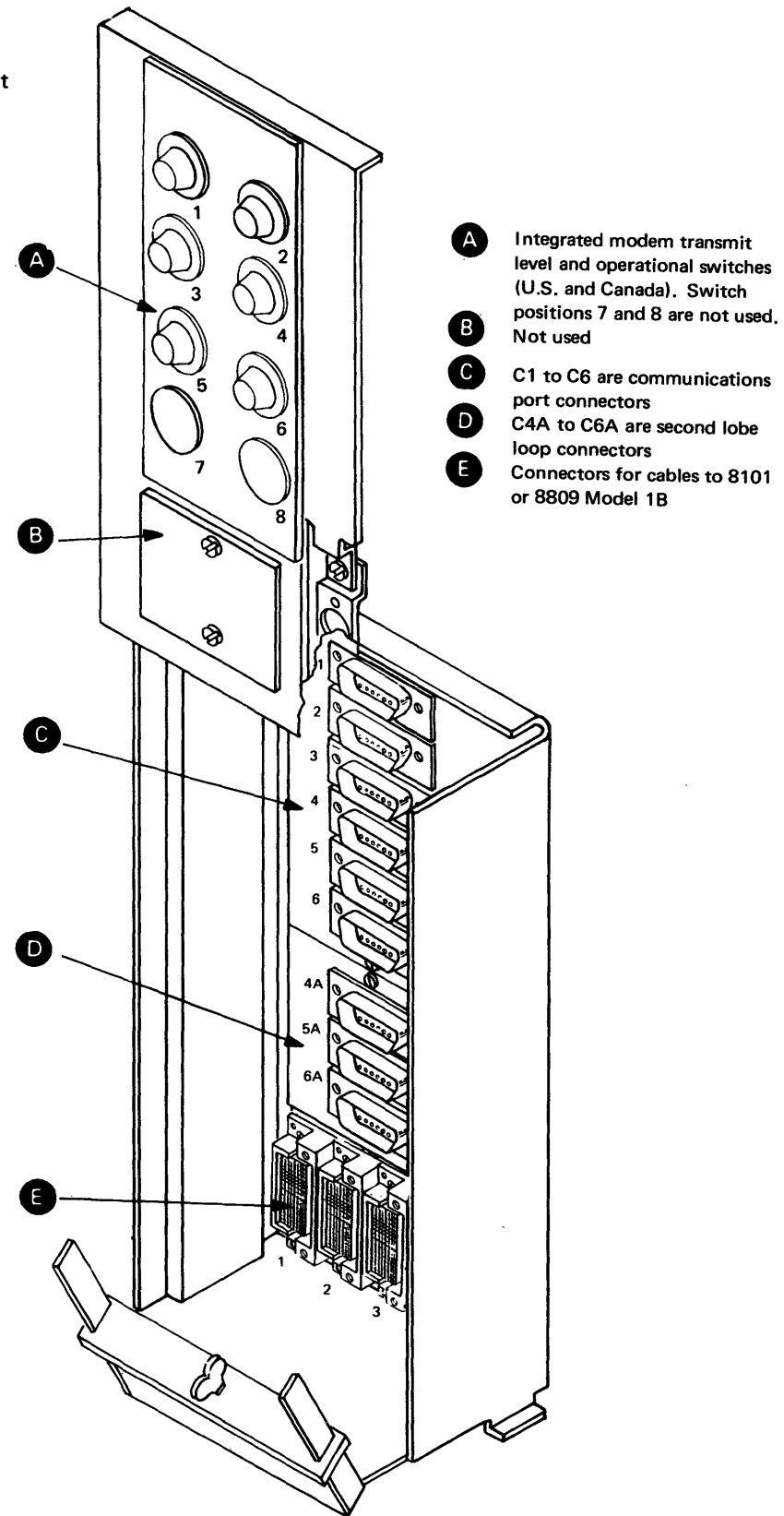
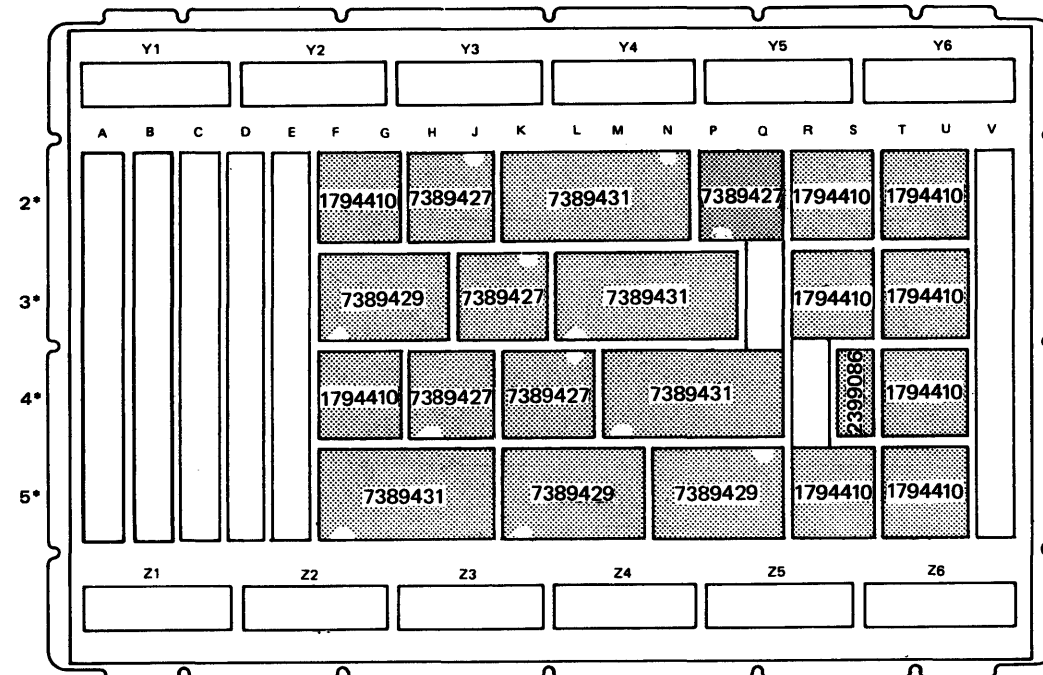


Figure LT130-1. 8130 I/O Panel (01T Gate)

LT140 8130 Top Card Connectors

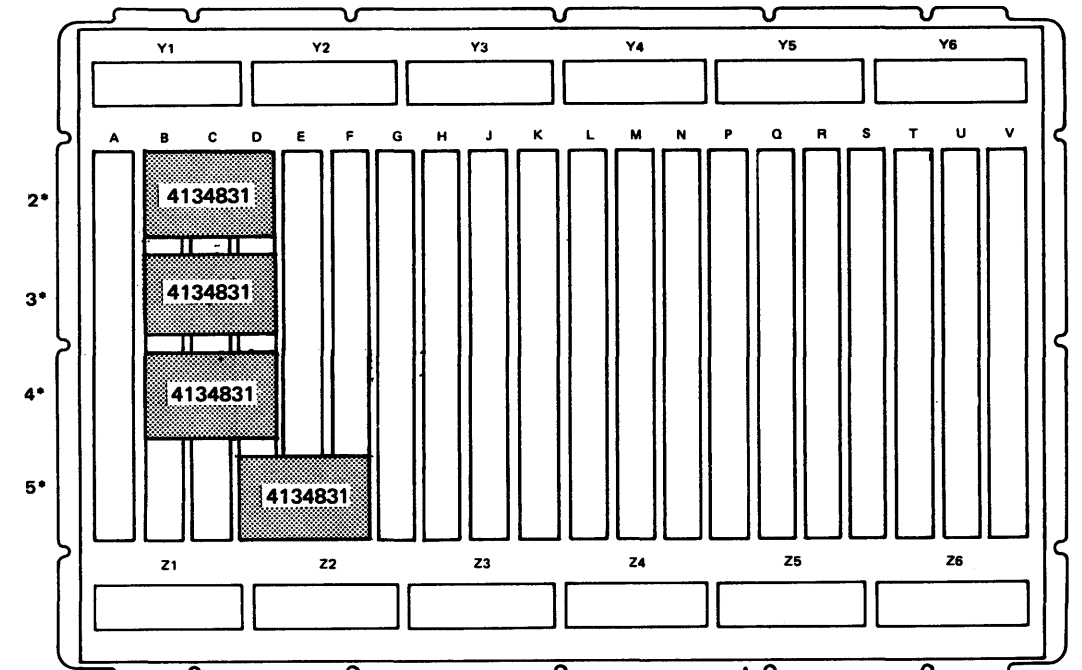
Figures LT 140-1, LT140-2 and LT140-3 show the 8130 top card connector locations and part numbers for the 01A-A1 and 01A-A2 boards.

**Note:** The 12 polarized top card connector key positions are indicated by semi-circular cutouts.



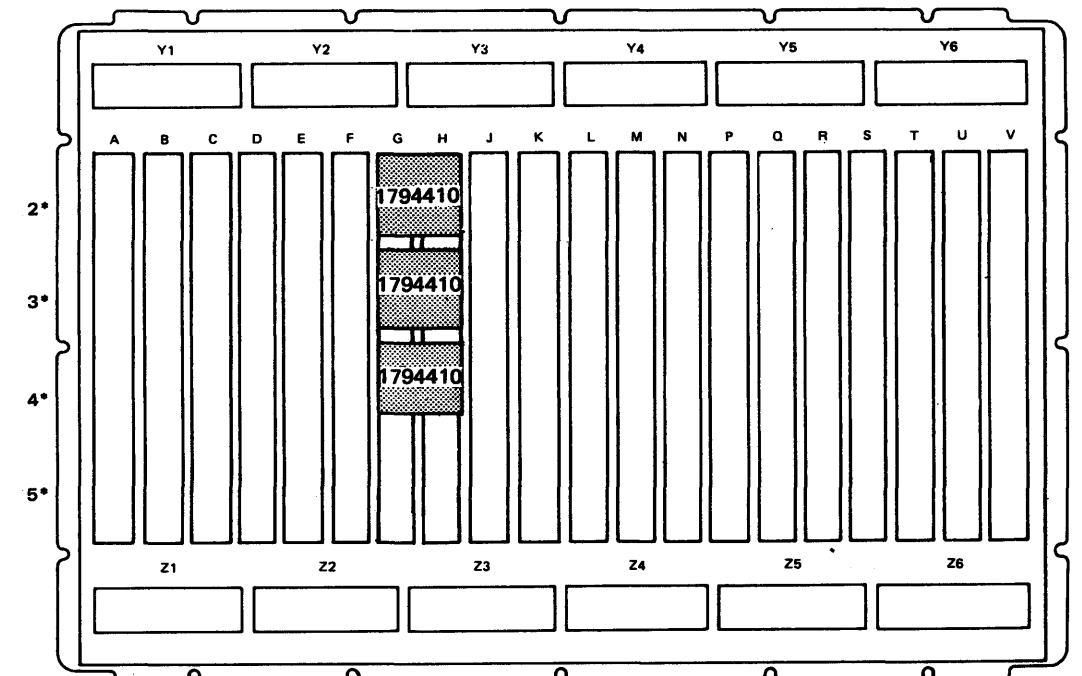
\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

Figure LT140-1. 8130 Top Card Connector Locations and Part Numbers (01A-A1 Board)



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

Figure LT140-2. 8130 Top Card Connector Locations and Part Numbers with the System Expansion Feature (01A-A2 Board)



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

Figure LT140-3. 8130 Top Card Connector Locations and Part Numbers without the System Expansion Feature (01A-A2 Board)

**LT150 8130 Card Locations**

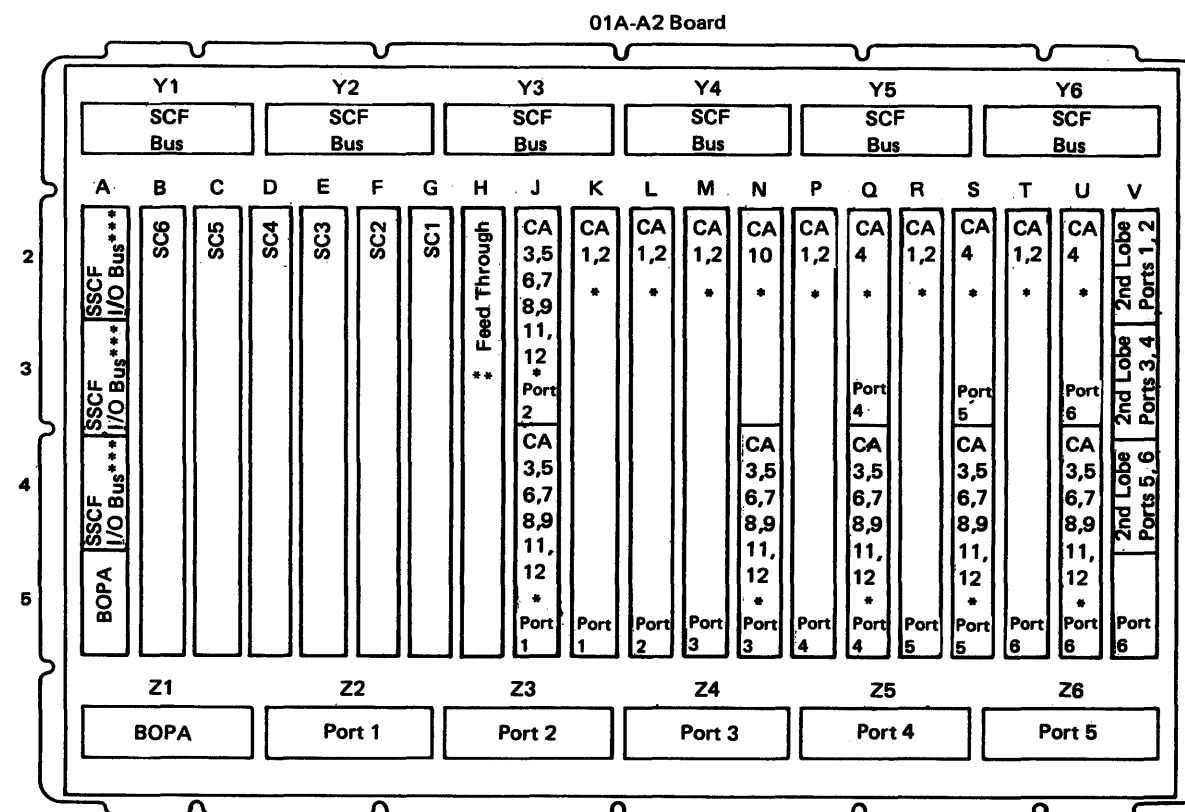
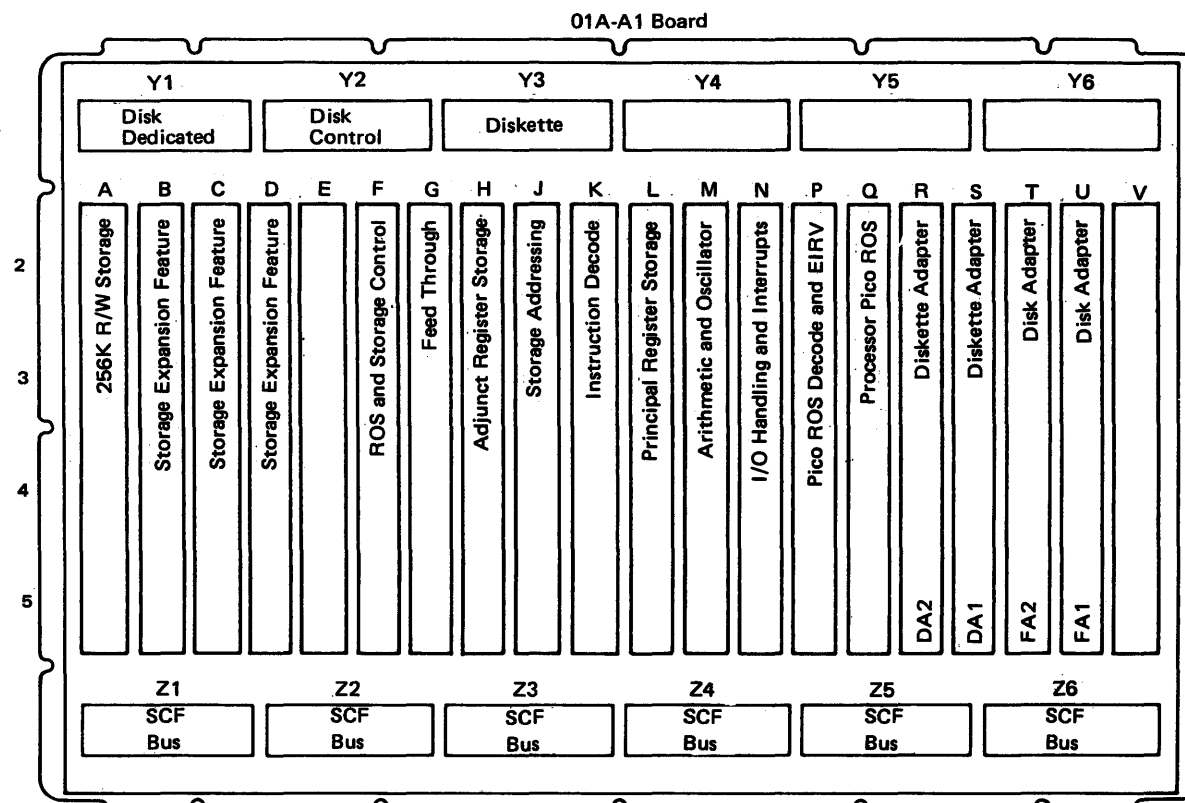
Figure LT150-2 shows the 8130 card locations for the 01A-A1 and 01A-A2 boards.

Note: See LT160 for cable destinations.

Except for the card locations used for the second lobe loop adapter and the multispeed clock, all communications card locations can contain more than one card type. In Figure LT150-2, the communications cards have number designations that refer to the card types listed in Figure LT150-1.

No.	Communications Card Type
1	SDLC communications adapter
2	BSC/S-S communications adapter
3	Loop adapter 1st lobe
4	Loop adapter 2nd lobe
5	EIA/CCITT driver/receiver
6	V.35 driver/receiver
7	Digital data service adapter
8	Integrated modem – switched line
9	Integrated modem – nonswitched line
10	Multispeed clock card
11	X.21 driver/receiver – nonswitched line
12	EIA airlines RPQ driver/receiver (CZ 5)

Figure LT150-1. Communications Card Types



\*See Figure LT150-1 for card types.  
 \*\*8130 without System Expansion Feature installed.  
 \*\*\*8130 with System Expansion Feature installed.

Figure LT150-2. 8130 Card Locations

## LT160 8130 Cable Locations

Figure LT160-1 shows the 8130 cable plugging locations and destinations for the 01A-A1 and 01A-A2 boards.

From	To	Description
01A-A1Y1	01C-A1A5	Disk dedicated
01A-A1Y2	01C-A1A3	Disk control
01A-A1Y3	01D-A1A1	Diskette
01A-A1Z1	01A-A2Y1	SCF bus
01A-A1Z2	01A-A2Y2	SCF bus
01A-A1Z3	01A-A2Y3	SCF bus
01A-A1Z4	01A-A2Y4	SCF bus
01A-A1Z5	01A-A2Y5	SCF bus
01A-A1Z6	01A-A2Y6	SCF bus
01A-A2Z1	01B-B1A2	BOP adapter
01A-A2Z2	01T-C1	Communications port 1
01A-A2Z3	01T-C2	Communications port 2
01A-A2Z4	01T-C3	Communications port 3
01A-A2Z5	01T-C4	Communications port 4
01A-A2Z6	01T-C5	Communications port 5
01A-A2V5	01T-C6	Communications port 6
01A-A2V2	01T-D6A	Loop adapter second lobe
01A-A2V3	01T-D5A	Loop adapter second lobe
01A-A2V4	01T-D4A	Loop adapter second lobe
01A-A2A5	01B-B1A5	BOP adapter data
01A-A2A2	01T-E1	SSCF bus to I/O panel*
01A-A2A3	01T-E2	SSCF bus to I/O panel*
01A-A2A4	01T-E3	SSCF bus to I/O panel*

\*Present with System Expansion Feature installed.

Figure LT160-1. 8130 Cable Connections

**LT200 8140 Locations**

**LT210 8140 Basic Hardware Components**

**LT211 8140 Model AXX Basic Hardware Components**

Figures LT211-1 and LT211-2 show the 8140 Model AXX basic hardware components as viewed from the front and rear, respectively.

*Note: For more detailed diagrams, refer to the individual sections in Chapter 5.*

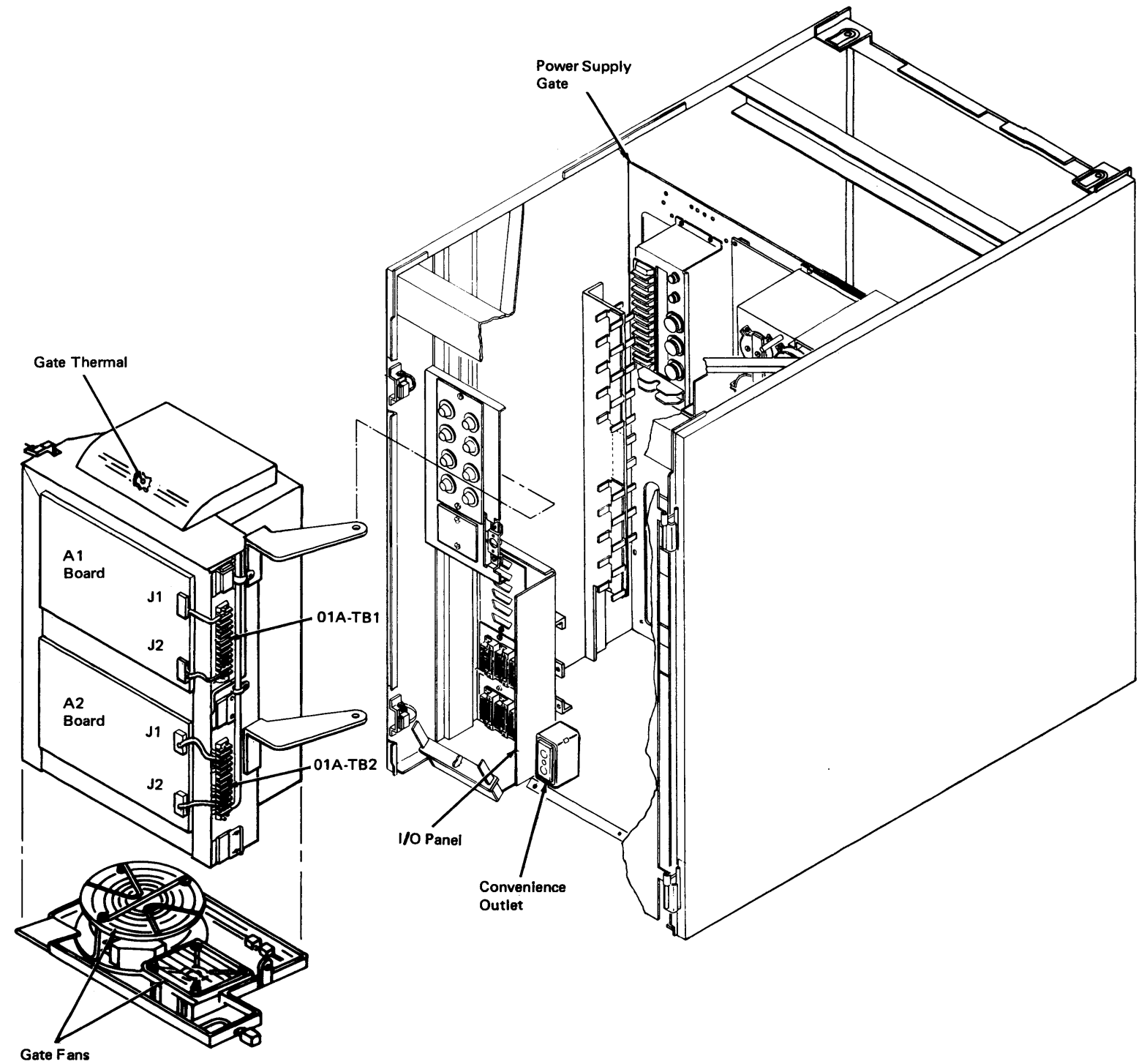
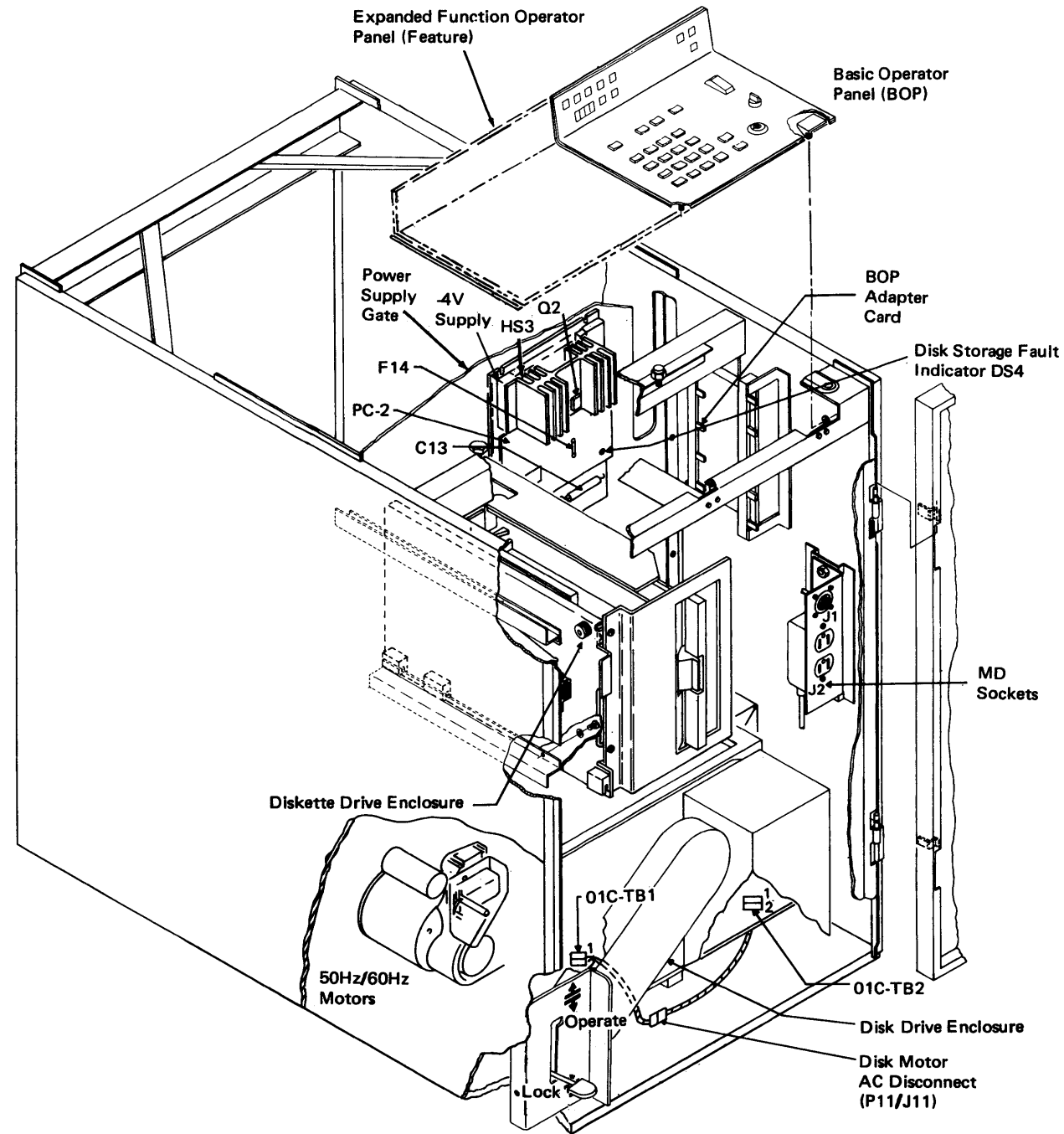


Figure LT211-1. 8140 Model AXX Basic Components (Front View)

Figure LT211-2. 8140 Model AXX Basic Components (Rear View)

LT212 8140 Model BXX Basic Hardware Components

Figure LT212-1 and LT212-2 show the 8140 Model BXX hardware components as viewed from the front and rear, respectively.

Note: For more detailed diagrams, refer to the individual sections in Chapter 5.

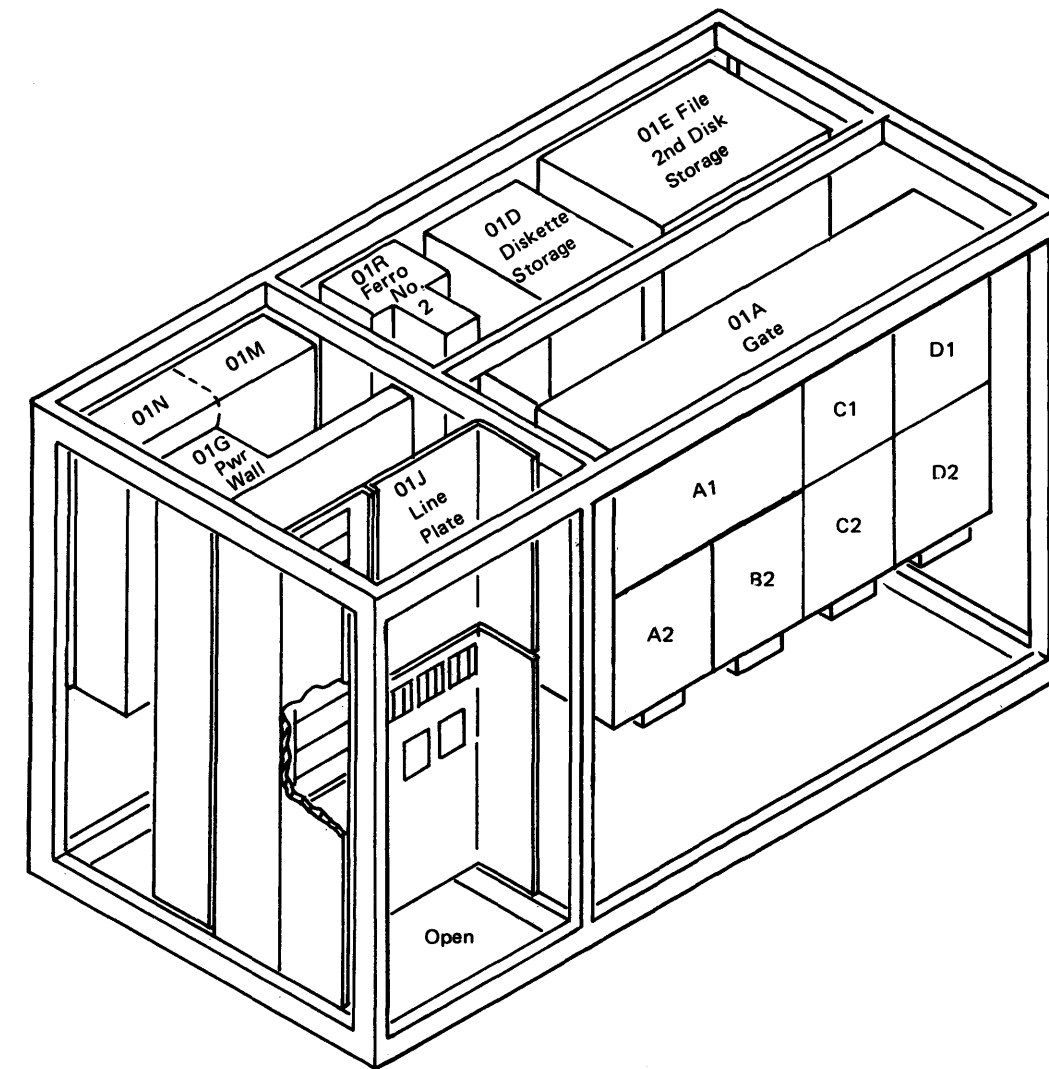
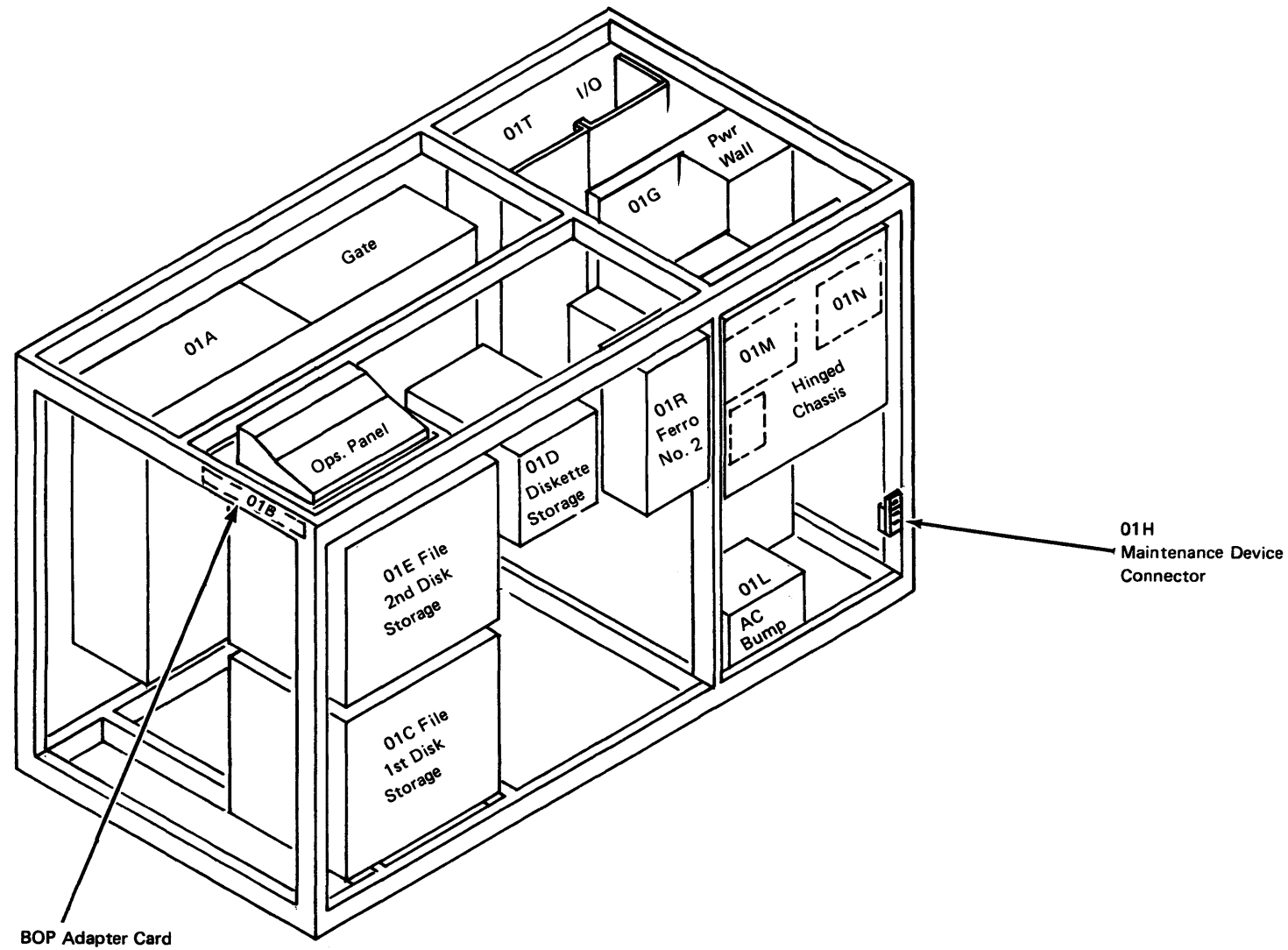


Figure LT212-1. 8140 Model BXX Basic Components (Front View)

Figure LT212-2. 8140 Model BXX Basic Components (Rear View)

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**LT220 8140 Gate and I/O Panel Designations**

**LT221 8140 Model AXX Gate and I/O Panel Designations**

Figures LT221-1 and LT221-2 show the 8140 Model AXX gate and I/O panel designations as viewed from the front and rear, respectively, and also describe their function.

Gate Designation	Gate Function
01A	System logic gate and boards
01B	Basic operator panel adapter card
01C	Disk storage
01D	Diskette storage
01F	Basic and expanded operator panel
01G	Power
01H	MD socket and AC convenience outlets
01T	I/O panel
01U	Convenience outlets

I/O Panel Designation	I/O Panel Function
01T-A	Transmit level switches for integrated modems
01T-B	Not used
01T-C	Communications and second lobe loop connectors
01T-D,E	SCF signal bus connectors for cables to 8101 or 8809 Model 1B

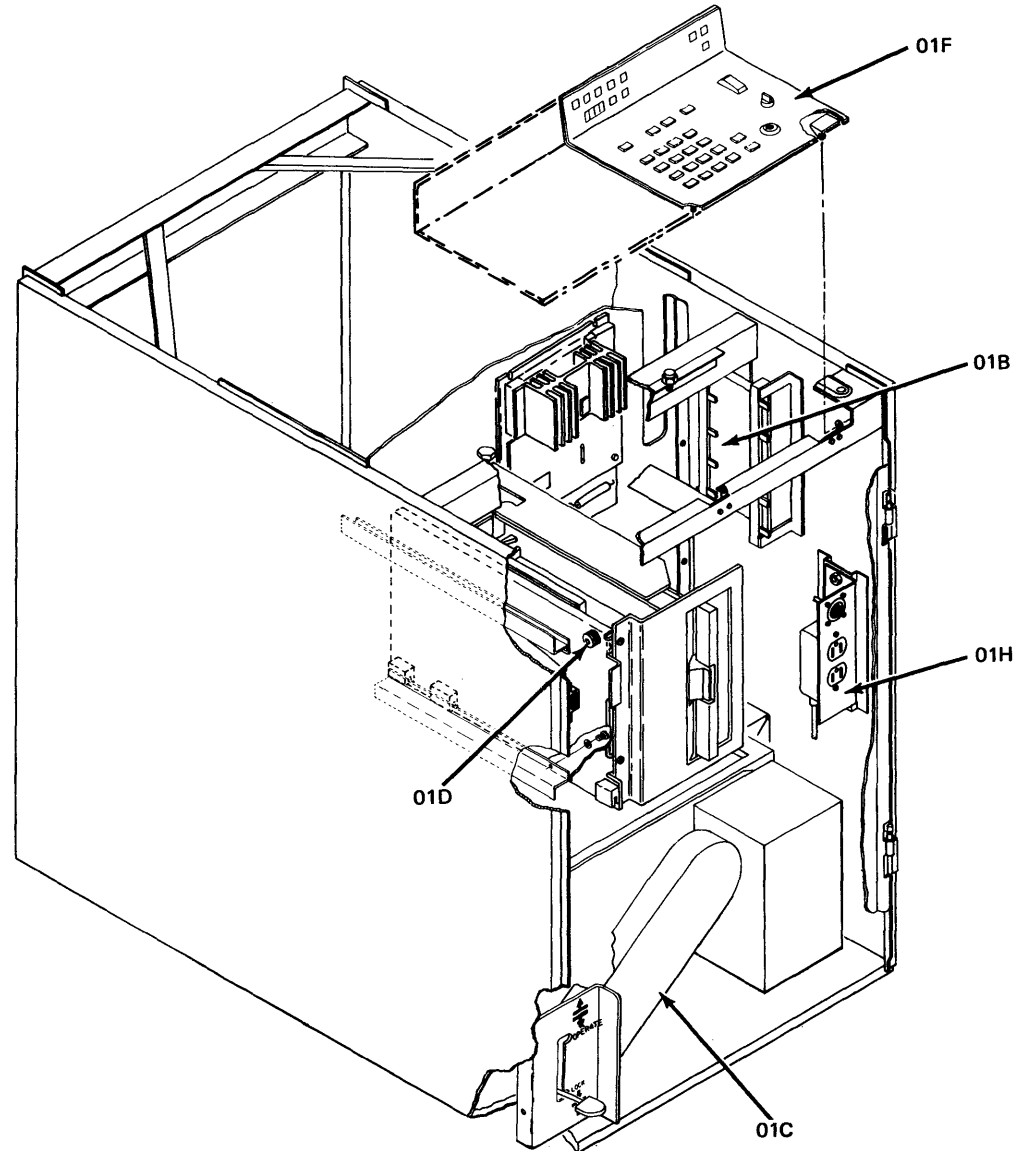


Figure LT221-1. 8140 Model AXX Gates (Front View)

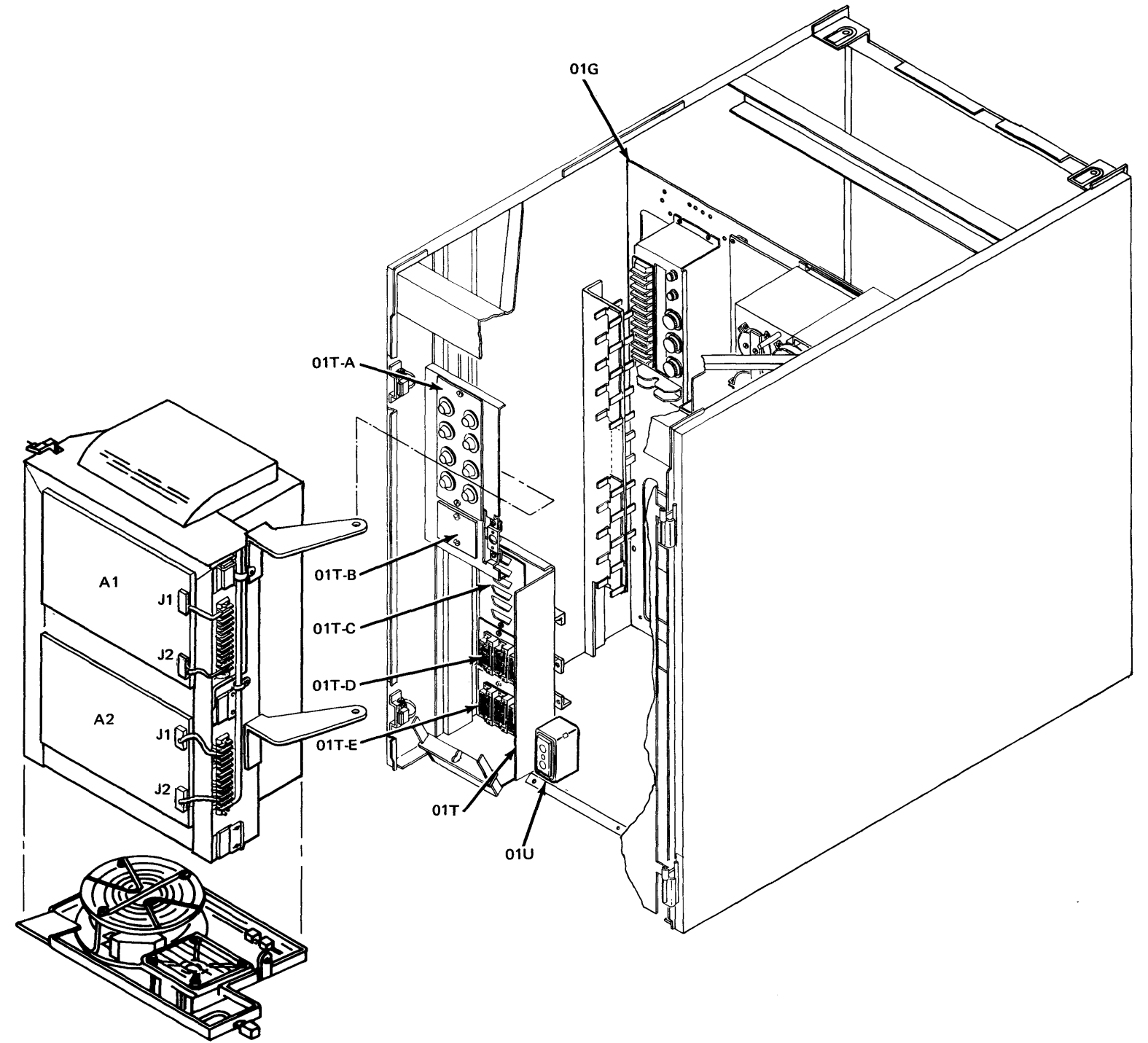


Figure LT221-2. 8140 Model AXX Gates (Rear View)



## LT230 8140 I/O Panel Components

### LT231 8140 Model AXX I/O Panel Components

Figure LT231-1 shows the 8140 Model AXX I/O panel. Because this figure includes all possible features that can be installed, all machines might not appear with all components. In this instance, the affected areas use a blank panel.

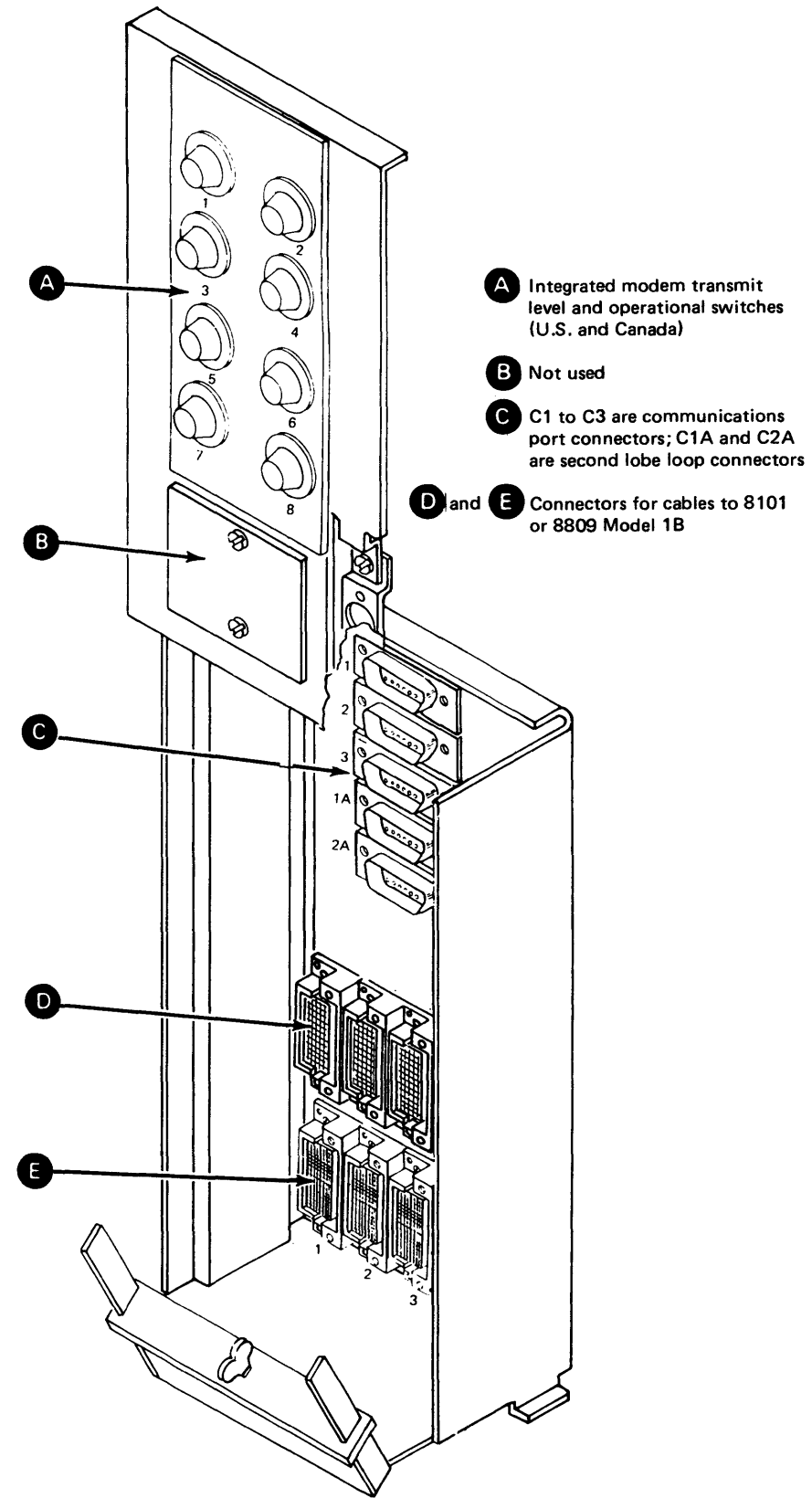


Figure LT231-1. 8140 Model AXX I/O Panel (01T Gate)

LT232 8140 Model BXX I/O Panel Components

Figure LT232-1 shows the 8140 Model BXX I/O panel. Because this figure includes all possible features that can be installed, all machines might not appear with all components. In this instance, the affected areas use a blank panel.

- A** Integrated modem transmit level and operational switch (U.S. and Canada)
- B** Display/printer (if installed) or communications ports.
- C** C1 through C8 are communications ports. C9 through C12 are communications ports when display/printer ports are not installed. C13A through C15A are second lobe loop connectors.
- D and E** Connectors for cables to 8101 or 8809 Model 1B
- F** Connectors for cables to 8809 Model 1A

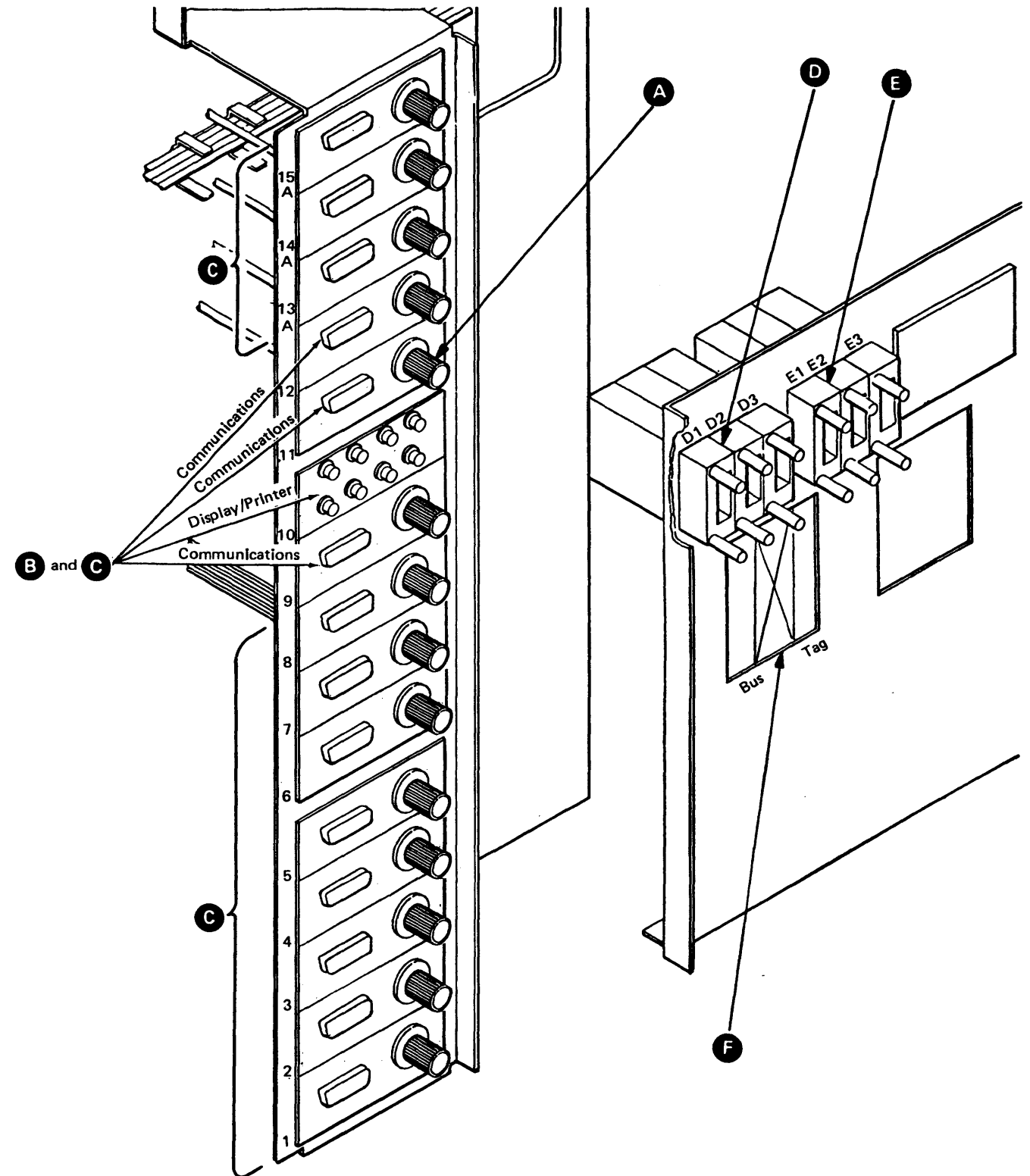
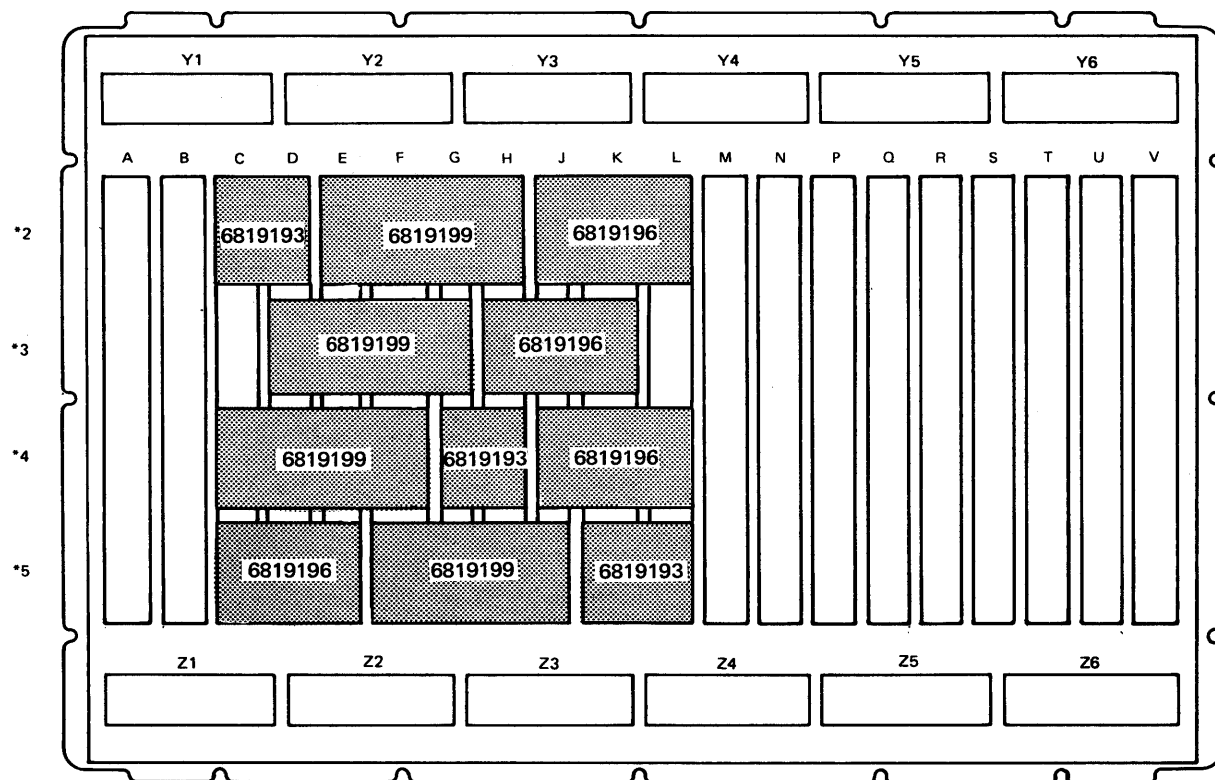


Figure LT232-1. 8140 Model BXX I/O Panel (01T Gate)

**LT240 8140 Top Card Connectors**

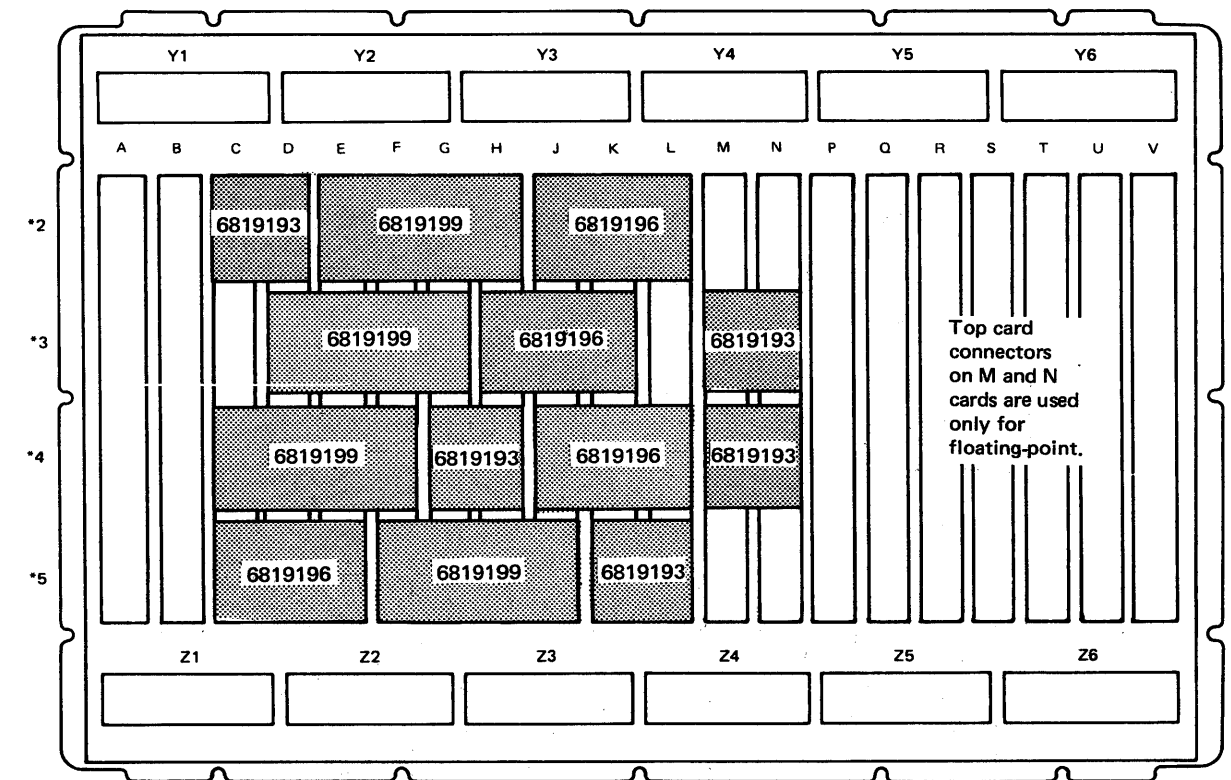
**LT241 8140 Model AXX Top Card Connectors**

Figures LT241-1 through LT241-5 show the 8140 Model AXX top card connector locations and part numbers for the 01A–A1 and 01A–A2 boards.



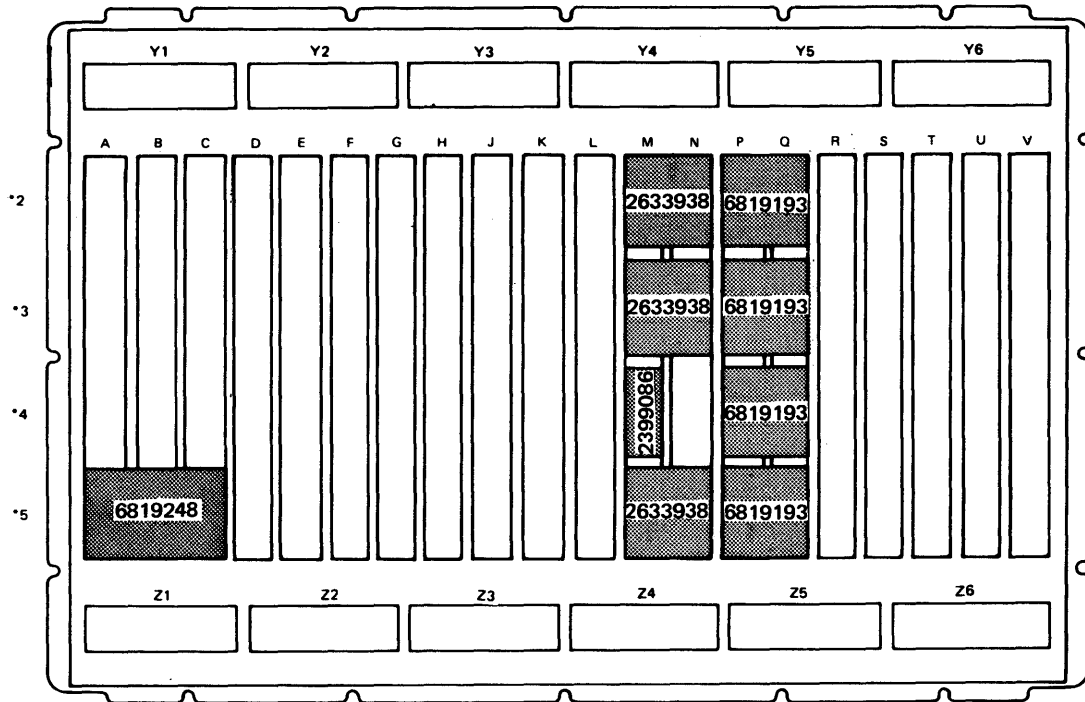
\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT241-1. 8140 Models A3X and A5X Top Card Connector Locations and Part Numbers (01A–A1 Board)**



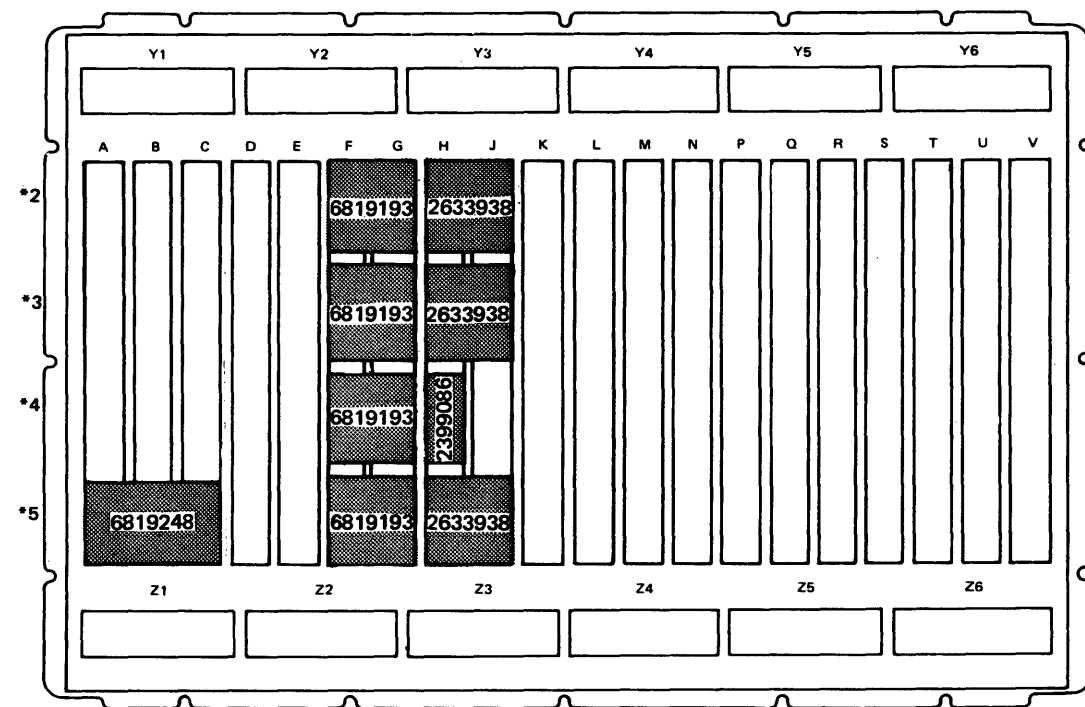
\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT241-2. 8140 Models A4X, A6X, and A7X Top Card Connector Locations and Part Numbers (01A–A1 Board)**



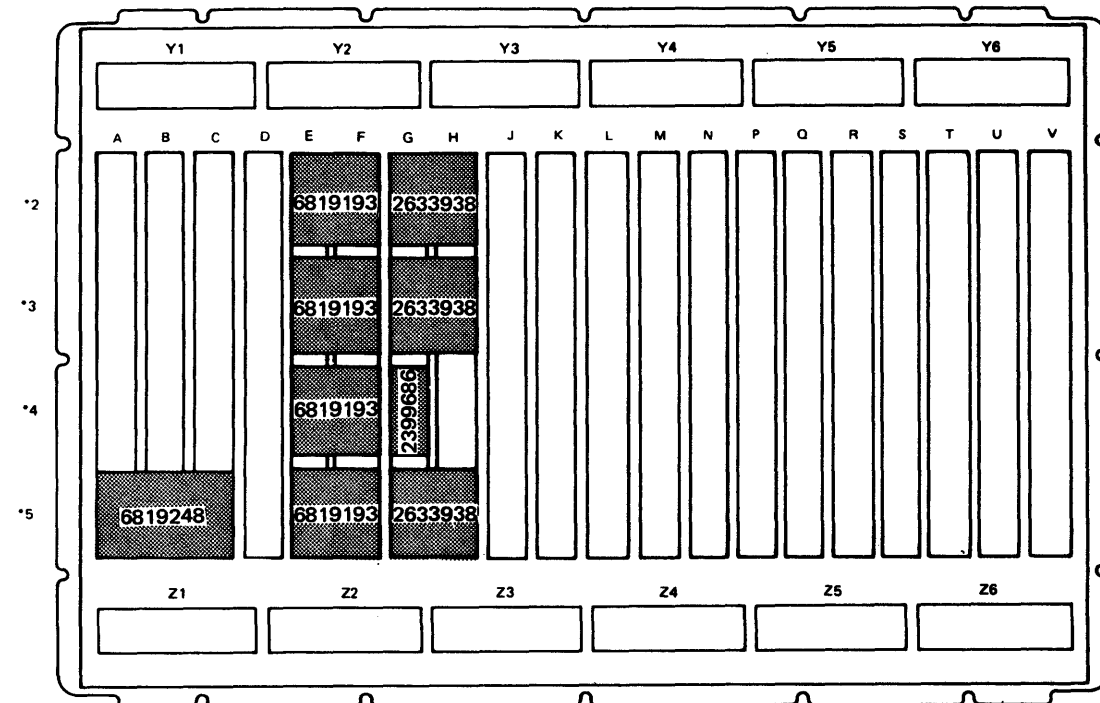
\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT241-3. 8140 Models A3X and A4X Top Card Connector Locations and Part Numbers (01A-A2 Board)**



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT241-4. 8140 Model A5X Top Card Connector Locations and Part Numbers (01A-A2 Board)**

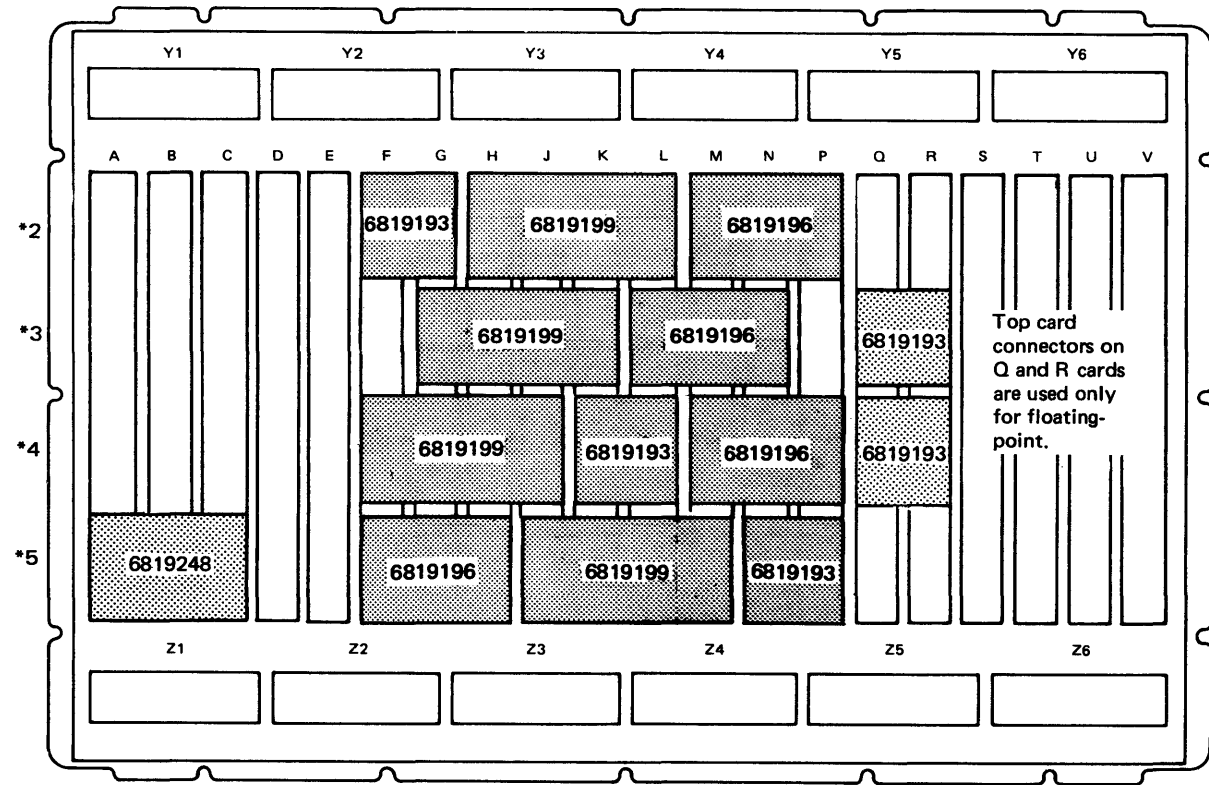


\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT241-5. 8140 Models A6X and A7X Top Card Connector Locations and Part Numbers (01A-A2 Board)**

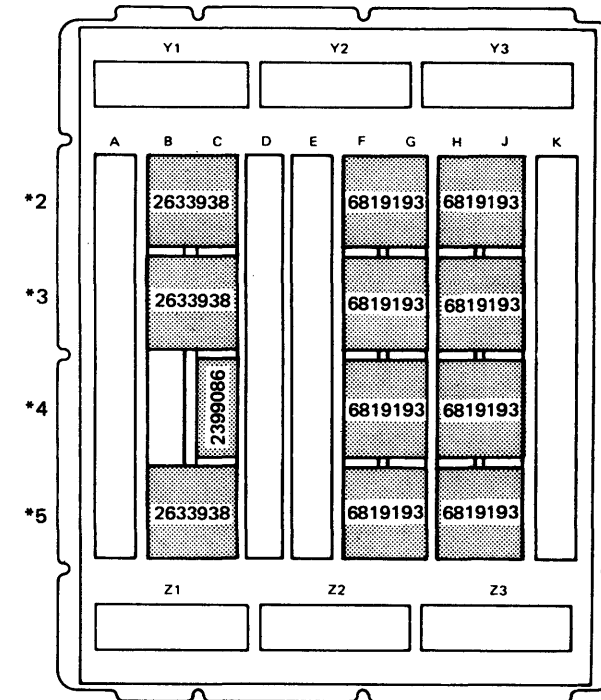
**LT242 8140 Model BXX Top Card Connectors**

Figures LT242-1 through LT242-3 show the 8140 Model BXX top card connector locations and part numbers for all boards that use them.



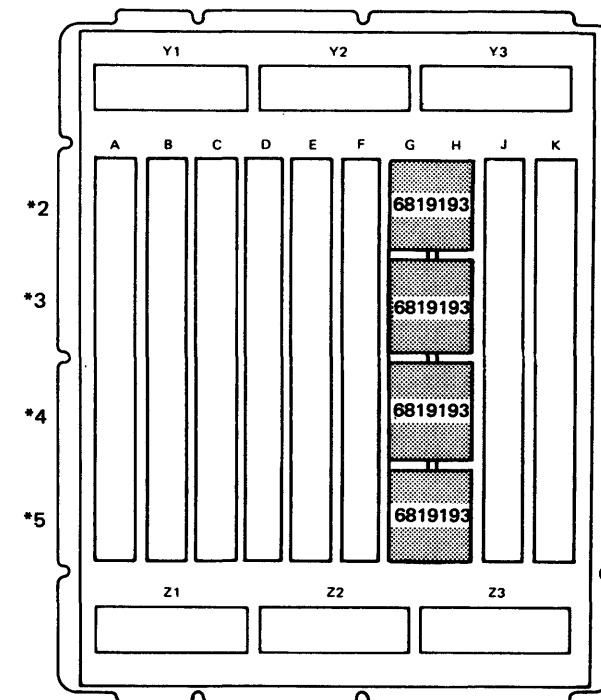
\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT242-1. 8140 Model BXX Top Card Connector Locations and Part Numbers (01A-A1 Board)**



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT242-2. 8140 Model BXX Top Card Connector Locations and Part Numbers (01A-B2 Board)**



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

**Figure LT242-3. 8140 Model BXX Top Card Connector Locations and Part Numbers (01A-C2 and 01A-D2 Boards)**

LT250 8140 Card Locations

Refer to the figures in LT251 for 8140 Model AXX card locations and to the figures in LT252 for 8140 Model BXX. LT251 and LT252 refer to Figure LT250-1 below to determine communications card types.

No.	Communication Card Type
1	SDLC communications adapter
2	BSC/S-S communications adapter
3	Loop adapter 1st lobe
4	Loop adapter 2nd lobe
5	EIA/CCITT driver/receiver
6	V.35 driver/receiver
7	Digital data service adapter
8	Integrated modem – switched line
9	Integrated modem – nonswitched line
10	Multispeed clock card
11	X.21 driver/receiver – nonswitched line
12	EIA airlines RPQ driver/receiver (CZ 5)

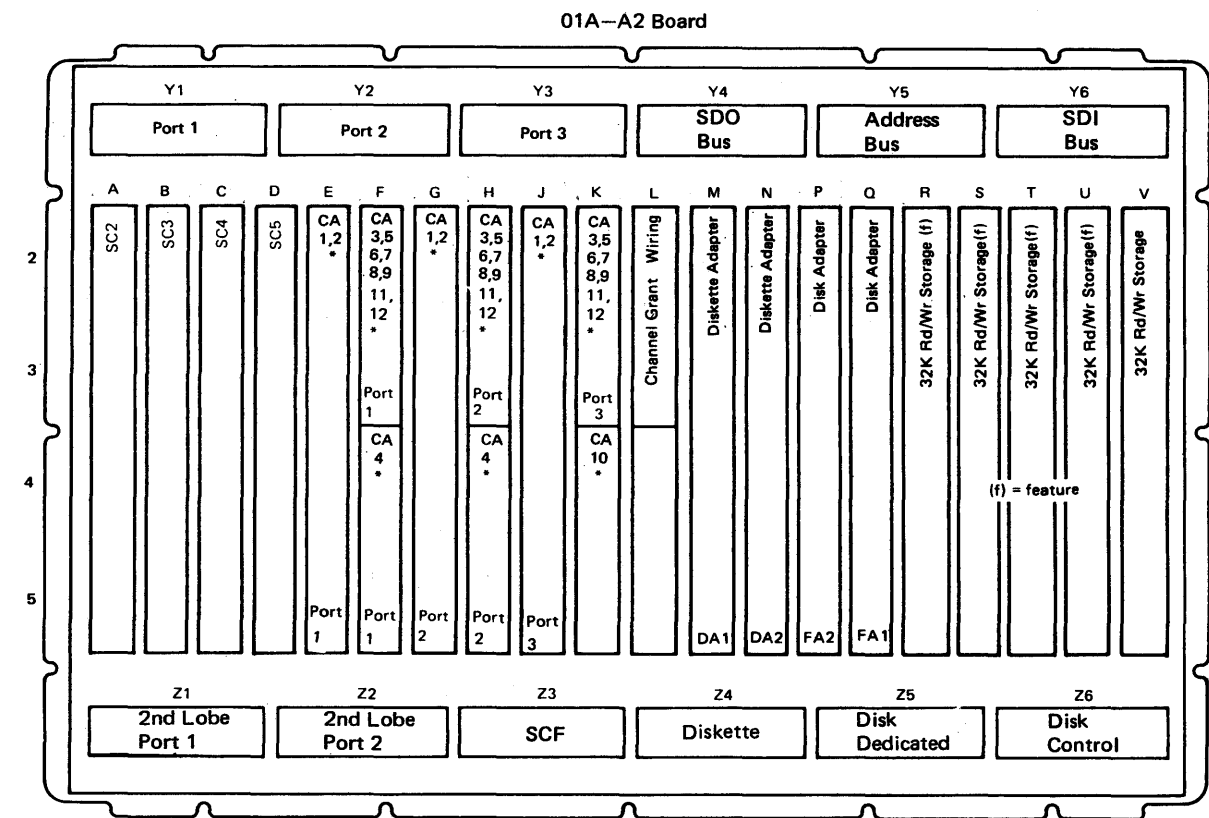
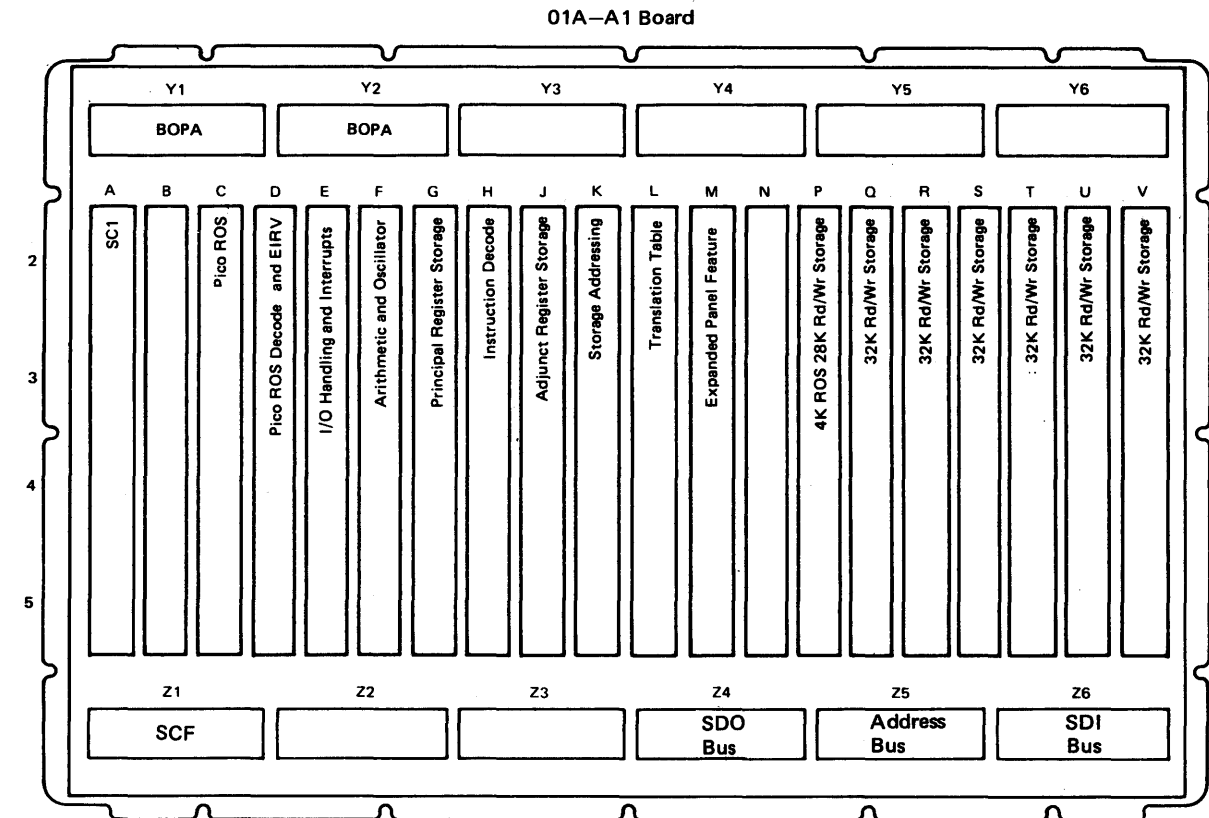
Figure LT250-1. Communications Card Types

LT251 8140 Model AXX Card Locations

Figures LT251-1 through LT251-4 show the 8140 Model AXX card locations for the 01A–A1 and 01A–A2 boards.

Note: See LT261 for cable destinations and for cables not shown.

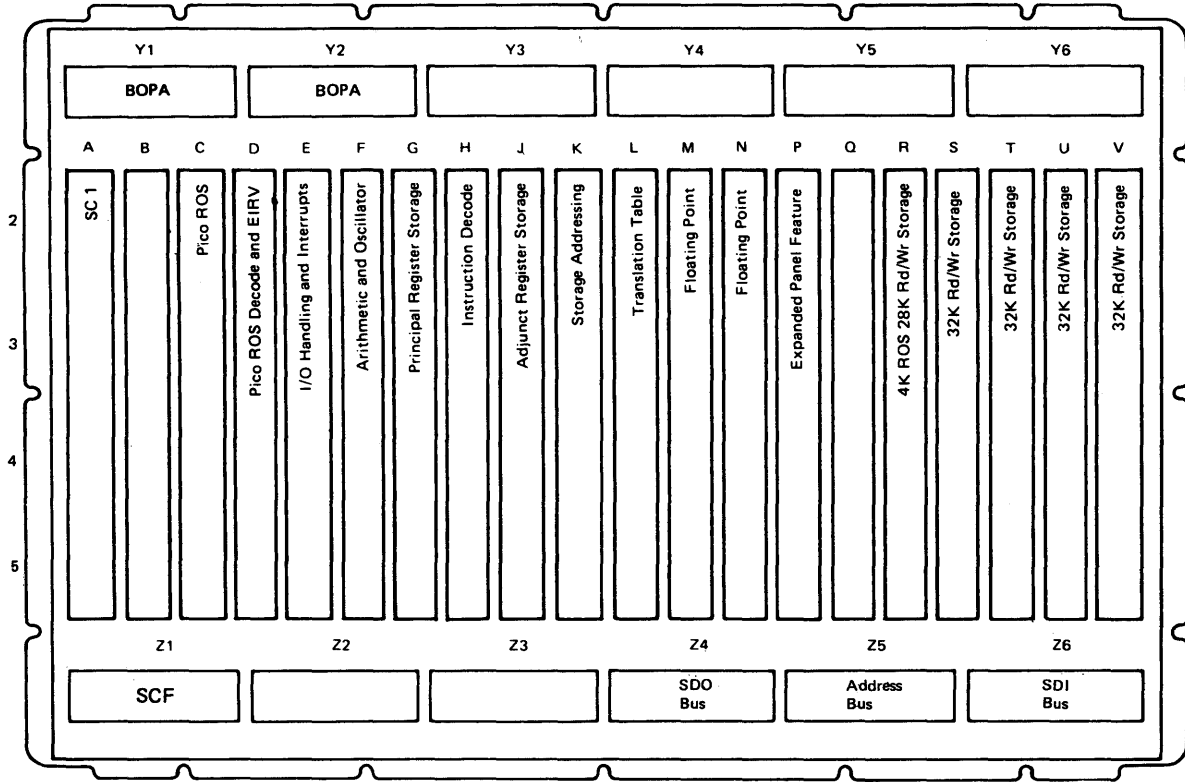
Except for the card locations used for the second lobe loop adapter and the multispeed clock, all communications card locations can contain more than one card type. In Figures LT251-1 and LT251-2 the communications cards have number designations that refer to the card types listed in Figure LT250-1.



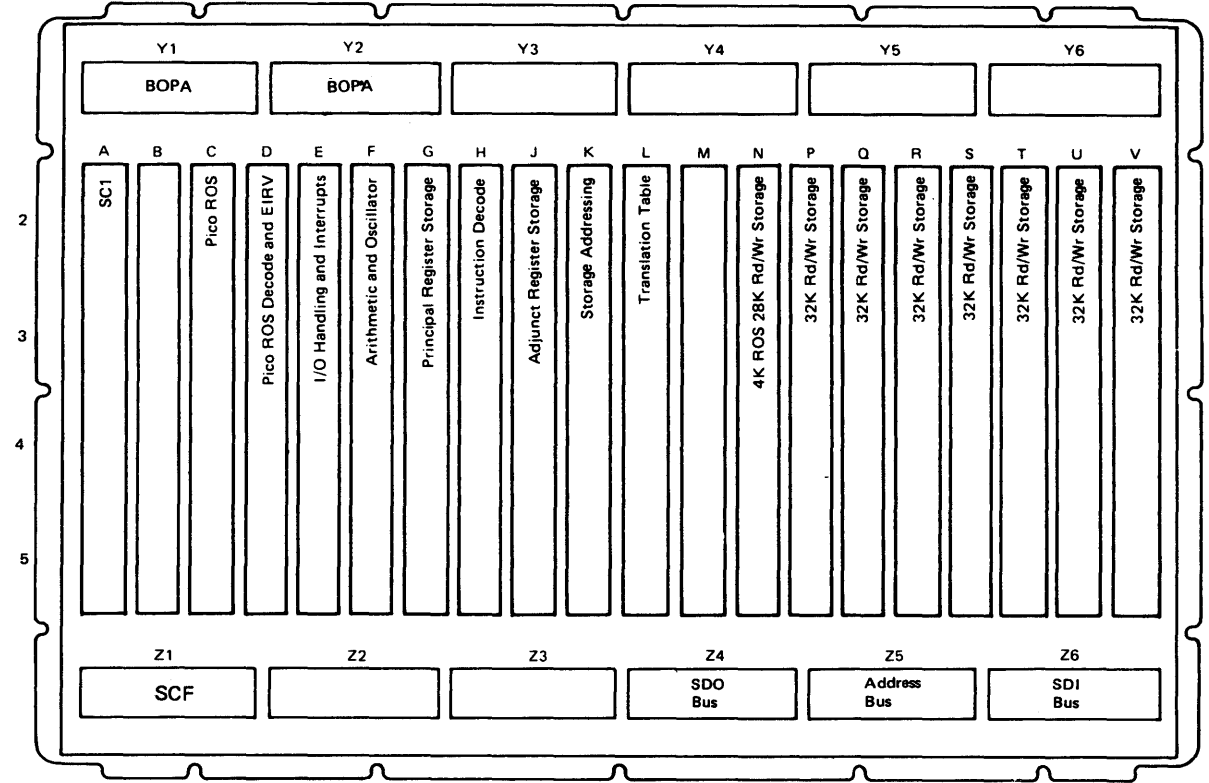
\*See Figure LT250-1 for card types.

Figure LT251-1. 8140 Model A3X Card Locations

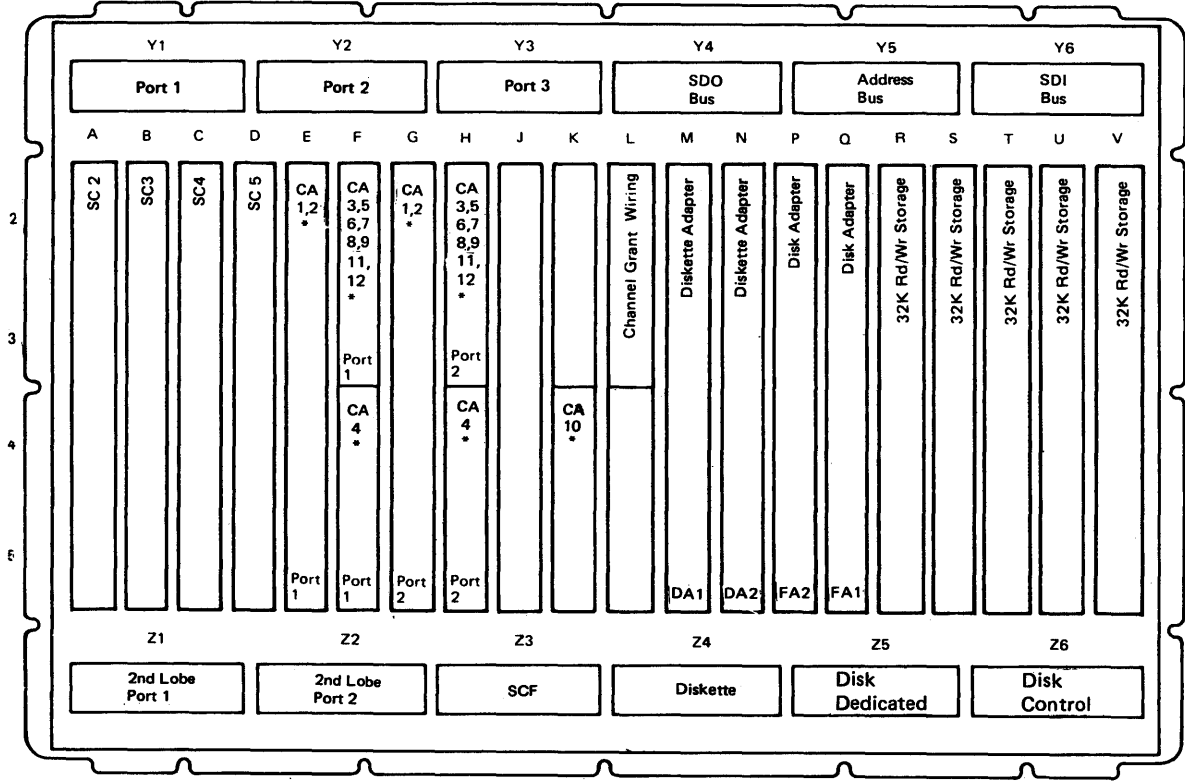
01A-A1 Board



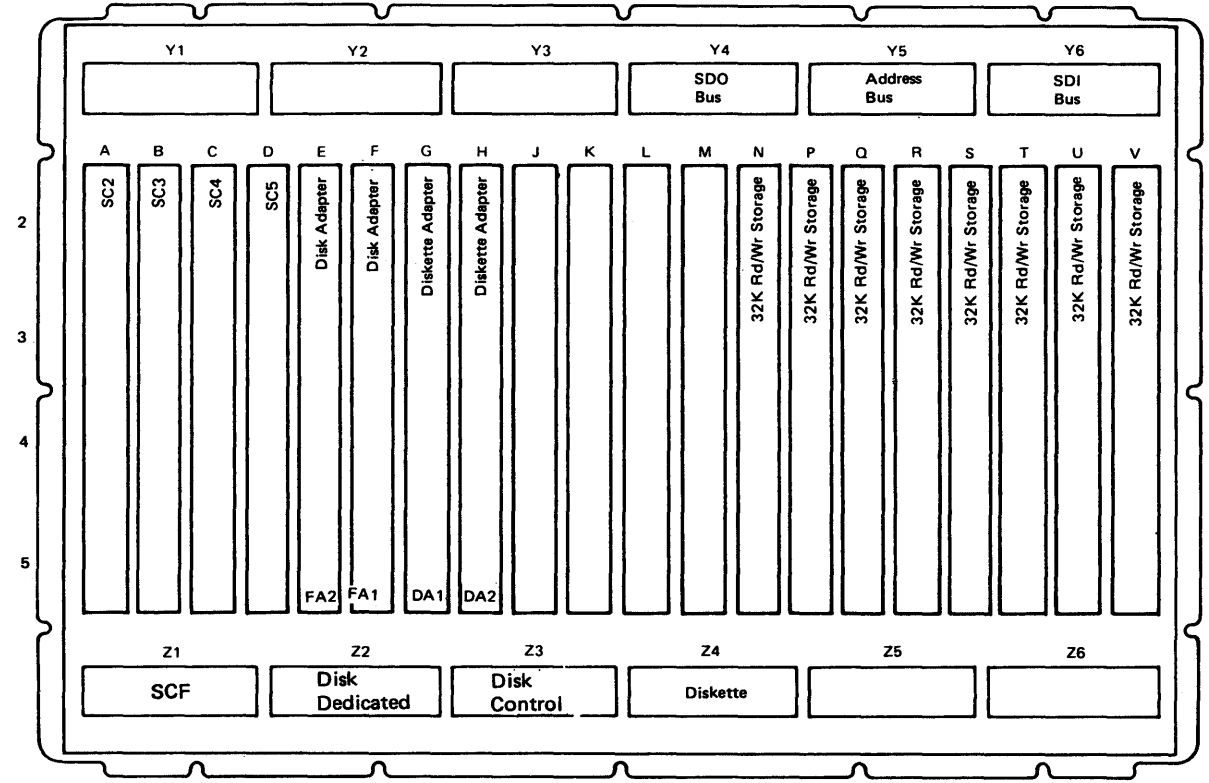
01A-A1 Board



01A-A2 Board



01A-A2 Board

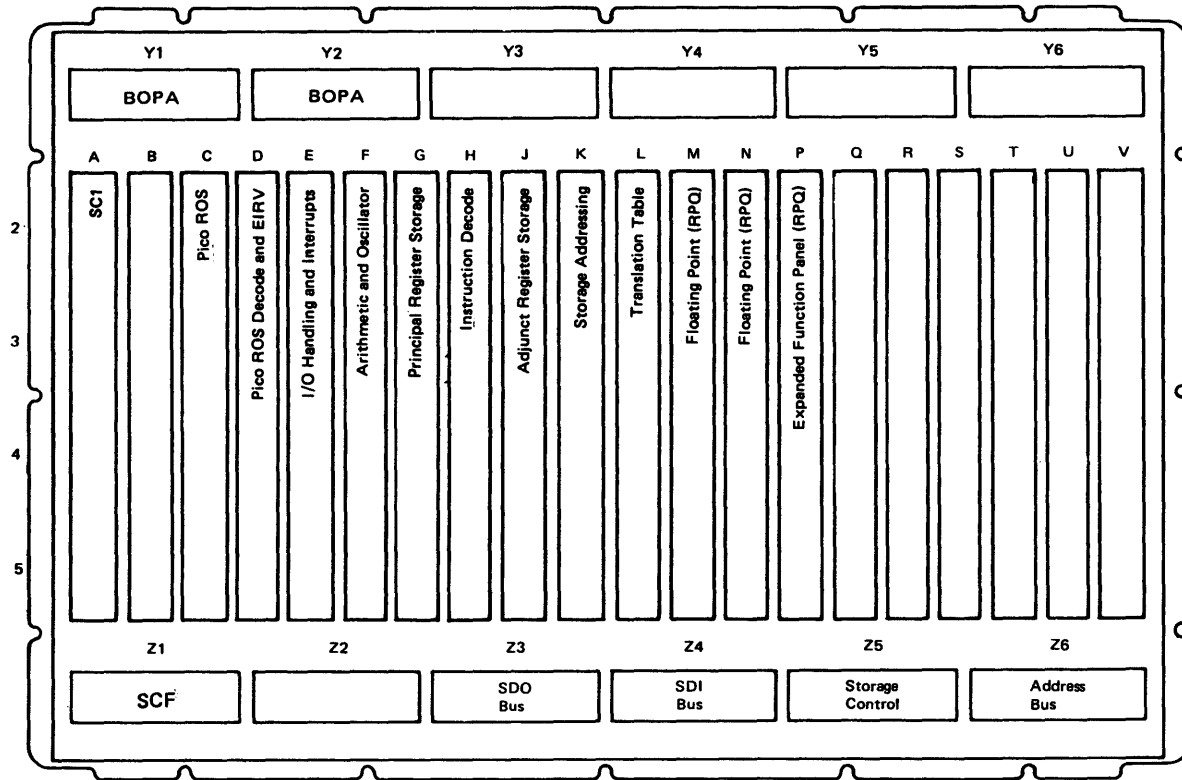


\*See Figure LT250-1 for card types.

Figure LT251-2. 8140 Model A4X Card Locations

Figure LT251-3. 8140 Model A5X Card Locations

01A-A1 Board



01A-A2 Board

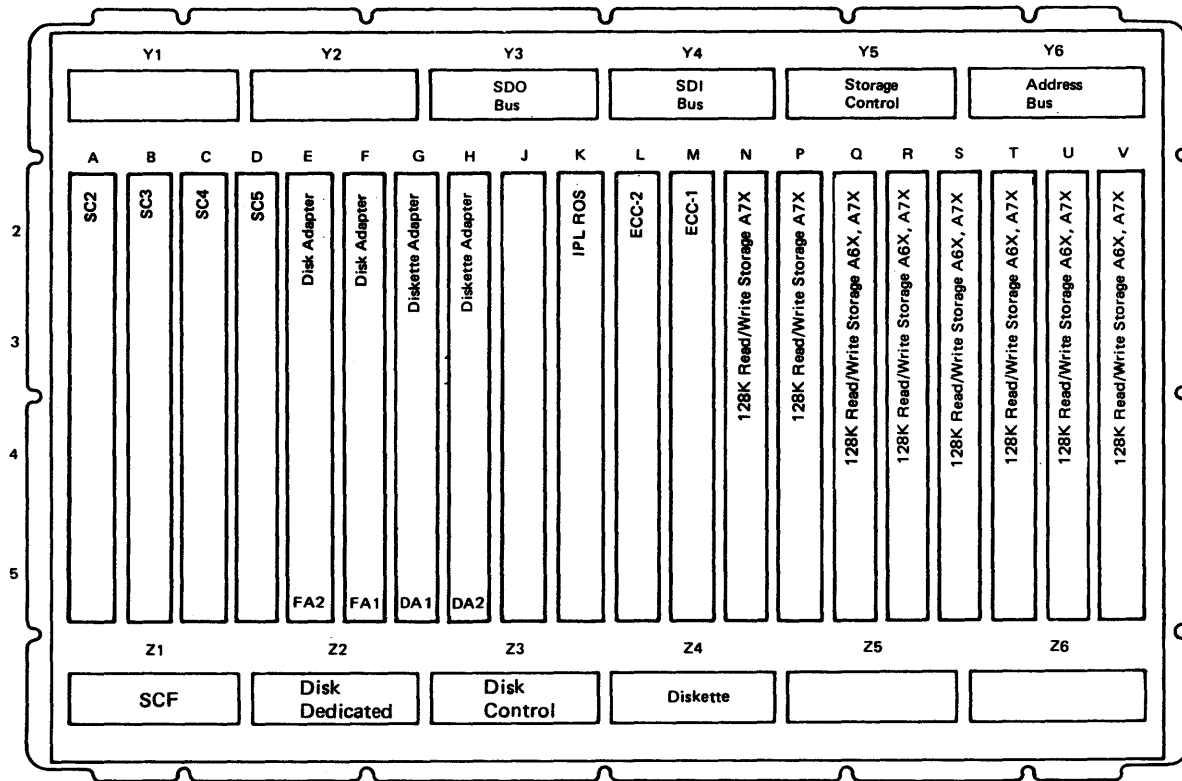


Figure LT251-4. 8140 Models A6X and A7X Card Locations

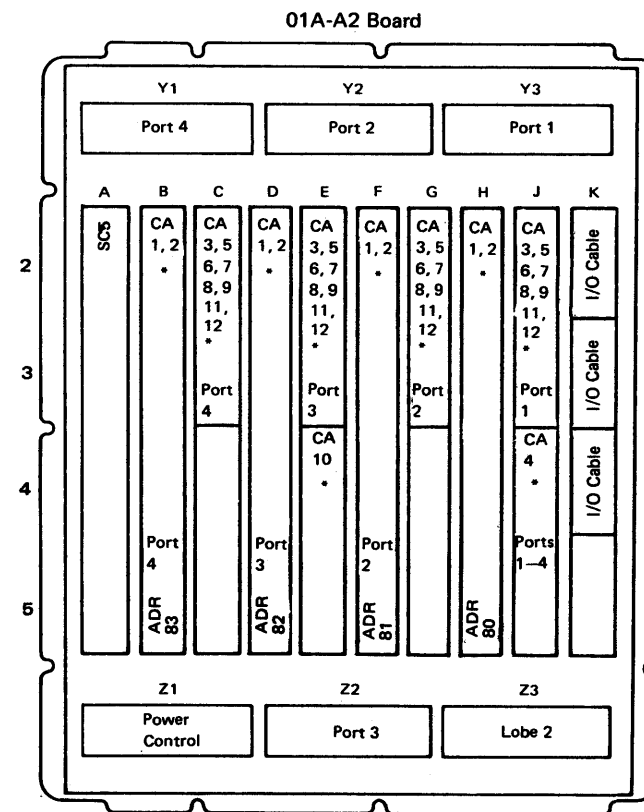
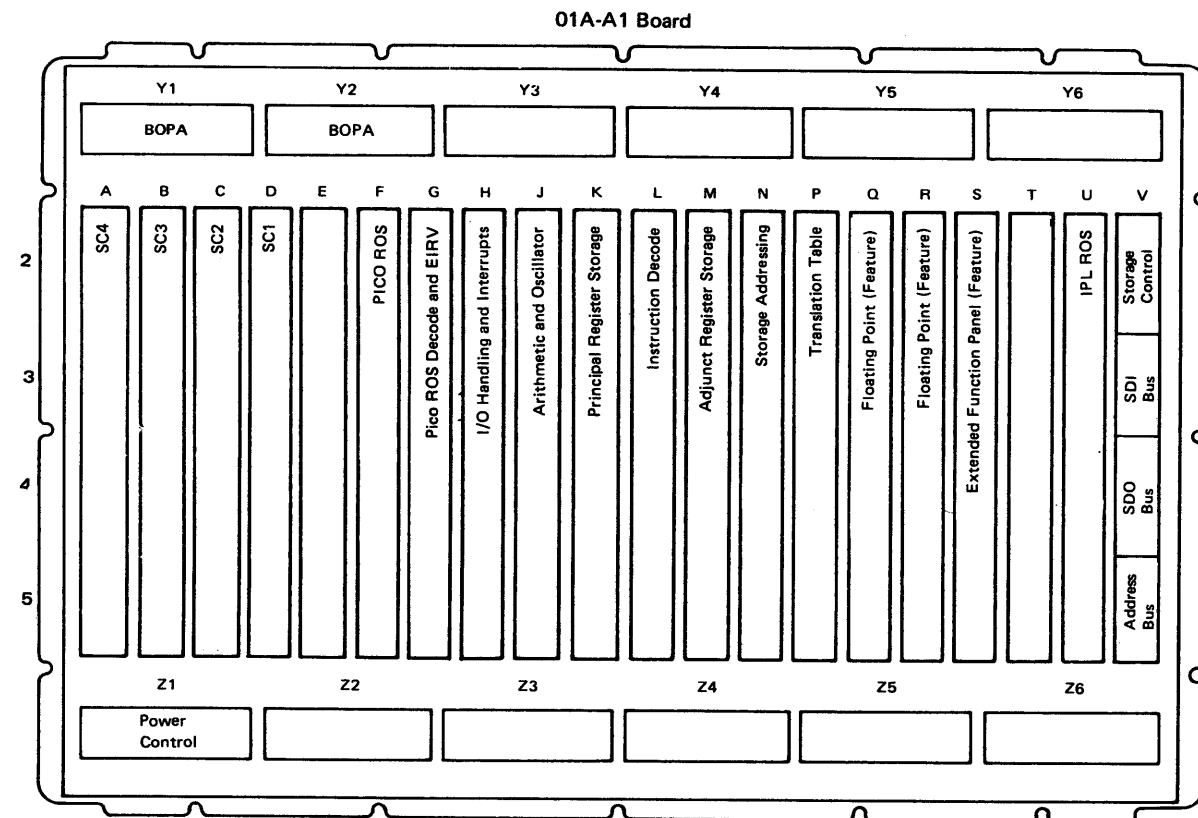


**LT252 8140 Model BXX Card Locations**

Figures LT252-1 through LT252-5 show the 8140 Model BXX card locations for all boards.

**Note:** See LT262 for cable destinations and for cables not shown.

Except for the card locations used for the second lobe loop adapter and the multispeed clock, all communications card locations can contain more than one card type. In Figures LT252-1, LT252-4, and LT252-5 the communications cards have number designations that refer to the card types listed in Figure LT250-1.



\*See Figure LT250-1 for card types.

**Figure LT252-1. 8140 Model BXX 01A-A1 and 01A-A2 Board Card Locations**

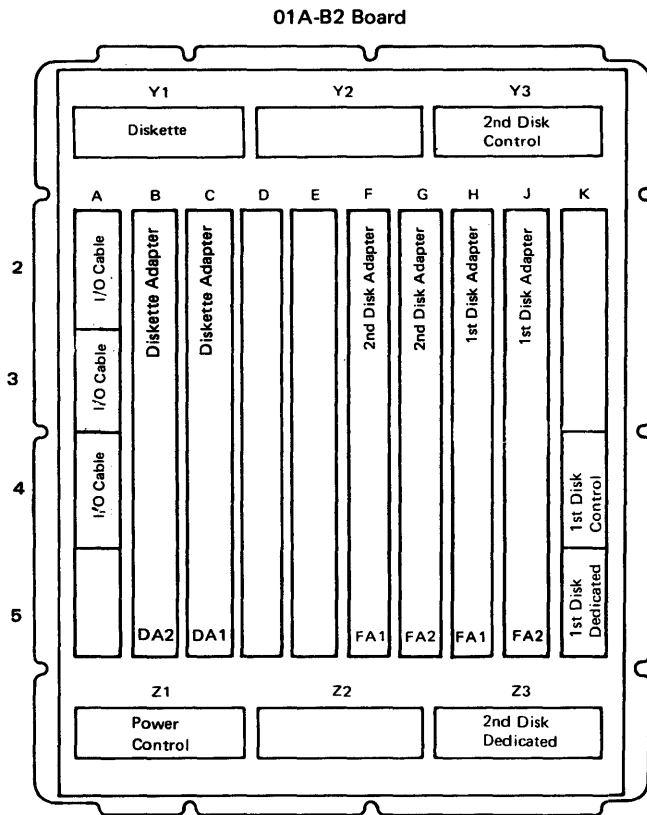


Figure LT252-2. 8140 Model BXX 01A-B2 Board Card Locations

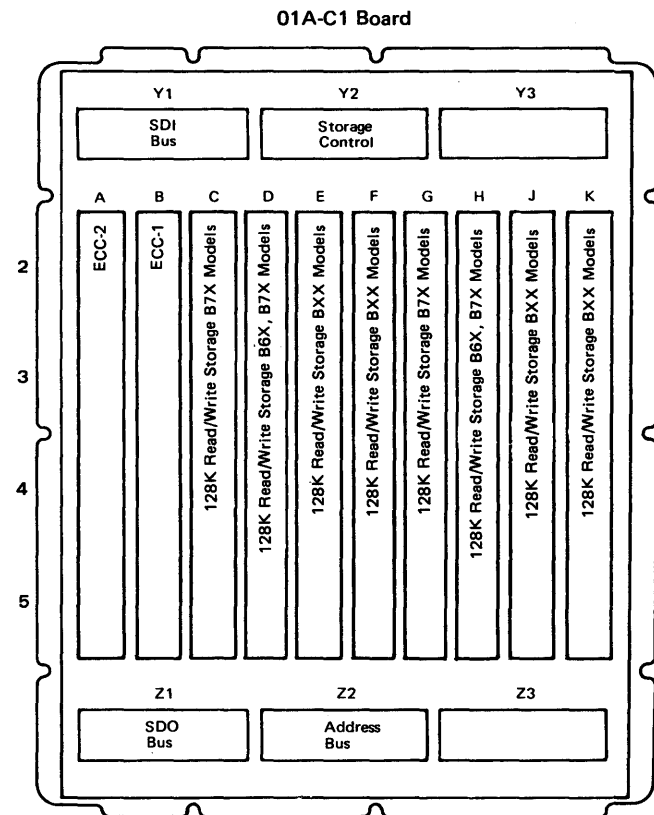
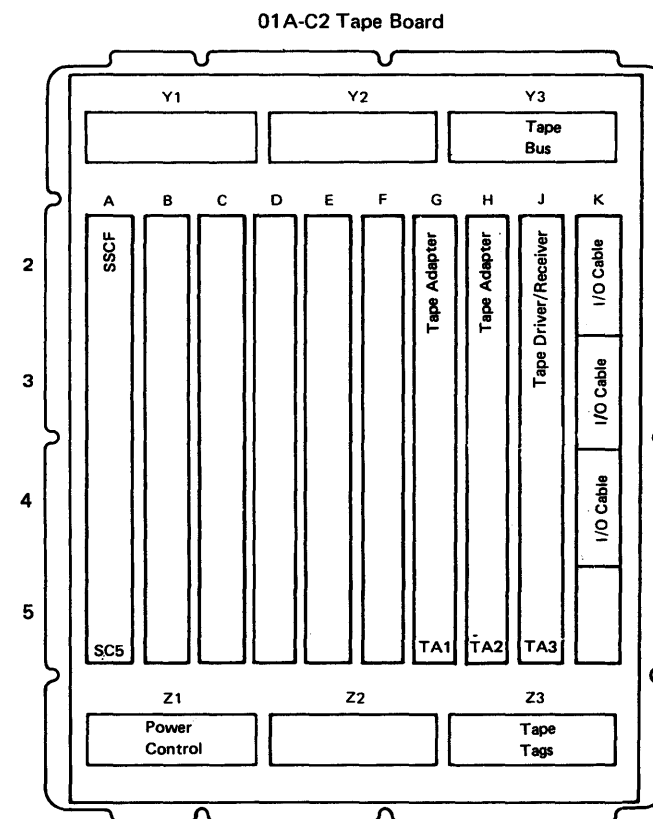
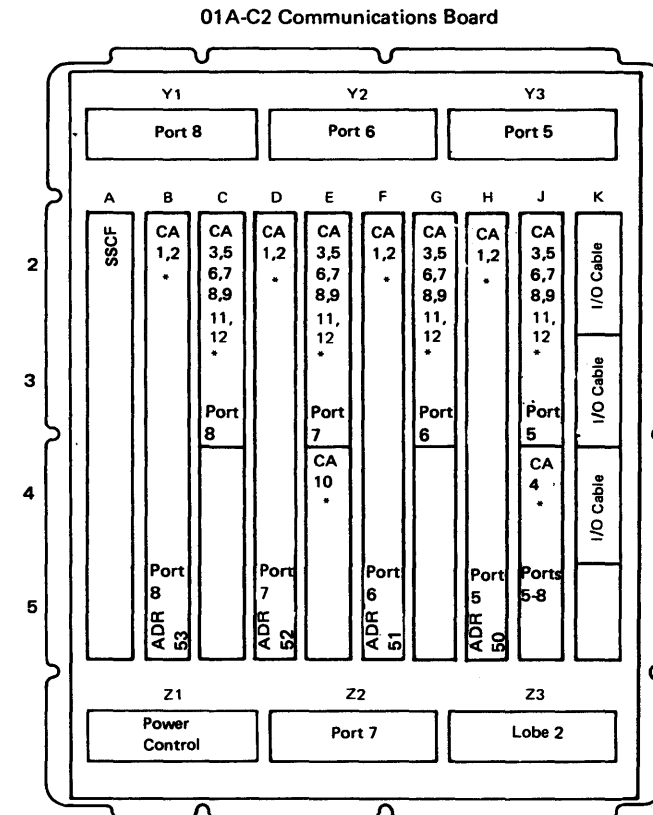
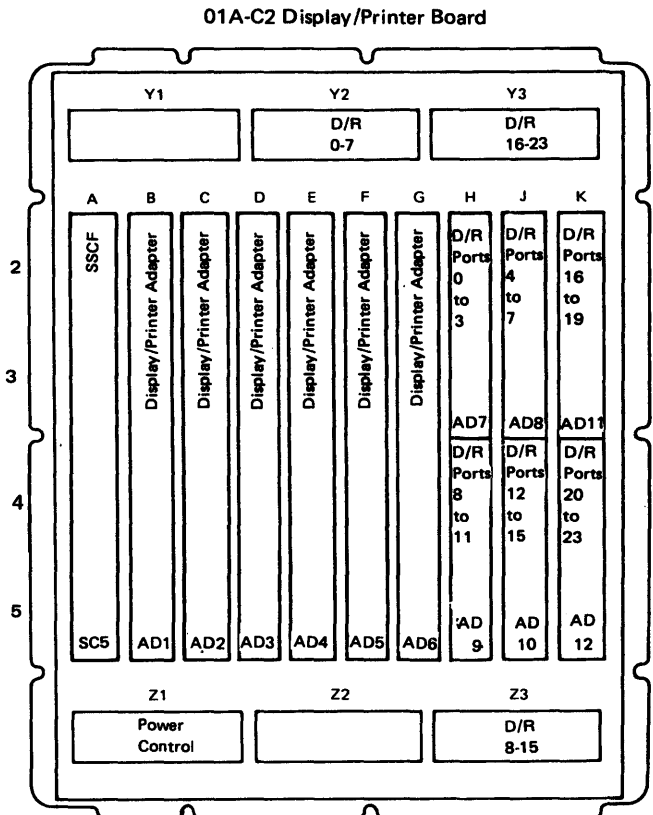


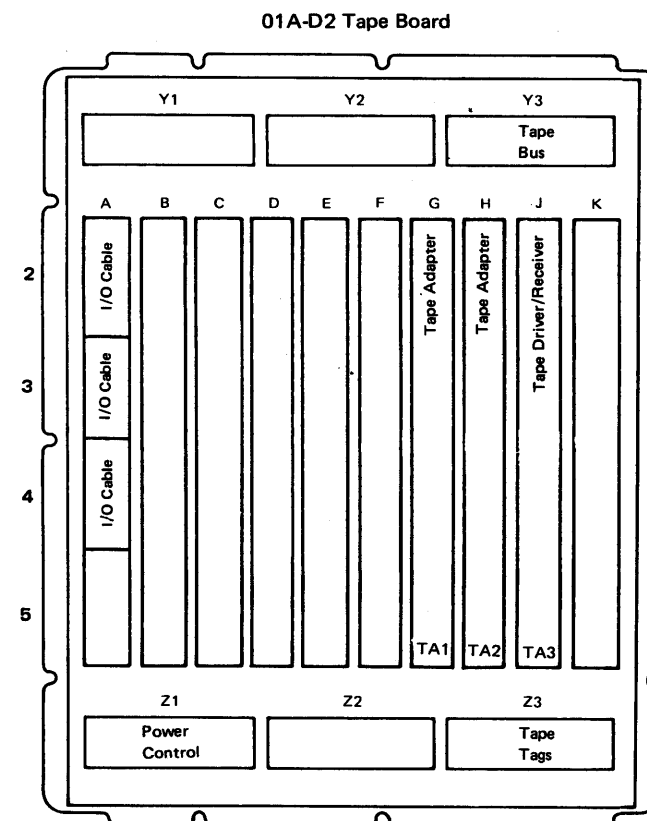
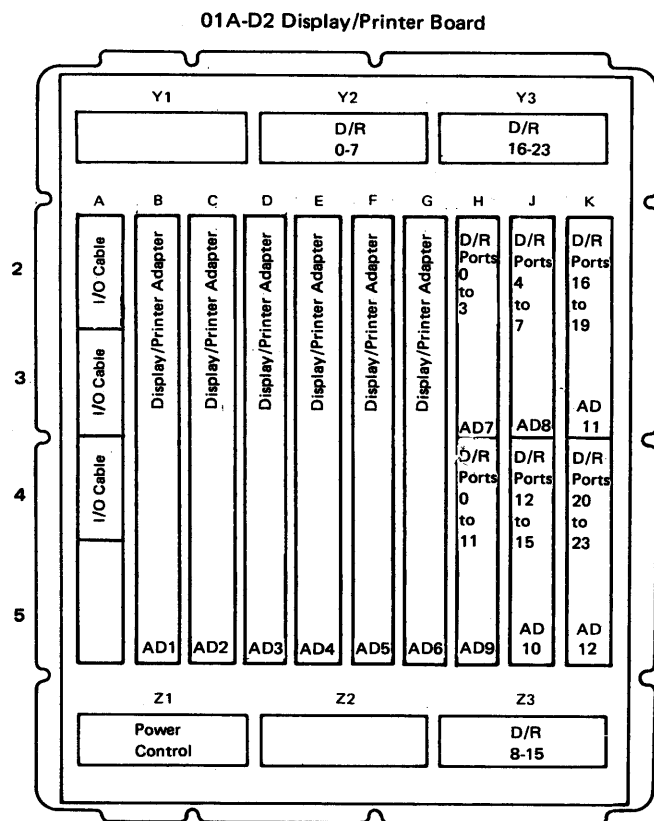
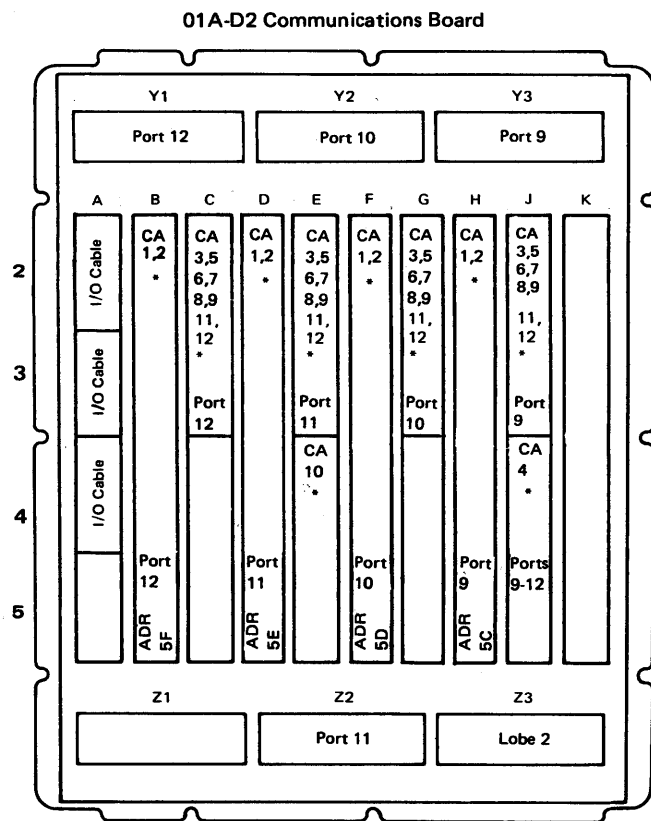
Figure LT252-3. 8140 Model BXX 01A-C1 Board Card Locations



\*See Figure LT250-1 for card types.

Figure LT252-4. 8140 Model BXX 01A-C2 Board Card Locations





\*See Figure LT250-1 for card types.

Figure LT252-5. 8140 Model BXX 01A-D2 Board Card Locations

**LT260 8140 Cable Locations**

*LT261 8140 Model AXX Cable Locations*

Figure LT261-1 shows the cable plugging locations and destinations for the 8140 Model AXX 01A-A1 and 01A-A2 boards.

From	To	Description
01A-A1A2W	01A-A2A2W	PSCF to PSCF bus
01A-A1A2X	01A-A2A2X	PSCF to PSCF bus
01A-A1A2Y	01A-A2A2Y	PSCF to PSCF bus
01A-A1Y1	01B-A1A2	BOP adapter
01A-A1Y2	01B-A1A5	BOP adapter data
01A-A1Z3	01A-A2Y3	Storage data out bus***
01A-A1Z4	01A-A2Y4	Storage data out bus**
01A-A1Z4	01A-A2Y4	Storage data in bus***
01A-A1Z5	01A-A2Y5	Address bus**
01A-A1Z5	01A-A2Y5	Storage control***
01A-A1Z6	01A-A2Y6	Storage data in bus**
01A-A1Z6	01A-A2Y6	Address bus***
01A-A2C2W	01T-D1	SSCF bus to I/O panel
01A-A2C2W	01A-A2D2W	PSCF to SSCF bus
01A-A2D2W	01T-E1	SSCF bus to I/O panel
01A-A2C2X	01T-D2	SSCF bus to I/O panel
01A-A2C2X	01A-A2D2X	PSCF to SSCF bus
01A-A2D2X	01T-E2	SSCF bus to I/O panel
01A-A2C2Y	01T-D3	SSCF bus to I/O panel
01A-A2C2Y	01A-A2D2Y	PSCF to SSCF bus
01A-A2D2Y	01T-E3	SSCF bus to I/O panel
01A-A2Y1	01T-C1	Communications port 1*
01A-A2Y2	01T-C2	Communications port 2*
01A-A2Y3	01T-C3	Communications port 3*
01A-A2Z1	01T-C1A	Loop adapter second lobe port 1*
01A-A2Z2	01T-C2A	Loop adapter second lobe port 2*
01A-A2Z2	01C-A1A5	Disk dedicated***
01A-A2Z3	01C-A1A3	Disk control***
01A-A2Z4	01D-A1A1	Diskette
01A-A2Z5	01C-A1A5	Disk dedicated**
01A-A2Z6	01C-A1A3	Disk control**

\*Present on Models A3X and A4X only if installed.  
 \*\*Models A3X-A5X  
 \*\*\*Models A6X-A7X

**Figure LT261-1. 8140 Model AXX Cable Connections**

*LT262 8140 Model BXX Cable Locations*

Figure LT262-1 shows the cable plugging locations and destinations for 8140 Models BXX between the 01A-A1, 01A-A2, 01A-B2 and 01A-C2 boards.

From	To	Description
01A-A1A2W	01T-A1D1	SSCF bus to I/O panel
01A-A1A2W	01A-C2A2W	PSCF to SSCF bus
01A-A1A2X	01T-A1D2	SSCF bus to I/O panel
01A-A1A2X	01A-C2A2X	PSCF to SSCF bus
01A-A1A2Y	01T-A1D3	SSCF bus to I/O panel
01A-A1A2Y	01A-C2A2Y	PSCF to SSCF bus
01A-A1C2W	01A-A1D2W	PSCF to SSCF bus
01A-A1C2X	01A-A1D2X	PSCF to SSCF bus
01A-A1C2Y	01A-A1D2Y	PSCF to SSCF bus
01A-A1V2	01A-C1Y2	Storage control
01A-A1V3	01A-C1Y1	Storage data in bus
01A-A1V4	01A-C1Z1	Storage data out bus
01A-A1V5	01A-C1Z2	Address bus
01A-A1Y1	01B-B1A5	BOP adapter data
01A-A1Y2	01B-B1A2	BOP adapter
01A-A2A2W	01A-C2A2W	PSCF to SSCF bus
01A-A2A2W	01T-A1E1	SSCF bus to I/O panel
01A-A2A2X	01A-C2A2X	PSCF to SSCF bus
01A-A2A2X	01T-A1E2	SSCF bus to I/O panel
01A-A2A2Y	01A-C2A2Y	PSCF to SSCF bus
01A-A2A2Y	01T-A1E3	SSCF bus to I/O panel
01A-B2K4	01C-A1A3	Disk 1 control
01A-B2K5	01C-A1A5	Disk 1 dedicated
01A-B2Y3	01E-A1A3	Disk 2 control
01A-B2Z3	01E-A1A5	Disk 2 dedicated

**Figure LT262-1. 8140 Model BXX Cable Connections**

## LT300 8101 Locations

### LT310 8101 Basic Hardware Components

#### LT311 8101 Models A11, A13, and A23 Basic Hardware Components

Figures LT311-1 and LT311-2 show the 8101 Model A11, A13, and A23 basic hardware components as viewed from the front and rear, respectively.

**Note:** For more detailed diagrams, refer to the individual sections in Chapter 5.

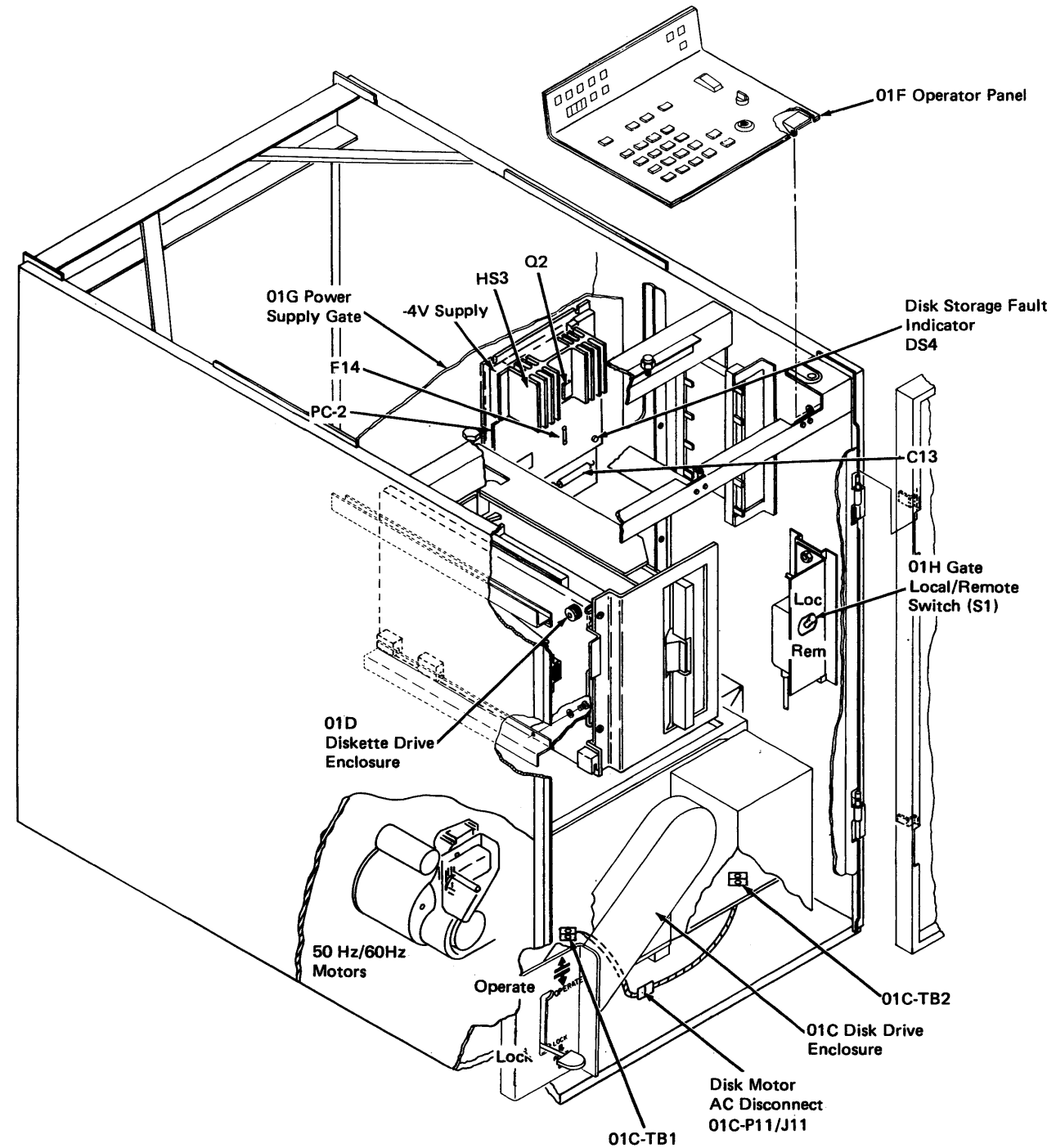


Figure LT311-1. 8101 Models A11, A13, and A23 Basic Components (Front View)

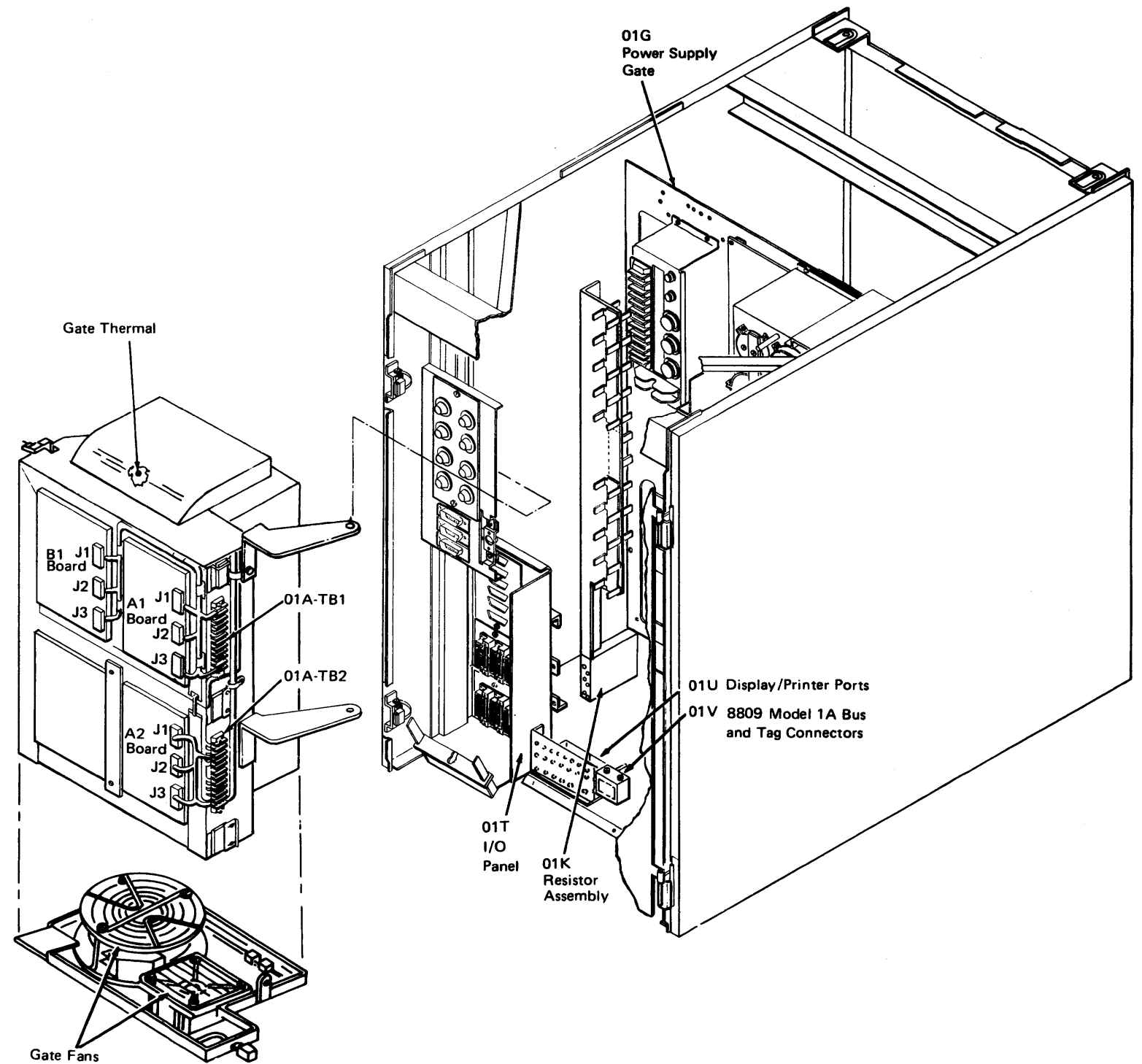


Figure LT311-2. 8101 Models A11, A13, and A23 Basic Components (Rear View)

LT312 8101 Model A25 Basic Hardware Components

Figures LT312-1 and LT312-2 show the 8101 Model A25 basic hardware components as viewed from the front and rear, respectively.

Note: For more detailed diagrams, refer to the individual sections in Chapter 5.

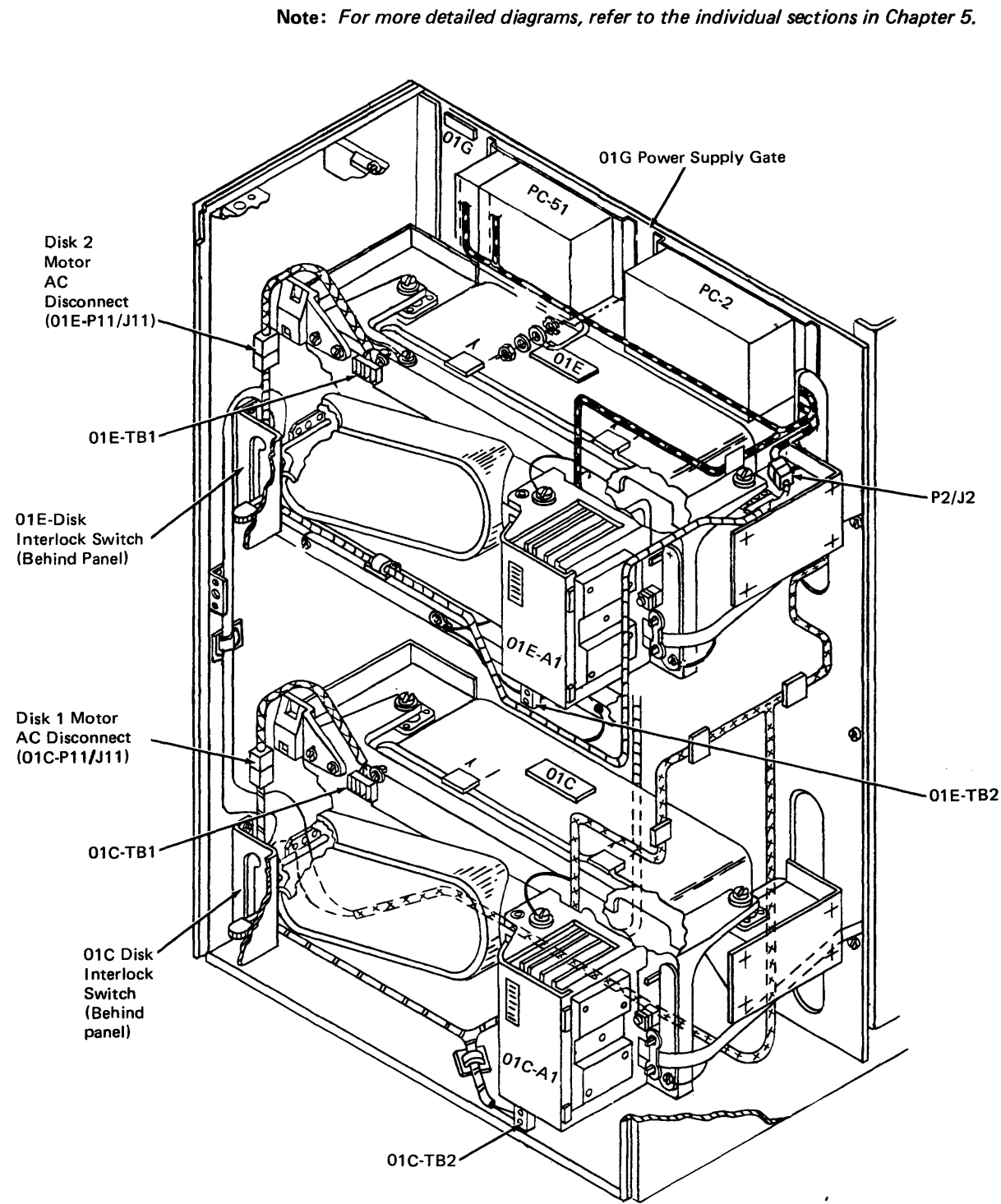


Figure LT312-1. 8101 Model A25 Basic Components (Front View)

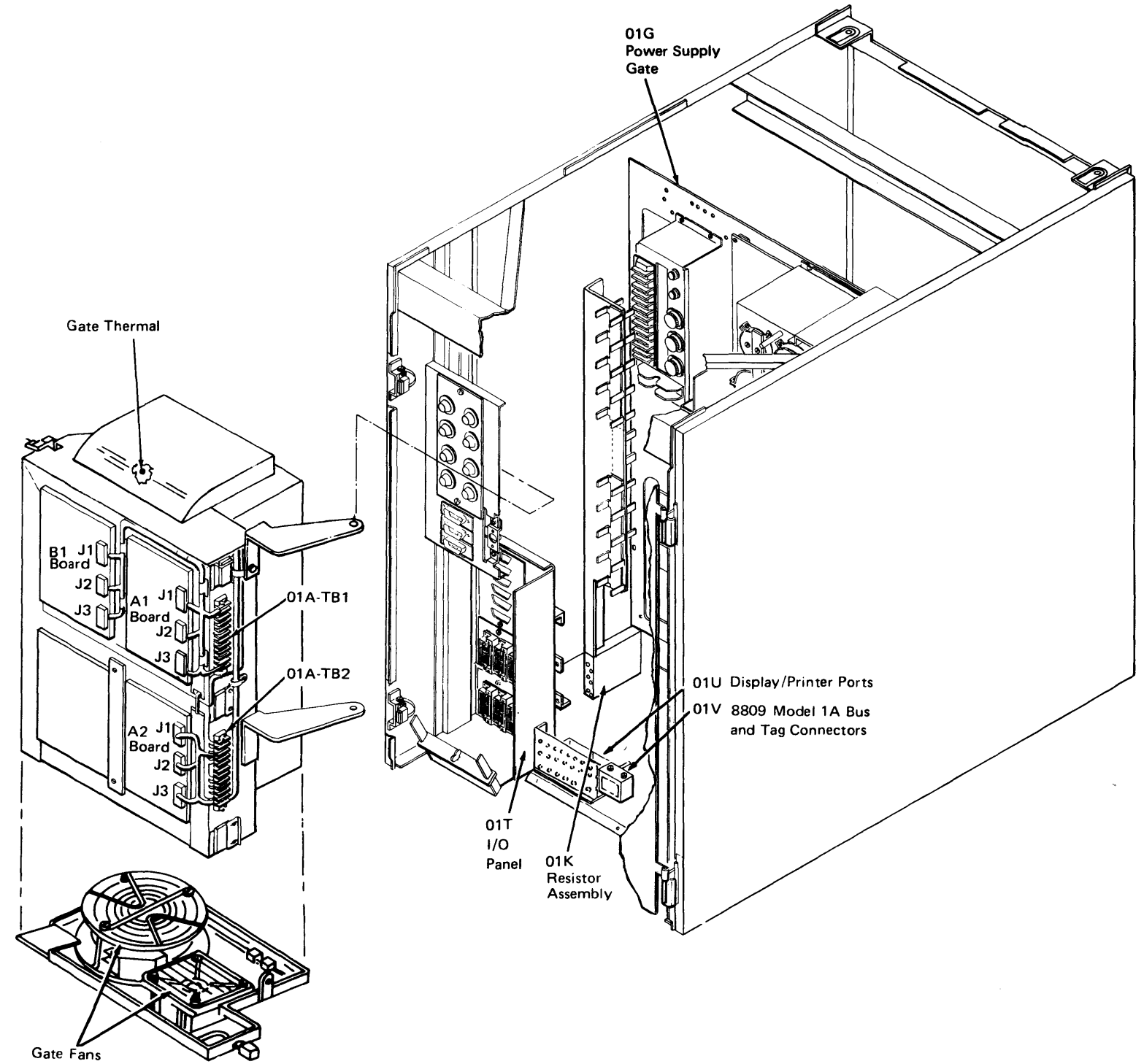


Figure LT312-2. 8101 Model A25 Basic Components (Rear View)

**LT320 Not Used**

**LT330 8101 I/O Panel Components**

Figure LT330-1 shows the 8101 I/O panel. Because this figure includes all possible features that can be installed, all machines might not appear with all components. In this instance, the affected areas use a blank panel.

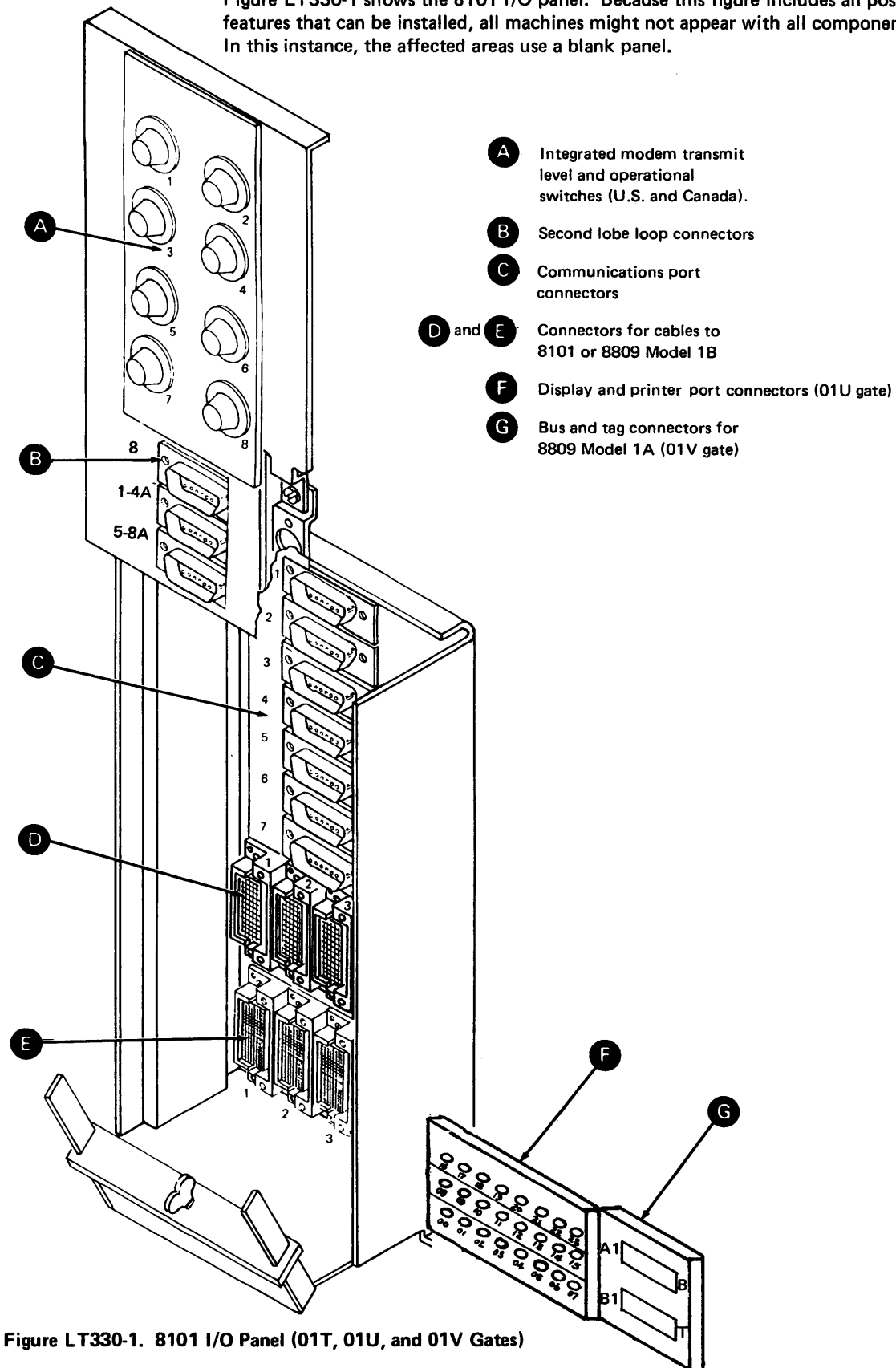
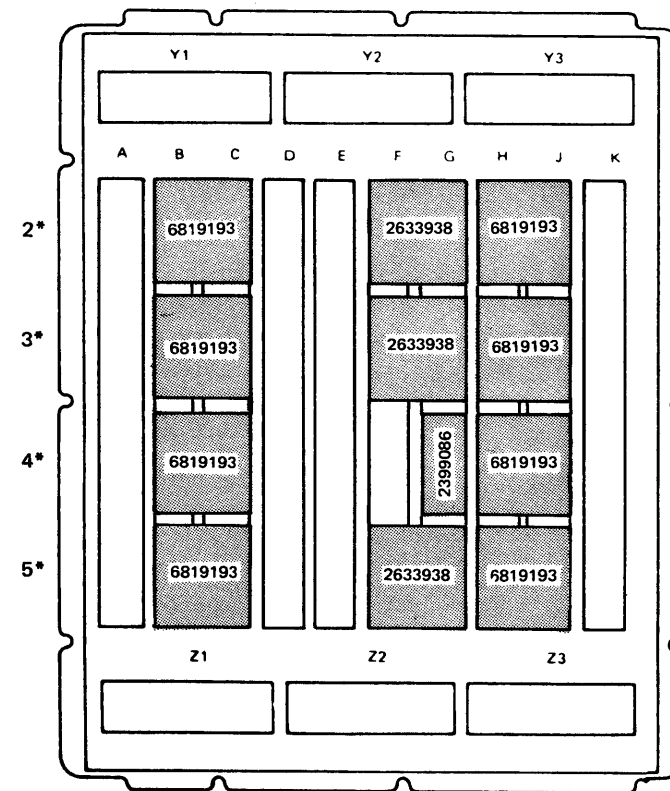


Figure LT330-1. 8101 I/O Panel (01T, 01U, and 01V Gates)

**LT340 8101 Top Card Connectors**

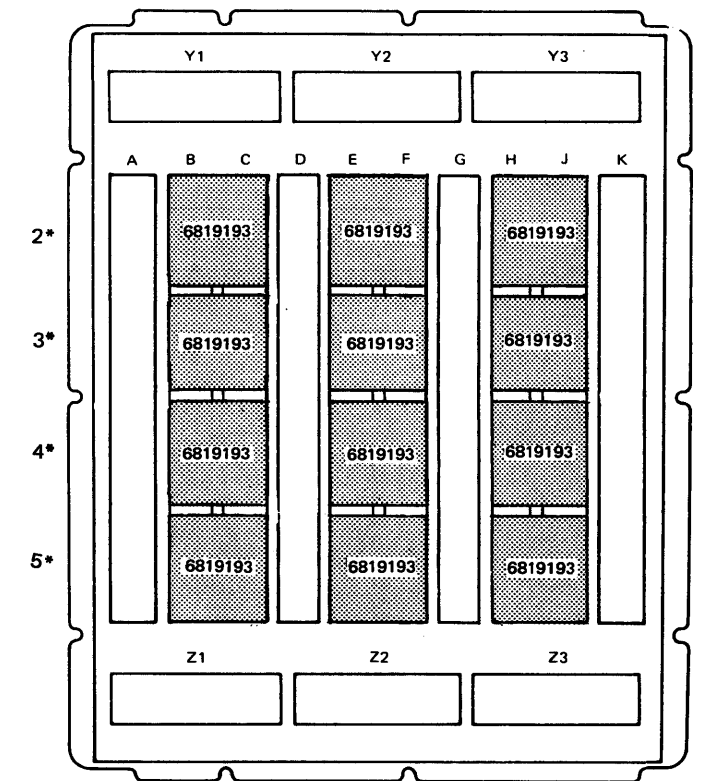
Figures LT340-1 and LT340-2 show the 8101 top card connector locations and part numbers for the 01A-A2 board, used for disk, diskette, and tape.

*Note: No top card connectors are present on either the display/printer or communications boards.*



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

Figure LT340-1. 8101 Models A11, A13, and A23 Top Card Connector Locations and Part Numbers (01A-A2 Board)



\*Top card connector locations W, X, Y, and Z correspond to card rows 2, 3, 4, and 5, respectively.

Figure LT340-2. 8101 Model A25 Top Card Connector Locations and Part Numbers (01A-A2 Board)

**LT350 8101 Card Locations**

Figures LT350-2 through LT350-5 show the 8101 card locations for the 01A-A1, 01A-A2, and 01A-B1 boards.

**Note:** See LT360 for cable destinations and for cables not shown.

Except for the card locations used for the second lobe loop adapter and the multispeed clock, all communications card locations can contain more than one card type. In Figures LT350-2 and LT350-3, the communications cards have number designations that refer to the card types listed in Figure LT350-1.

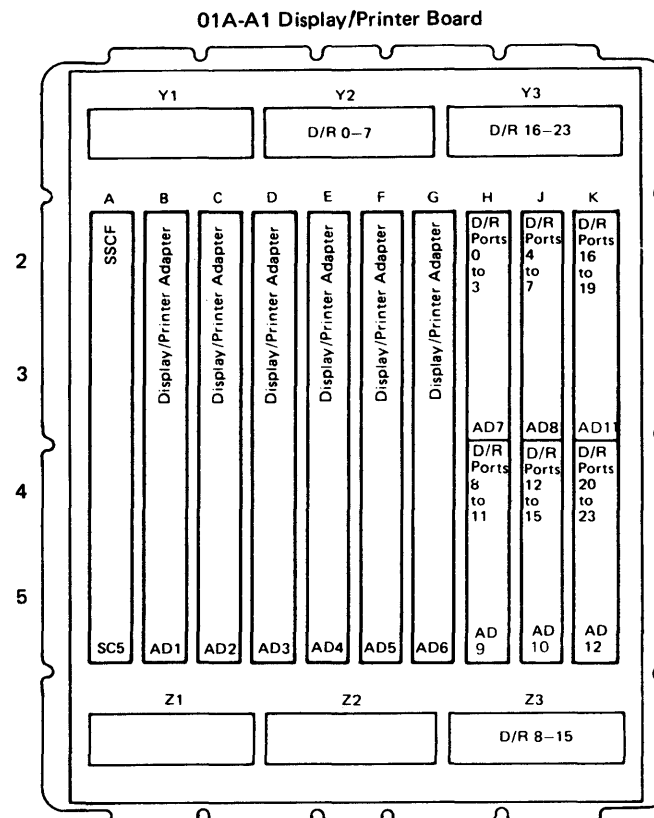
The 8101 can have boards in positions 01A-A1 and 01A-B1 in the following combinations:

- Display/printer in 01A-A1 and no board in 01A-B1.
- Communications in 01A-A1 and display/printer in 01A-B1.
- Communications in 01A-A1 and 01A-B1.

The disk/diskette/tape board must always be in 01A-A2.

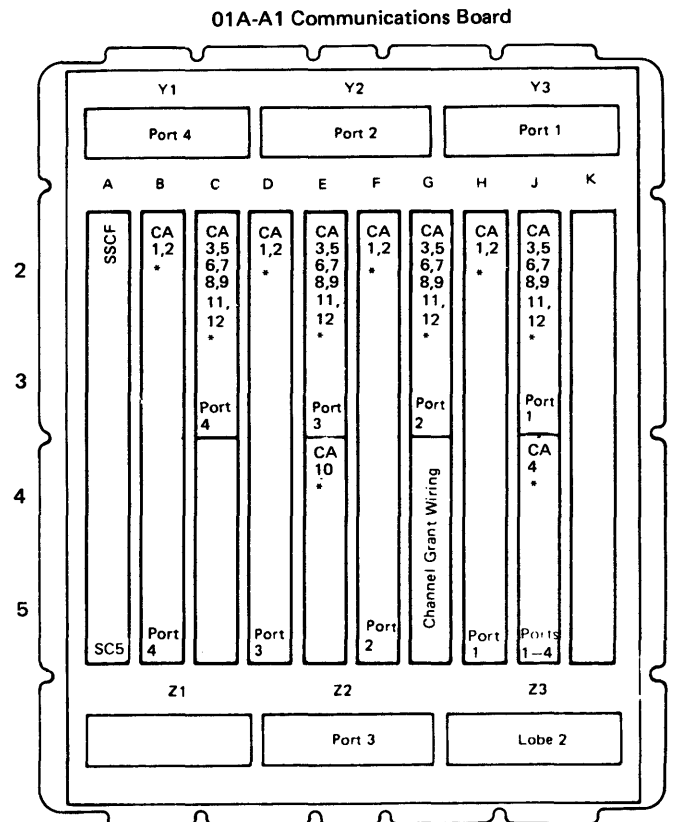
No.	Communication Card Type
1	SDLC communications adapter
2	BSC/S-S communications adapter
3	Loop adapter 1st lobe
4	Loop adapter 2nd lobe
5	EIA/CCITT driver/receiver
6	V.35 driver/receiver
7	Digital data service adapter
8	Integrated modem – switched line
9	Integrated modem – nonswitched line
10	Multispeed clock card
11	X.21 driver/receiver – nonswitched line
12	EIA airlines RPQ driver/receiver (CZ 5)

**Figure LT350-1. Communications Card Types**



**Note:** Display and printer boards always have a card in positions G3 and G4, while communications boards do not.

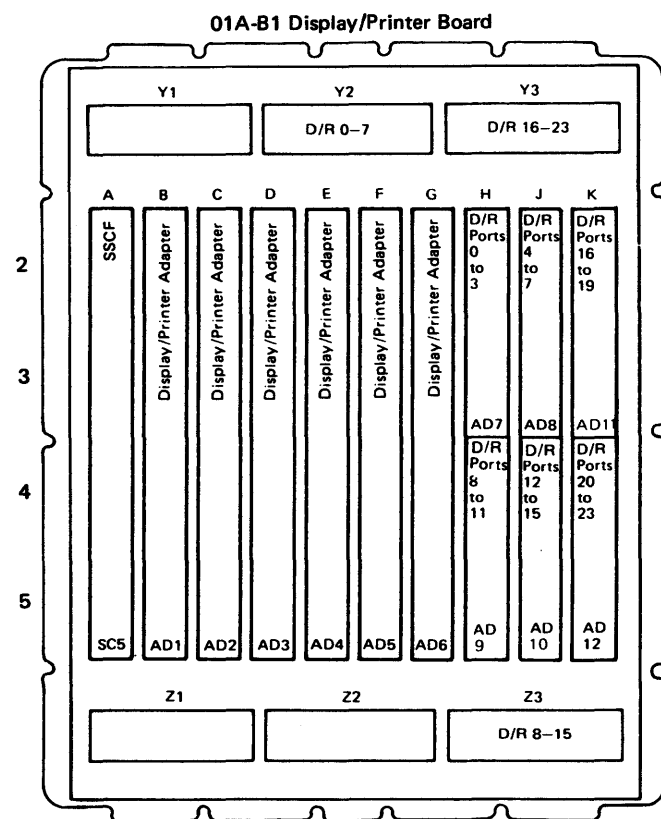
**Figure LT350-2. 8101 01A-A1 Board Card Locations**



\*See Figure LT350-1 for card types.

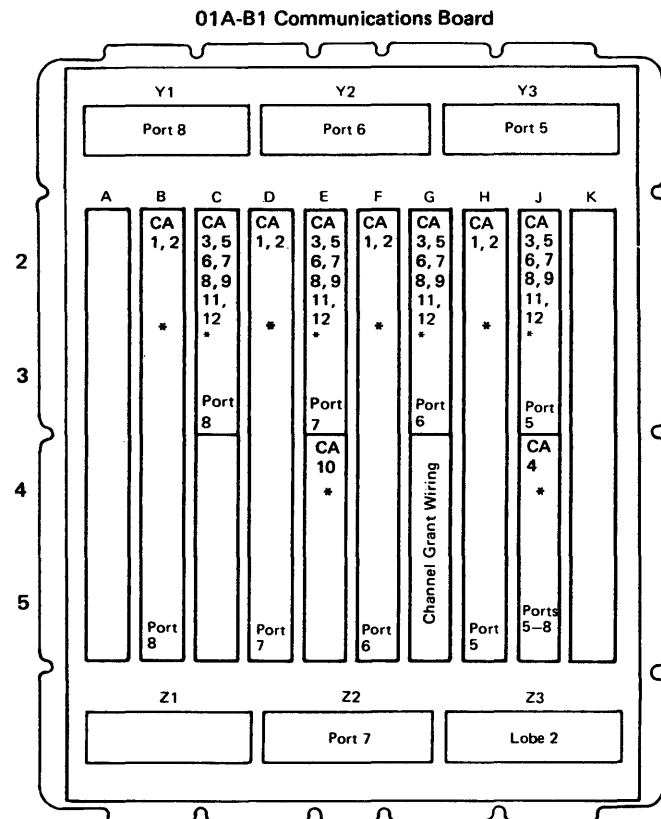
**Note:** 8101 physical addresses (PAs) depend on the number of 8101s installed. The first digit of the PA specifies the first, second, third, or fourth 8101. For example, 11 is port 2 of the first 8101 and 13 is port 4.





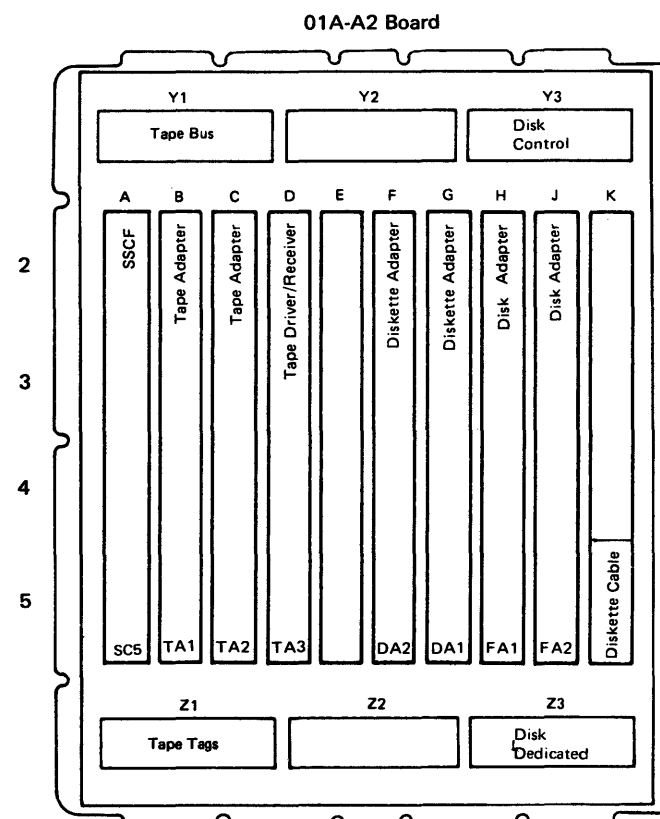
**Note:** Display and printer boards always have a card in positions G3 and G4, while communications boards do not.

**Figure LT350-3. 8101 01A-B1 Board Card Locations**

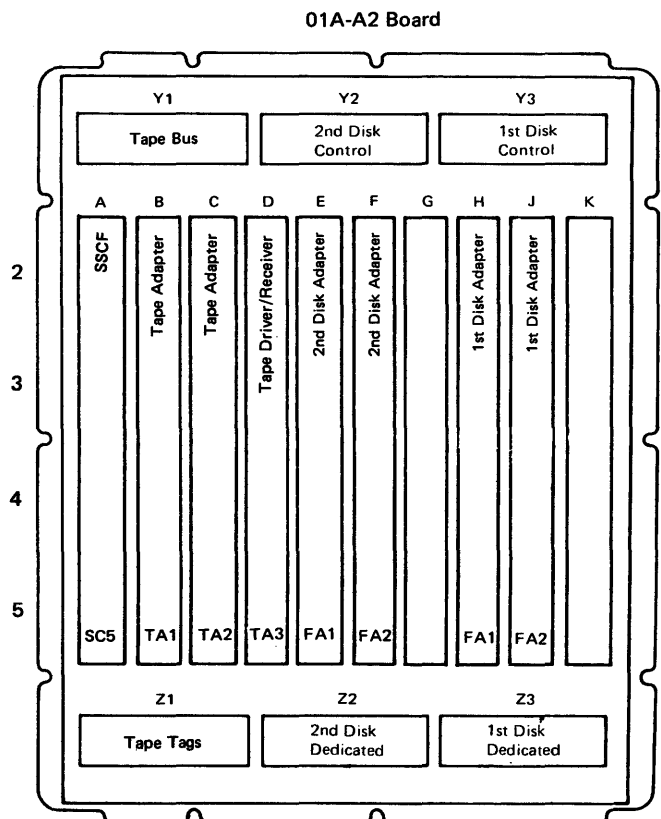


\*See Figure LT350-1 for card types.

**Note:** 8101 physical addresses (PAs) depend on the number of 8101s installed. The first digit of the PA specifies the first, second, third, or fourth 8101. For example, 2E is port 7 of the second 8101 and 2F is port 8, as C, D, E, and F are the communications addresses for the second, third, and fourth 8101.



**Figure LT350-4. 8101 Models A11, A13 and A23 01A-A2 Board Card Locations**



**Figure LT350-5. 8101 Model A25 01A-A2 Board Card Locations**

## LT360 8101 Cable Locations

Figure LT360-1 shows the cable plugging locations and destinations for the 8101 01A-A1 and 01A-A2 boards.

From	To	Description
01A-A1A2W	01T-A1D1	SSCF bus to I/O panel
01A-A1A2W	01A-A2A2W	SSCF bus
01A-A2A2W	01T-E1	SSCF bus to I/O panel
01A-A1A2X	01T-A1D2	SSCF bus to I/O panel
01A-A1A2X	01A-A2A2X	SSCF bus
01A-A2A2X	01T-E2	SSCF bus to I/O panel
01A-A1A2Y	01T-D3	SSCF bus to I/O panel
01A-A1A2Y	01A-A2A2Y	SSCF bus
01A-A2A2Y	01T-E3	SSCF bus to I/O panel
01A-A2Y2	01E-A1A3	Disk 2 control**
01A-A2Y3	01C-A1A3	Disk 1 control*
01A-A2Z2	01E-A1A5	Disk 2 dedicated**
01A-A2Z3	01C-A1A5	Disk 1 dedicated*

\*Present on Models A11, A13, A23, and A25 only.

\*\*Present on Model A25 only.

Figure LT360-1. 8101 Cable Connections

## LT400 Common Location Information

This section contains location information that relates to more than one machine type. When not applicable to all three machine types, it is so noted.

## LT410 Top Card Connector Pin Numbering

Figure LT410-1 shows an example of typical top card connector pin numbering. For this example, assume that the cards plug into the A, B, C, and D rows. The board designation is not used. The connectors are labeled from top to bottom and called W, X, Y, and Z in that order. Pin designations are identical, but only the two outside rows on the 2 and 3-wide connectors can be probed, while all 4-wide connector pins are accessible.

**Caution:** Other than their width, there are two distinct types of top card connectors; one type ties the grounds together differently than the other. **DO NOT INTERCHANGE UNLESS CHECKING THE PART NUMBERS LISTED IN SECTIONS LT140, LT240, and LT340.**

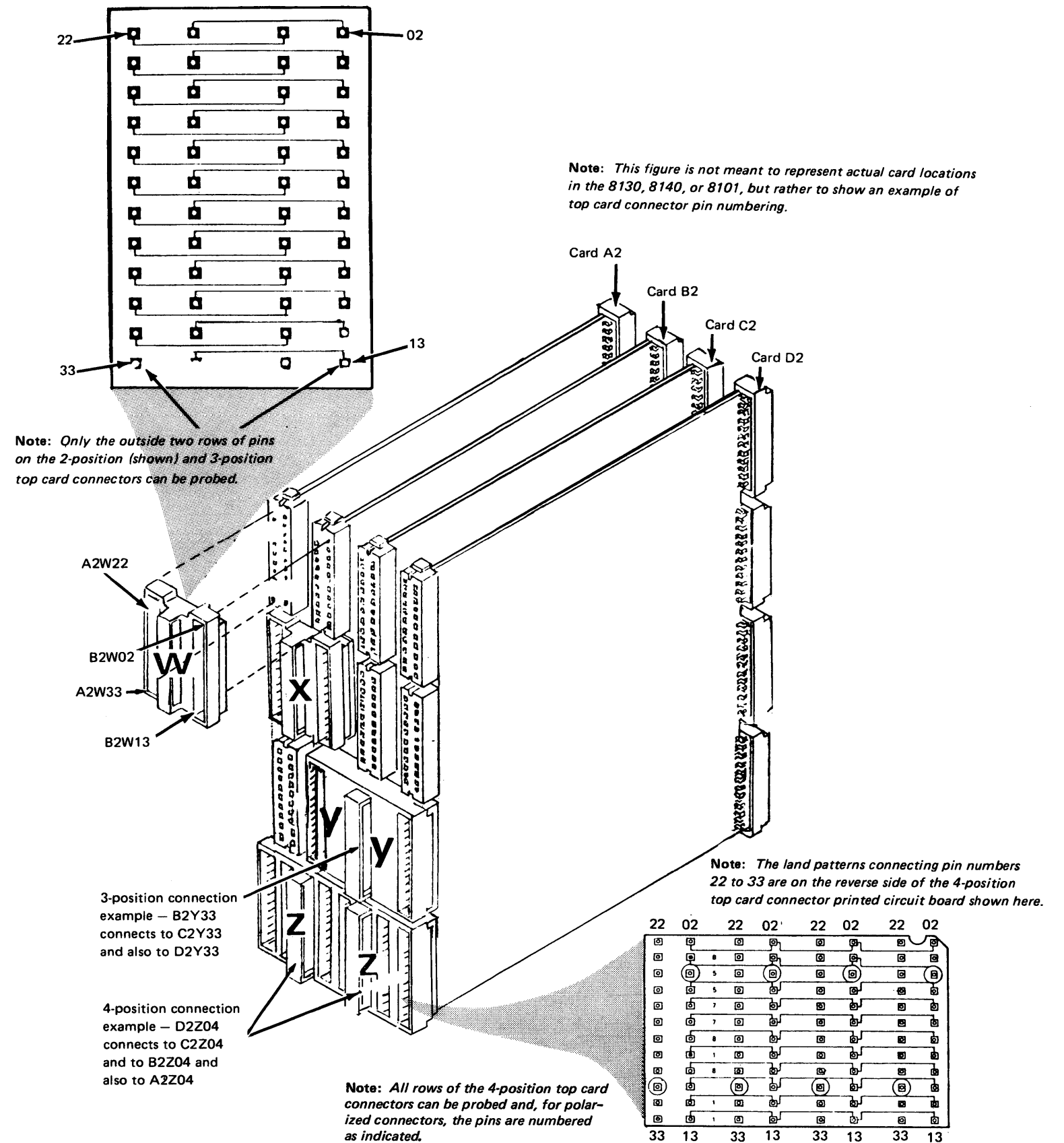


Figure LT410-1. Top Card Connector Pin Numbering

LT420 Board and Card Pin Numbering

Figures LT420-1 and LT420-2 show the numbering scheme for all boards, cards, and flat cables used in the 8100 as viewed from the pin side.

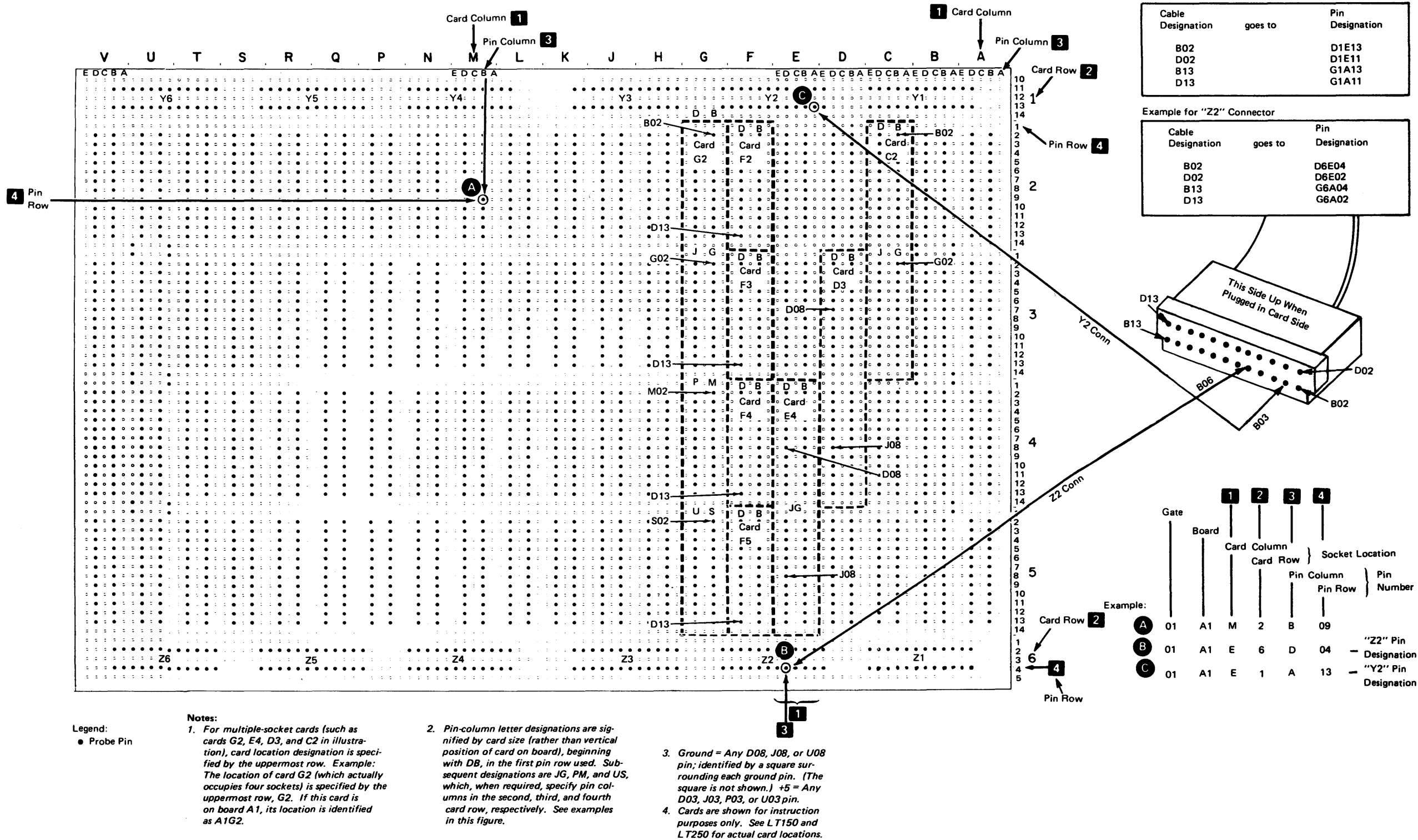
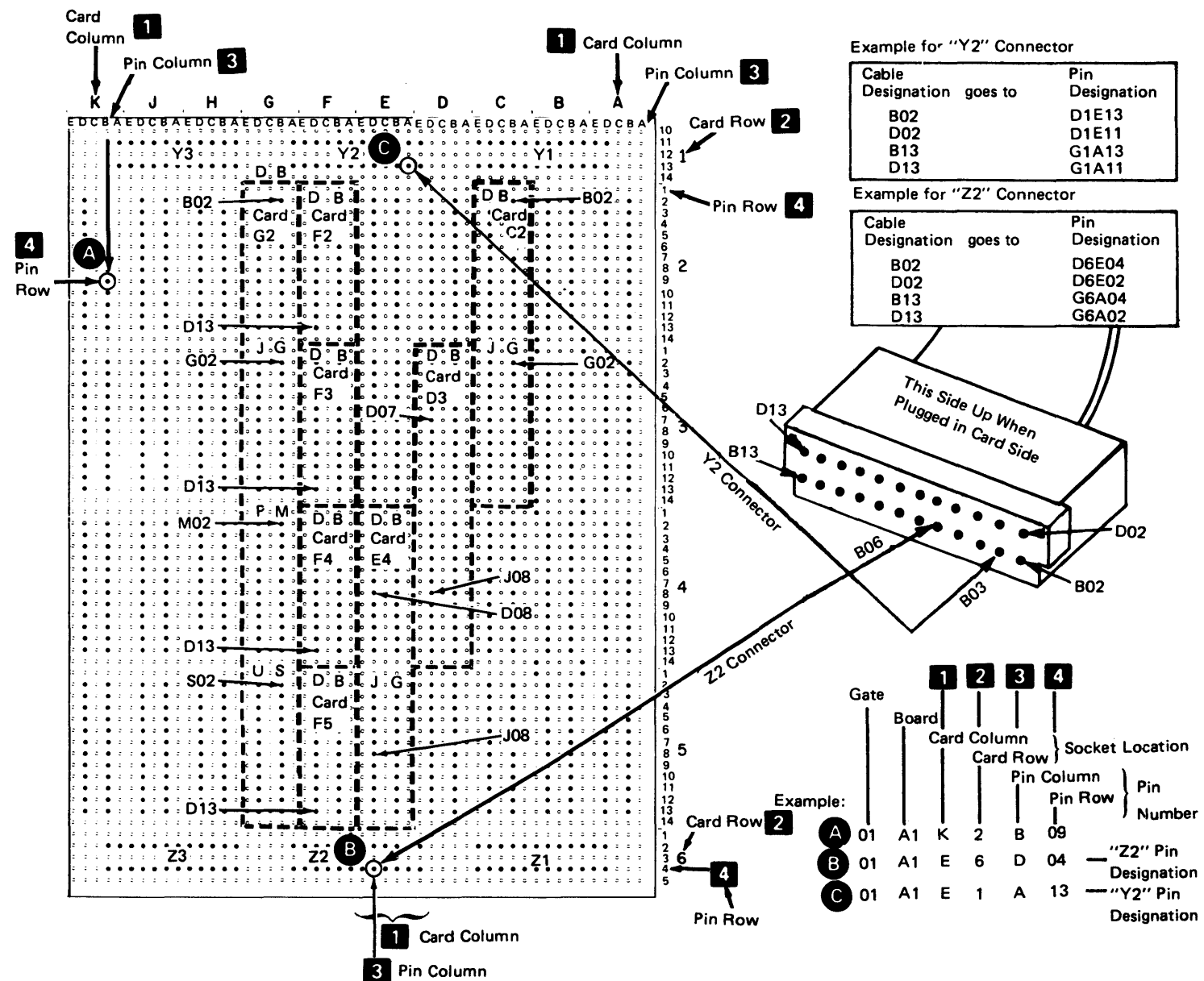


Figure LT420-1. Card, Connector, and Pin Numbering – Full Board (8130 and 8140)



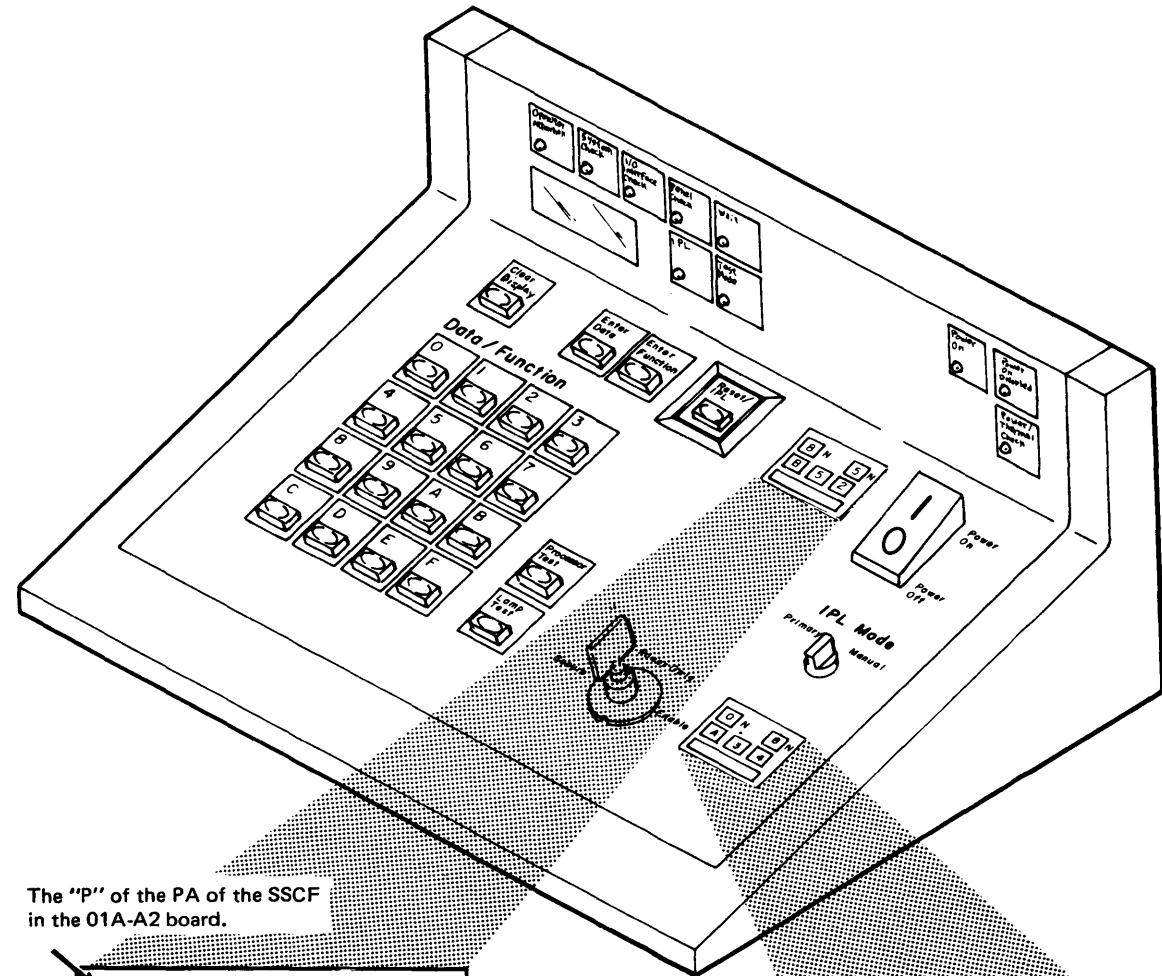
**Notes:**

- For multiple-socket cards (such as cards G2, E4, D3, and C2 in illustration), card location designation is specified by the uppermost row. Example: The location of card G2 (which actually occupies four sockets) is specified by the uppermost row, G2. If this card is on board A1, its location is identified as A1G2.
- Pin-column letter designations are signified by card size (rather than vertical position of card on board), beginning with DB, in the first pin row used. Subsequent designations are JG, PM, and US, which, when required, specify pin columns in the second, third, and fourth card row, respectively. See examples in this figure.
- Ground = Any D08, J08, or U08 pin; identified by a square surrounding each ground pin. (The square is not shown.) +5 = Any D03, J03, P03, or U03 pin.
- Cards are shown for instruction purposes only. See LT150 and LT350 for actual card locations.

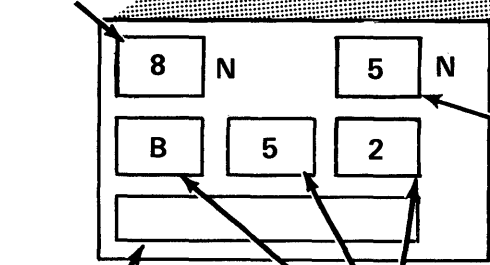
Figure LT420-2. Card, Connector, and Pin Numbering — One-Half Board (8140 Model BXX, and 8101)

LT430 8130/8140/8101 Address Labels

Figures LT430-1 and LT430-2 show the address label location and meaning for all 8130s, 8140s, and 8101s.



The "P" of the PA of the SSCF in the 01A-A2 board.



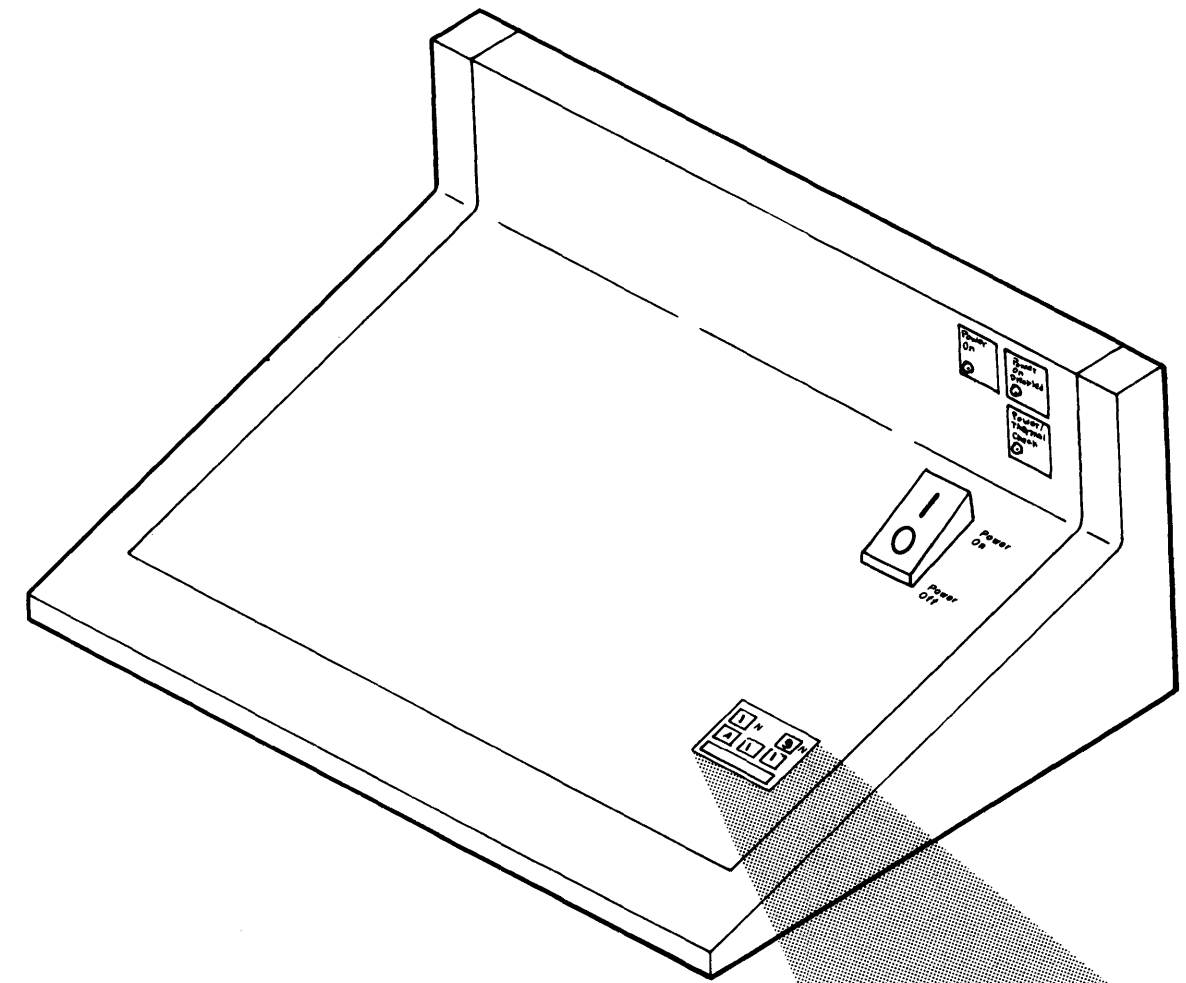
The "P" of the PA of the SSCF in the 01A-C2 board.

Write-In Area for Customer

Model Number (Number shown is an example.)

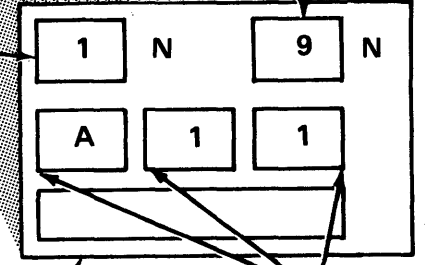
8140 BXX

Figure LT430-1. 8130/8140 Address Labels



The "P" of the PA of the SSCF in the 01A-A2 board.

The "P" of the PA of the SSCF in the 01A-A1 board.



Write-In Area for Customer

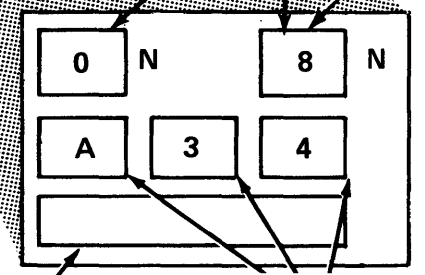
Model Number (Number shown is an example.)

Note: Example shown is for First 8101.

Figure LT430-2. 8101 Address Labels

PSCF address

The "P" of the PA of the SSCF (if installed).



Write-In Area for Customer

Model Number (Number shown is an example.)

8130/8140 AXX

## LT500 Tools

This section describes the tools used to service the IBM 8100 Information System including when to use them.

**Caution:** Only IBM-approved tools and test equipment should be plugged into machine convenience outlets.

### LT510 Maintenance Device (MD)

Use the Maintenance Device (Figure LT510-1) to transfer input and output information when running the 8100 MAPs. It permits you to perform offline error analysis by using the programs and MAPs contained on MD diskettes supplied with the 8100 hardware ship group. It is the primary maintenance tool and should accompany you on all maintenance activity.

Refer to Chapter 4 for a general discussion of the Maintenance Device, to Chapter 2 for procedures on how to use it for online and offline tests and for MD diskette configuration procedures, and to the individual Chapter 5 sections for adapter-unique information.

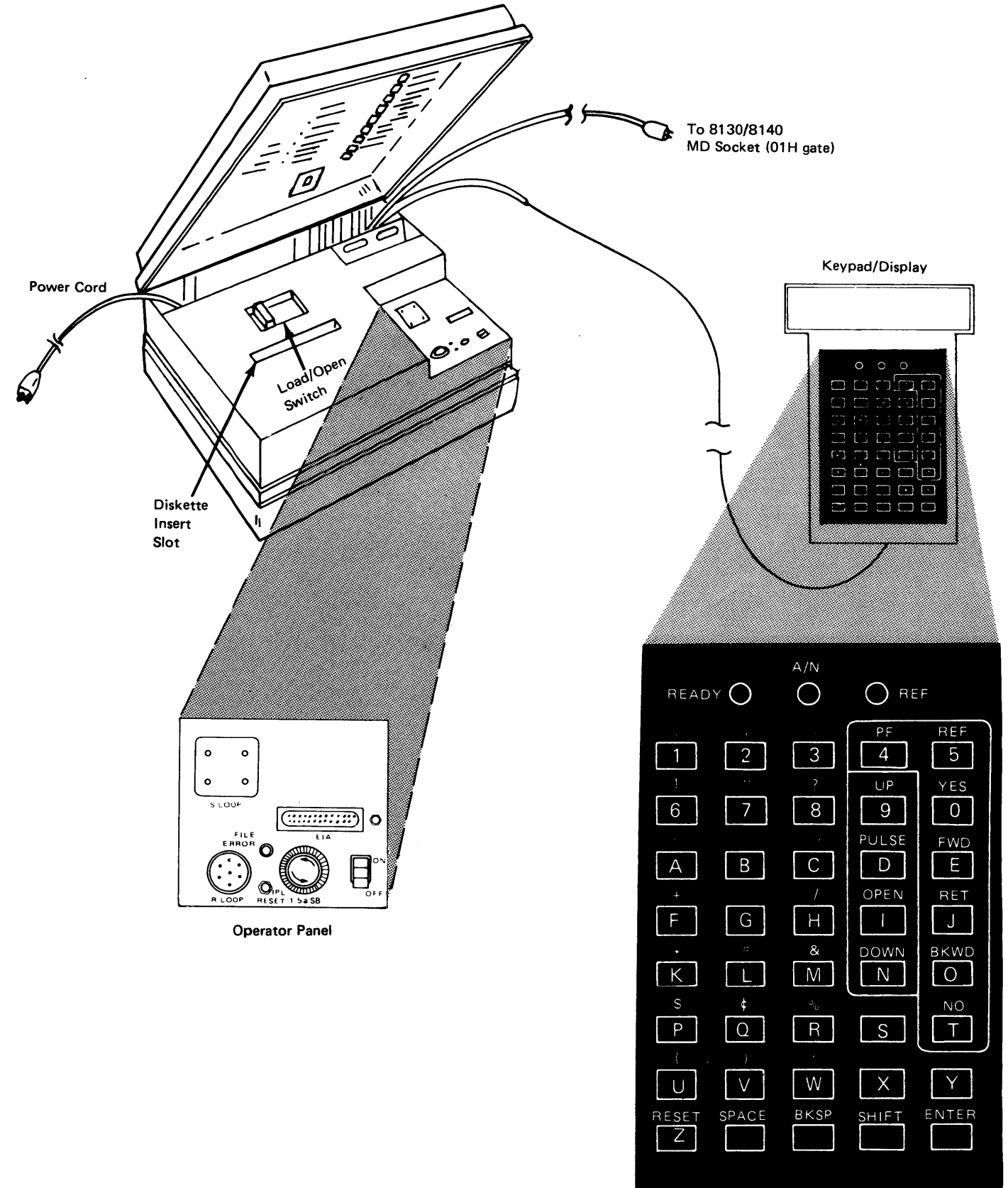


Figure LT510-1. Maintenance Device

**LT520 Teleprocessing Data Analysis Tool (TDAT), PN 453679**

Note: Refer also to LT540.

TDAT Switch Settings		
Switch	Switch Name	Switch Setting
1	MONITOR	OFF
2	SD/RD	SD
3	SIMULATE	DS
4	SPEED	1200
5	TAPE I/O	XMIT
6	MODEM	2W
7	DATA	NRM
8	COUPLER	OFF
9	CLOCK	*
10	MODE	**
11	POWER	ON

\*Set to OFF if data terminal equipment provides clock; set to 1 if not.  
\*\*Set to 0-1200 unless using modem; if so, set to MODEM.

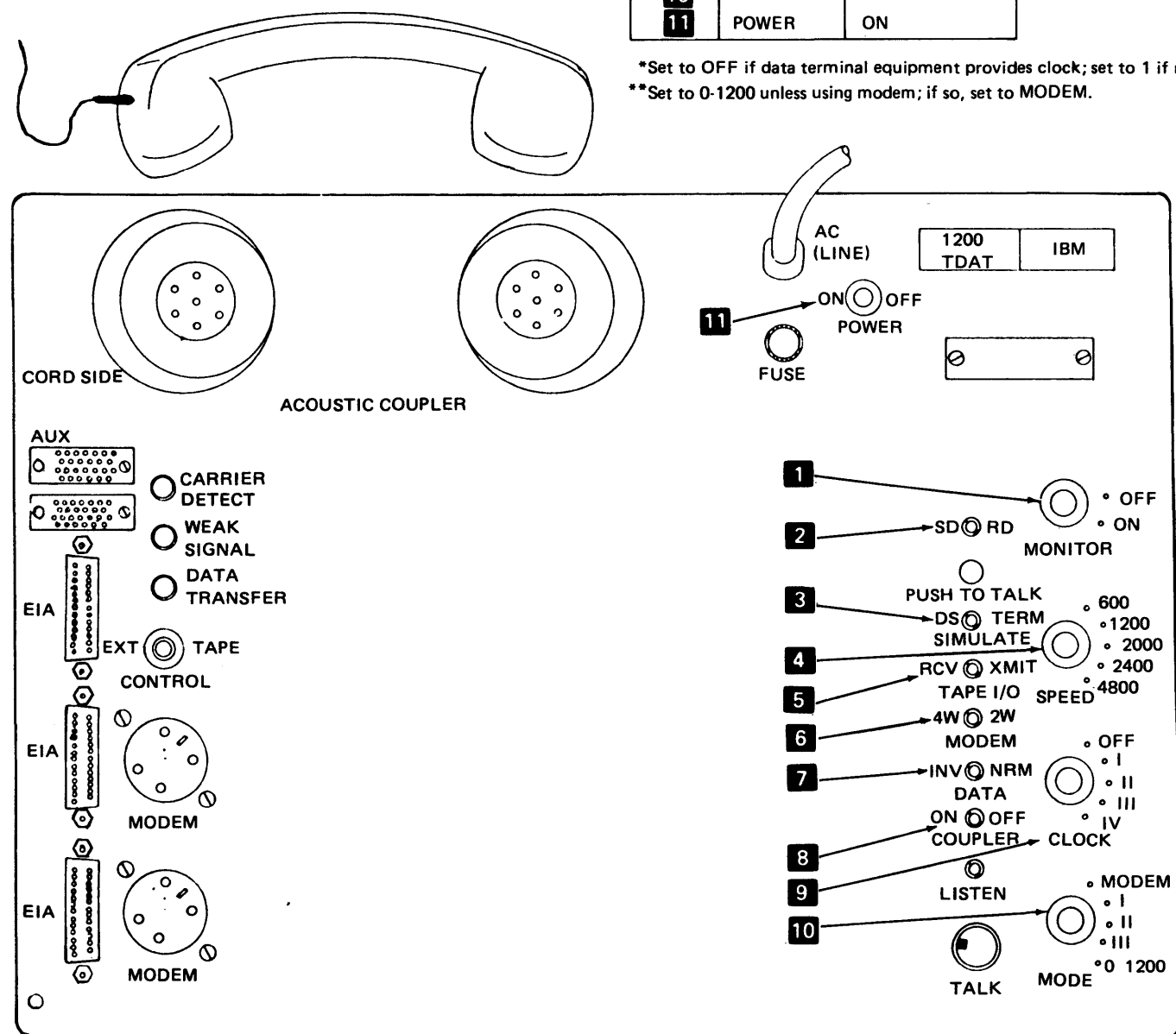


Figure LT520-1. Teleprocessing Data Analysis Tool and Switch Settings

**LT530 DB Measurement Devices**

**LT531 DB Meter, PN453545**

You can use a DB (decibel) meter (Figure LT531-1) to adjust the transmit line level.

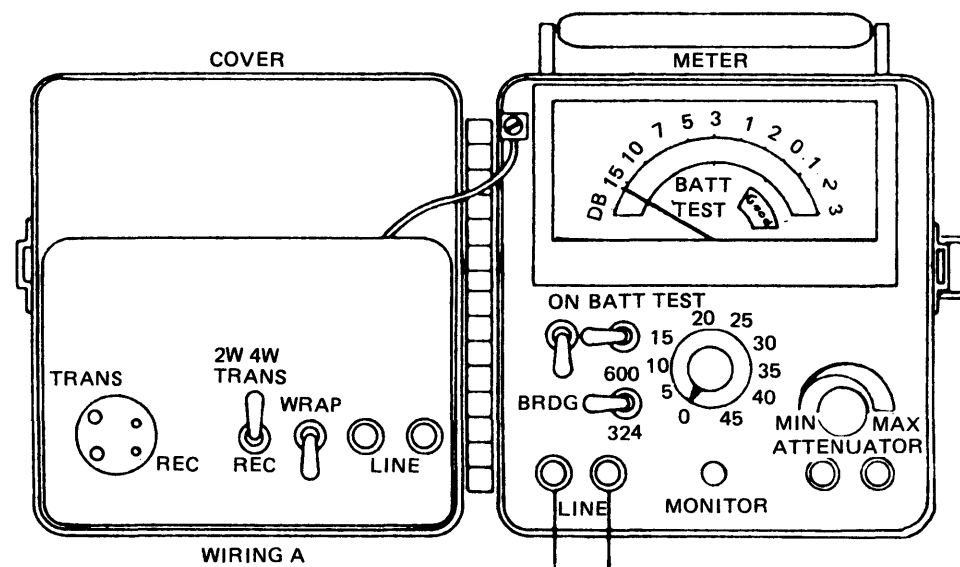


Figure LT531-1. DB Meter

**LT532 DB Adapter, PN1749299**

You can use the DB adapter and your tool bag meter to adjust the transmit line level.

**LT540 Portable Acoustic Coupler (PAC), PN 1753805 \***

You can use the portable acoustic coupler, Figure LT540-1, as well as the TDAT to provide access to the Teleprocessing Support Center Data Test Facility.

\* Part number for U.S. and Canada only.

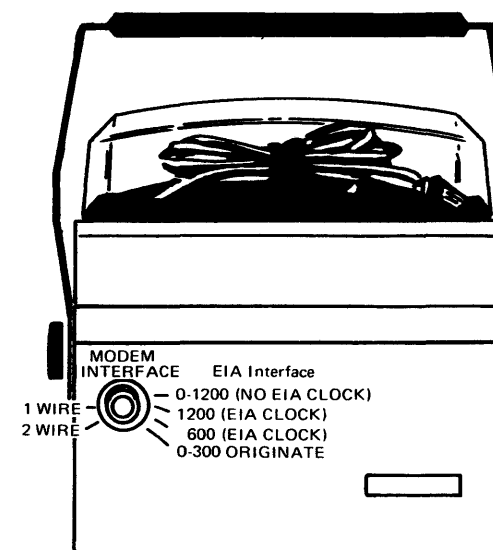
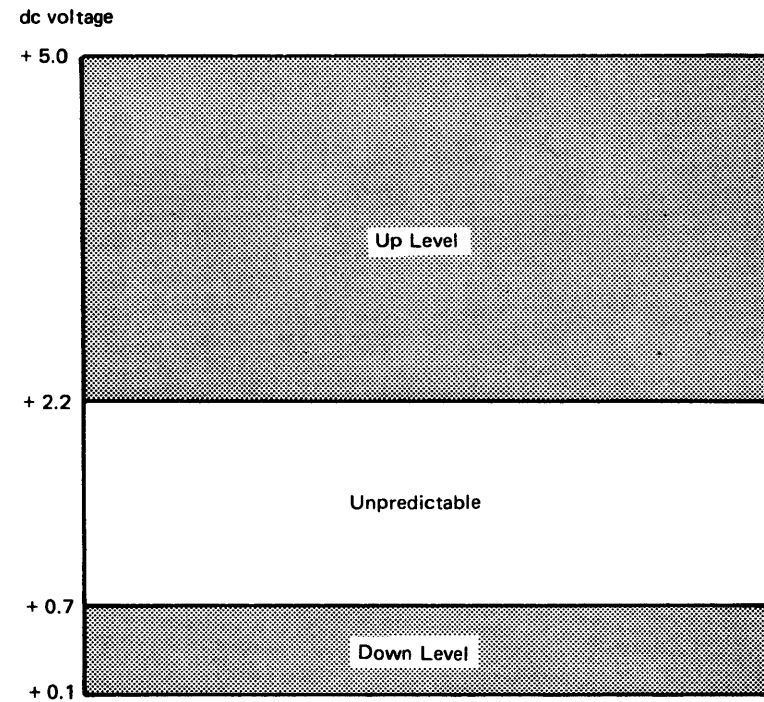


Figure LT540-1. Portable Acoustic Coupler



## LT550 General Logic Probe

The general logic probe (PN 453212) should be used whenever the MAPs direct the service representative to check a logic voltage level. The following diagram shows the logic voltage range when using the general logic probe:



Refer to Figure LT550 -1 and the number references for the following procedure to check and use the general logic probe.

1. Connect the red power lead **6** to any logic board pin D03 (+5V dc).
2. Connect the black power lead **7** to any logic board pin D08 (ground).
3. Set the TECHNOLOGY switch to MULTI **3**.
4. Set the LATCH switch to NONE **4**. Normally, this switch setting permits sufficient time for visual observation of the red or green level indicators, even for pulses of short duration. If set to UP or DOWN, according to the expected input level, the level indicator stays on until placing the switch to NONE.
5. Set the GATE REF. switch to GND **5**.
6. Connect the black main probe ground lead **2** to any convenient D08 pin or to top card connector pins identified by a white dot. Before proceeding, check proper probe operation by performing the following:
  - a. With no pin connected to the red main probe input lead, neither the UP or DOWN indicators should be on.
  - b. Connect the red input lead to any D08 (ground) pin. The DOWN indicator should be on.
  - c. Connect the red input lead to any D03 (+5V dc) pin. The UP indicator should be on. Go to step **7** if the probe operates properly.

7. Connect the red main probe input lead **1** to the pin to be checked.

**Caution:** Extending this lead length could cause improper operation of the probe or logic.

For further instructions concerning probe operation and capabilities, refer to the *General Logic Probe Manual*, SY27-0113.

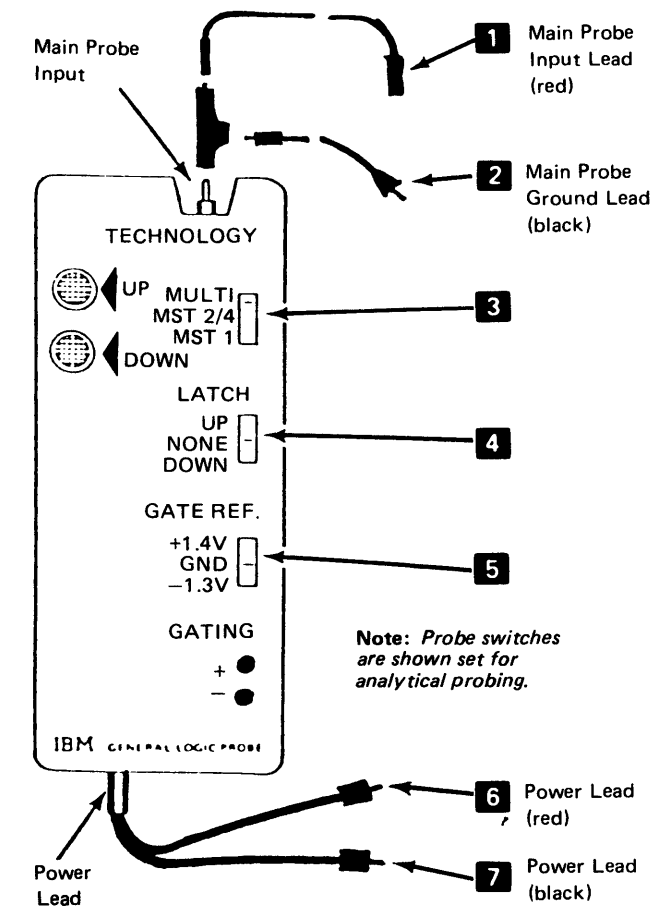


Figure LT550-1. General Logic Probe

## LT560 Additional Tools

- Head Alignment Diskette, PN 2455026. Used when running the head alignment test (DA134), and for checking the head alignment accuracy.
- Continuity and Relay Tester, PN 1657420
- Modem Monitor, PN 453637. Used to monitor the transmit and receive modem line sequencing.
- Mini-berg Connector Probe Tip, PN 453718 (3 required)
- Card Extender, PN 2360390 (Branch Office Tool – 2 required)
- Wrap Plug, PN 2605944. Can be used for the external modem wrap test if business machine clock is installed.
- Loop Test Tool, PN 1657410
- High Voltage Probe Set, PN 453698 (6 inch)
- Wrap Plug, EIA Direct Connect, PN 6835347 (see Chapter 5, CA432)
- Wrap Plug, V.35 External Modem, PN 6835348 (see Chapter 5, CA434)
- Wrap Plug, V.35 Direct Connect Terminal Cable, PN 6835349 (see Chapter 5, CA435)
- Wrap Plug, V.35 Direct Connect Peer-to-Peer, PN 6835353 (see Chapter 5, CA436)
- ROS Module Removal/Replacement Tool, PN 1715889, used on an 8130 to remove and replace the ROS module on the ROS and Storage Control card. See BU 111 for card location and also the note in the 8130 card part number listing (ZZ011).

**Chapter 4. General Reference Information  
(GR)**

## Introduction

This chapter contains information not needed for specific fault isolation, but provides theory necessary to understand the IBM 8100 Information System and the system maintenance approach. It enables you to become familiar with:

- The 8130, 8140, and 8101, including the models available and their standard and feature components.
- The devices that attach to the 8100.
- 8130/8140/8101 basic data flow and MAP responsibility.
- MAP structure including what system components the MAPs test.
- The 8100 general system maintenance approach.
- The maintenance aids available for the 8100.
- The IBM Distributed Processing Programming Executive (DPPX) and Distributed Processing Control Executive (DPCX) programs.

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**Abbreviations**

BOP	basic operator panel
BSC	Binary Synchronous Communications
CHCV	channel control vector
CHIO	channel I/O
CSU	customer setup
DDS	digital data service
DPCX	Distributed Processing Control Executive
DPPX	Distributed Processing Programming Executive
EFP	expanded function panel
FAC	Facilities for Attaching Communications
FRU	field-replaceable unit
GFI	General Failure Index
ID	identification
I/O	input/output
IPL	initial program load
LA	logical address
MAP	Maintenance Analysis Procedure
MD	Maintenance Device
PA	physical address
PAV	program activation vector
PIO	programmed I/O
PSCF	Primary System Control Facility
PSV	program status vector
RAM	random access memory
ROS	read-only storage
SCF	System Control Facility
SDLC	Synchronous Data Link Communications
SMN	system message number
S/S	Start/Stop
SSCF	Secondary System Control Facility
TCM	test control monitor

## GR100 8100 Information System Description and Operation

### GR110 8130/8140 Processor

#### GR111 Description

The 8130/8140 is a general purpose, interrupt driven processor that, when combined with either the IBM DPPX or DPCX operating system, can perform batch, interactive, and realtime processing both standalone and as part of a distributed system. It uses binary arithmetic on byte and halfword data fields, and has general registers rather than accumulators. Program execution occurs on any one of eight different processing levels, each of which corresponds to a priority level.

8130/8140 channel facilities permit either interrupt presentation on eight processing levels (channel I/O operation), or information transfer by using instruction execution without the need for interrupt processing (programmed I/O operation).

Each nonremovable disk storage media has a capacity of either 23 Mb, 29 Mb, 58 Mb, or 64 Mb of storage, depending on the processor model selected. These capacities depend on the number of disk surfaces available and also on whether fixed heads are present.

Diskette storage uses a removable-media diskette for operations such as IPL and temporary or permanent storage. It can contain up to 1 Mb of information, and uses either a diskette 1 or a diskette 2D media.

Communications options provide connection to devices that operate under BSC, S/S, SDLC, or loop protocols in either remote or local applications. Refer to the CP100 section in Chapter 2 for a diagram of how these devices attach, and to GR300 for their description.

Storage uses real and logical addressing methods and has 32-bit word capability. These facilities permit real addressing up to the physical storage limit, which depends on the 8130/8140 model selected, and also perform dynamic address translation and relocation to logically address up to 4 megabytes.

When combined with 8101 Storage and Input/Output Units, 8809 Magnetic Tape Units, and using either IBM-supported or customer-written programs, an IBM 8100 Information System can control a wide variety of devices used to create a distributed system application environment.

#### GR112 Models

##### 8130 Models

The 8130 Processor is available in four models that differ in disk storage capacity. By adding an additional card or cards, processor storage can be expanded from 256K to 384K or 512K or 768K bytes or up to a maximum of 1024K bytes.

The following chart shows the disk storage capacity and head type associated with each 8130 Processor model:

Model	Storage Capacity	Disk Storage Capacity
A21	256K, 384K, 512K, 768K, or 1024K	29 Mb with movable heads
A22	256K, 384K, 512K, 768K, or 1024K	23 Mb with fixed and movable heads
A23	256K, 384K, 512K, 768K, or 1024K	64 Mb with movable heads
A24	256K, 384K, 512K, 768K, or 1024K	58 Mb with fixed and movable heads

##### 8140 Models

The 8140 Processor has 26 models that differ in disk and processor storage capacities, in communications and I/O capability, and in the availability of an integrated FP processor.

**Note:** Models A41-44 and B51-B72 can have floating-point, and Models A51-54 and B51-B52 can have 512K. 8140 Models A61-A64, B61, and B62 can have 768K and 8140 Models A71-A74, B71, and B72 can have 1024K.

The following chart shows all 8140 Processor models and their associated disk storage and main storage capacities:

Model*	Storage Capacity	Disk Storage Capacity
A31	256K or 384K	29 Mb with movable heads
A32	256K or 384K	23 Mb with fixed and movable heads
A33	256K or 384K	64 Mb with movable heads
A34	256K or 384K	58 Mb with fixed and movable heads
A41	320K	29 Mb with movable heads
A42	320K	23 Mb with fixed and movable heads
A43	320K	64 Mb with movable heads
A44	320K	58 Mb with fixed and movable heads
A51	512K	29 Mb with movable heads
A52	512K	23 Mb with fixed and movable heads
A53	512K	64 Mb with movable heads
A54	512K	58 Mb with fixed and movable heads
A61	768K	29 Mb with movable heads
A62	768K	23 Mb with fixed and movable heads
A63	768K	64 Mb with movable heads
A64	768K	58 Mb with fixed and movable heads
A71	1024K	29 Mb with movable heads
A72	1024K	23 Mb with fixed and movable heads
A73	1024K	64 Mb with movable heads
A74	1024K	58 Mb with fixed and movable heads
B51	512K	58 Mb with fixed and movable heads
B52	512K	58 Mb with fixed and movable heads
		64 Mb with movable heads
B61	768K	58 Mb with fixed and movable heads
B62	768K	58 Mb with fixed and movable heads
		64 Mb with movable heads
B71	1024K	58 Mb with fixed and movable heads
B72	1024K	58 Mb with fixed and movable heads
		64 Mb with movable heads

\*Because of physical board limitations:

- On floating-point 8140 Models A41–A44, the expanded function operator panel and communications features are mutually exclusive.
- Models A51–A54 require an 8101 to provide communications and I/O capabilities, and cannot have the expanded function panel installed.

**GR113 Operation**

This section generally describes 8130 and 8140 operations. See Figure GR113-1 for basic data flow. For more detailed information, refer to section GR460, which lists other manuals that describe these operations in more detail.

The processor, a program, or an I/O adapter can request interrupts on any of eight processing levels (0–7), the highest priority of which is zero. These three types of requests can occur in any combination at any time, and have equal priority. Only the priority level determines which request receives processor resource control. If more than one active request occurs on the same level, the programmable sublevel determines the priority. A higher priority level can interrupt processing of a lower one by presenting an interrupt request, and can also give control to a lower level by removing it. The processor enters a wait state with no interrupts pending.

Each processing level has both a primary and a secondary program status vector (PSV). This permits control programs and their corresponding application programs to execute on one level without using interrupt processing. It also permits the processing of program exceptions within its own level, if needed, while still retaining processor control.

During interrupt presentation, the processor logic examines the control vectors and the PSV to determine (1) which program receives processor resource control, and (2) if the primary or secondary PSV of that program should be used.

**I/O Operations**

Input/output operations between the processor and adapters occur either by executing programmed I/O (PIO) instructions or by performing channel I/O (CHIO) operations. The major differences between PIO and CHIO information transfer are:

- Data length
- Source or destination of data transfer
- Whether the processor or the adapter initiates the transfer

Both types of I/O operations use a common bus (SCF signal bus) to transfer data, commands, status, and interrupt information between the device and the processor. The System Control Facility (SCF) performs this asynchronous data transfer, and also performs many system-oriented logic and program operations associated with I/O information transfer. For a detailed description of SCF functions, see the System Control Facility (SC) 400 section in Chapter 5.

Transfer of either a byte or a halfword of data occurs between the adapter and a general register by using one of three I/O instructions. I/O byte and I/O immediate instructions transfer 8 bits, while the I/O halfword instruction transfers 16 bits. The processor initiates these transfers by specifying the device address and command on the SCF signal bus. Only one data transfer occurs for each instruction.

Variable amounts of data can transfer between an adapter and processor storage by performing channel I/O operations. The adapter initiates these transfers, and uses channel pointers for storage address location values.

The channel control vector (CHCV) contained in the device adapter selects the appropriate channel pointer number value. It does not use interrupt processing to accomplish transfer, but has a higher priority level assigned to it than does normal instruction execution. When this transfer occurs, program execution suspends temporarily, and the transfer remains transparent to the program.

**Interrupt Processing**

Interrupts activate the processor from a wait state, change processing from a lower to a higher level, or give control to a particular program by specifying its PSV. The control vector logic presents interrupt requests to the processor, and either the processor, program, or I/O adapter can initiate these requests. Interrupts can only occur after instruction execution, or at specific points in a large data-handling operation during execution of an interruptable instruction. The request receives control because it has either a higher priority than the request being executed, or a CALL PSV instruction initiated the request.



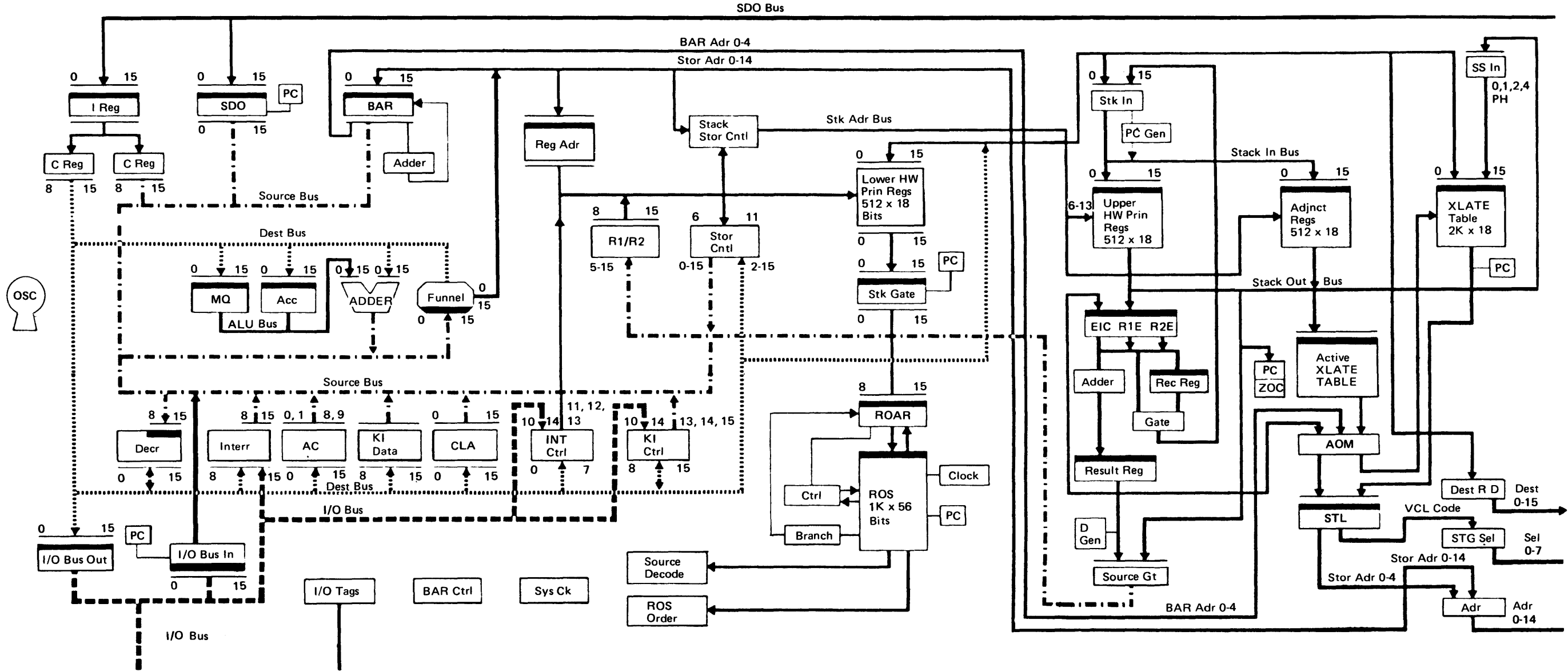


Figure GR113-1. Processor Instruction/Execution Unit Basic Data Flow

## GR120 8101 Storage and Input/Output Unit

### GR121 Description

The 8101 provides additional disk storage and device attachment capabilities for the 8100 Information System. The disk and diskette storage drives, as well as communications features, are the same as those used in the 8130 and 8140. The 8101 is a self-contained, single-frame unit, measuring 1 meter (39.4 in.) high by 595 cm (23.6 in.) wide by 1 meter (39.4 in.) deep, and can have:

- One 29- or 64-Mb disk storage drive (Models A11-A13)
- One 64-Mb disk storage drive (Model A23)
- Two 64-Mb disk storage drives (Model A25)
- One 1-Mb diskette storage drive
- Eight communications ports used in various combinations
- Display and printer adapters, not available on the 8130/8140 (Models AXX); available on 8140 (Model BXX).
- An adapter for 8809 Model 1A tape drives

It has one logic gate with a capacity of three logic boards (one-half boards), and one power supply capable of supporting a maximum configuration of devices and logic.

The 8101 has no standalone functional capability, and is entirely dependent on the 8130/8140 Processor to which it is attached.

### GR122 Models

The 8101 has six models:

- Model A10 – Provides only device attachment capability.
- Model A11 – Provides 29 Mb (29,327,360 bytes) of disk storage with movable heads only, and also provides device attachment capability.
- Model A13 – Provides 64 Mb (64,520,192 bytes) of disk storage with movable heads only, and also provides device attachment capability.
- Model A20 – Provides only device attachment capability.
- Model A23 – Provides 64 Mb (64,520,192 bytes) of disk storage with movable heads only, and also provides device attachment capability.
- Model A25 – Provides two 64 Mb (64,520,192 bytes) or (129,040,384 bytes) of disk storage with movable heads only, and also provides device attachment capability.

### GR123 Operation

The 8101 extends the 8100 device capability by providing for the attachment of a variety of I/O devices. These can be displays, printers, magnetic tape, controllers, and data collection units. Refer to section GR300 "Attachable Devices" for a more detailed discussion.

These devices can attach to 8101 loops, data-link attached loops, communication ports, or connected directly to the 8101. They attach by using either another IBM device or a feature for attaching communications (FAC) number group and additional adapter facilities. Refer to CP100 "System Configuration Information" in Chapter 2 for additional details.

## GR200 Components

The following section describes the basic and feature components, adapters, and attachment features available on an 8100.

### GR210 8130/8140/8101 Basic Components

#### GR211 8130/8140

**Basic Operator Panel (BOP).** Provides power control for the system, a keypad, and push-buttons for processor input, and a display register and indicators for system status information. The BOP has the following FRUs:

- BOP adapter card – Mounts on the 01B gate, permits panel information transfer between the processor and PSCF, and provides the logical signal attachment for the Maintenance Device (MD).
- BOP indicator card – Attaches to the back of the BOP and provides the logic used for the BOP display register and indicators.
- Data/Function Pushbutton keypad – Permits entering information from the BOP, and used for both the BOP and the optional expanded function panel (EFP), available only on the 8140.

**Processor Instruction/Execution Unit Cards.** Nine different cards that provide processor functions for the 8130/8140, and are basically grouped according to the following:

- Six cards are used for instruction execution.
- Two cards provide processor addressing capability and permit the addition of the storage expansion feature on all 8130 models and 8140 Models A31–34.
- One card logically performs processor storage dynamic address translation and relocation. The card can logically address up to 4 Mb of information and provides storage access protection by using access codes for each 2K storage block.

**8130 Storage Card.** This card contains 256K of read/write storage. Another processor card contains the 4K read-only storage (ROS) area.

#### 8140 Storage Cards

- Read-only storage card – Contains 4K of read-only storage (ROS) used for basic bringup testing and bootstrap program loading. It also contains 28K of read/write storage (Models AXX only) and is always the first card in any processor storage configuration. On 8140 (Models BXX) the read-only-storage card contains only read-only storage, no RAM.
- Read/write storage cards – Each has a 32K capacity on Models AXX; on Models BXX each has a 128K capacity used for read/write storage; their quantity and location depend on the processor model.

**System Control Facility (SCF).** Logically connects signals from the processor to all device adapters, and also provides certain system and device control functions. It is logically divided into a primary SCF and a secondary SCF, whose functions are as follows:

- Primary system control facility (PSCF) – Transfers data and controls certain functions between the processor and the devices contained within the 8130/8140, and also between the processor and the SSCF.

- Secondary System Control Facility (SSCF) – Logically connects the PSCF to any device adapters external to the 8130/8140, and provides certain device control functions. To provide this capability on the 8130, the System Expansion Feature must be installed.

**Diskette Storage.** Provides a facility to read and write up to 1 Mb of information, and uses one or both physical sides of a diskette. It uses either an IBM Diskette 1 for single-sided single-density information recording, or an IBM diskette 2D for double-sided double-density information recording, or any equivalent diskette. Two adapter cards permit logical attachment of the diskette drive to the 8130 or 8140, as well as the 8101. The diskette functions as a temporary or permanent storage facility, a source for test routines, or can be used in save/restore operations.

**Disk Storage.** A fixed-media storage drive that can contain either 23 Mb, 29 Mb, 58 Mb, or 64 Mb of information, depending on the 8130/8140 model selected. The type and number of heads used (movable or fixed) and the number of disk surfaces present determine the disk storage capacity. The fixed heads access 128K bytes of storage and have a faster access time than do movable heads, but disk storage capacity decreases. Two adapter cards permit logical attachment of the disk storage drive to the 8130 or 8140 as well as to the 8101.

**Power Supplies.** A ferro-resonant power supply generates dc voltages of +5, +8.5, and –12. This power supply also feeds the PC2 card, which generates –4V dc, and also the PC1 card, which generates –5V dc, –8.5V dc, +12V dc, and +24V dc.

#### GR212 8101

**Disk Storage.** Only 8101 Models A11, A13, A23, and A25 can have a nonremovable, high-speed direct access storage. Depending on the model selected, up to either 29 million or 64 million bytes can be accessed by using movable heads at a rate of 1,031,000 bytes per second. The average access time is 27 ms, and the average rotational delay is 9.6 ms. This is the same physical adapter and drive as that used in the 8130/8140.

**Diskette Storage.** All 8101 models (except Model A25), can have a removable-media diskette storage whose capacity can be up to 1 Mb (985,088 bytes), and which operates at a data rate of up to 62K bytes per second. This is the same physical adapter and drive as that used in the 8130/8140.

**Switches and Indicators.** The following describes the switches and indicators used on the 8101 operator panel, as well as the Local/Remote switch, located behind the front cover:

- Power On/Power Off switch – A two-position, binarily marked rocker switch that provides power control for the 8101.
- Power Off indicator – When on, indicates either the loss of –5V or an excessive temperature condition on the 8101.
- LOCAL/REMOTE switch – A toggle switch used during maintenance when 8130/8140 power is off, and also when checking the 8101 as a standalone machine.

Setting this switch to REMOTE with the 8101 power switch set to On places the 8101 in standby status with its adapters waiting for a turn-on signal from the SSCF.

When in LOCAL position, the 8101 power switch controls unit power.

## GR220 8130/8140/8101 Features and Attachments

The following section briefly describes the features and attachments that can be ordered for the IBM 8100 Information System. For more details, see the *IBM 8100 Information System Configurator*, GA27-2876.

### GR221 8130/8140

- Storage expansion — A single 128K card that increases the basic 8130 storage capacity from 256K to 384K or up to three 256K cards that increase the basic 8130 storage capacity from 256K to 512K, 768K or 1024K.
- Storage increment — Four cards that increase the storage capacity of 8140 models A31-34 from 256K to 384K. Two cards that increase the storage capacity of the 8140 Models B5X from 512K to 768K. Two cards that increase the storage capacity of the 8140 Models B6X from 768K to 1024K Models B7X.
- System expansion — Available only on the 8130, it physically and logically permits the 8130 SCF to have both primary and secondary functions by the addition of five cards. Four of the cards correspond to those that are standard in the 8140, and the fifth card terminates certain 8130 signal lines.
- Expanded function operator panel (EFP) — Available only on the 8140; a physical and logical extension of the BOP used primarily for a program debug and analysis. It provides access capability to the contents of certain processor storage areas, and can display and alter processor information. A single adapter card provides control functions to permit data transfer with the processor through the PSCF.

**Note:** *The EFP is only available on the 8140, and communications features are mutually exclusive with the EFP on floating-point 8140.*

- Magnetic tape attachment feature (4521) for 8140 (Models BXX) provides for the attachment of up to four IBM 8809 magnetic tape units, consisting of one 8809 Model 1A plus two Model 2s and one Model 3.
- Display and printer attachment feature (3220) for 8140 (Models BXX) provides for the attachment of the first four of the following (in any combination): 3277 displays, 3284, 3286, 3287, or 3288 printers, and 129 Card Data Recorders (RPQ MK6956).
- Display and printer additional feature (1506) — provides for the attachment of additional 3277 displays, 3284, 3286, 3287, or 3288 printers, and 129 Card Data Recorders (RPQ MK6956) in any combination up to a maximum of 24.
- Keylock — Provides system security by logically controlling access to the 8130/8140 operator panel. It uses a switch assembly whose position can be changed by a removable key.
- Security cover locks — Provides locks for the 8130/8140 front and rear covers.
- Diskette cover security lock — Provides for a lock for the diskette cover to prevent unauthorized access to the diskette.

### GR222 8101

- Display and Printer Attachment Type 1 (1501 for Models A11, A13, A23 and A25 and 9941 for Model A10, A20) — Provides the capability to select:
  - One Display and Printer Adapter (1505).
  - Up to five Display and Printer Additional features (1506).
  - Up to four FACs (facilities for attachment of communications).
- Display and Printer Attachment Type 2 (1502) — Provides the capability to select:
  - One Display and Printer Adapter (1505).
  - Up to five Display and Printer Additional features (1506).
- Display and Printer Adapter (1505) — Provides for the attachment of the first four of the following (in any combination): 3277 displays, 3284, 3286, 3287, or 3288 printers, and 129 Card Data Recorders (RPQ MK6956).
- Display and Printer Additional feature (1506) — Provides for the attachment of additional 3277 displays, 3284, 3286, 3287, or 3288 printers, and 129 Card Data Recorders (RPQ MK6956) in any combination up to a maximum of four. Five of these features can be installed on an 8101.
- Display and Printer Adapter (second Display/Printer adapter) — Provides for the attachment of seven additional devices, for a total of 31 (RPQ ML3701); DPCX only.
- Diskette Drive and Magnetic Tape Attachment feature (1507) — Provides for the attachment of one diskette drive (4520) and one magnetic tape (4521), and is only available on A10 model.
- Diskette Drive feature (4520) — Provides 1 Mb (985,088) bytes) of removable media diskette storage whose drive operates at a data rate of up to 63Kb per second.
- Magnetic Tape Attachment feature (4521) — Provides for the attachment of up to four IBM 8809 Magnetic Tape Units, consisting of one 8809 Model 1A plus two Model 2s and one Model 3.
- Communications Attachment Type 1 (1503 for Models A11, A13, A23 and A25 and 9943 for Model A10, A20) — Provides the capability to select up to four FACs.
- Communications Attachment Type 2 (1504) — Provides the capability to select up to four FACs.

## GR223 Communications Features

Various communications features permit devices operating on a particular type of line protocol, discipline, and speed to attach to either the 8101, 8130, or 8140. For specific information concerning communications configurations, refer to CP120 in Chapter 2.

The following briefly describes the communications features available on the IBM 8100 Information System:

- **SDLC Communications with Business Machine Clock (1601)** – Transfers information between the 8100 and the communications driver/receiver cards, which permit attachment of devices using the EIA RS-232-C CCITT V.24/V.28 or the CCITT V.35 interfaces. The feature also permits attachment of integrated modems or directly connected devices through their corresponding driver/receiver cards.
- **SDLC Communications without Business Machine Clock (1602)** – Transfers information between the 8100 and the communications driver/receiver cards, which permit attachment of devices using the EIA RS-232-C CCITT V.24/V.28, X.21 bis/V.28, or V.35 interface. The feature also permits attachment of devices using the digital data service, or devices on a loop, through their associated driver/receiver cards.
- **BSC/S-S Communications with Business Machine Clock (1603)** – Transfers information between the 8100 and the communications driver/receiver cards, which permit attachment of devices using the RS-232-C CCITT V.24/V.28 interface. The feature also permits attachment of integrated modems and directly connected devices through their associated driver/receiver cards.
- **BSC/S-S Communications without Business Machine Clock (1604)** – Transfers information between the 8100 and the communications driver/receiver cards, which permit attachment of devices using the EIA RS-232-C CCITT V.24/V.28 interface. The feature also permits attachment of directly connected devices through their associated driver/receiver cards.
- **ALC (Airlines Line Control) (RPQ MK6959) Communications without Business Machine Clock** – Transfers information between the 8100 and the ALC communications driver/receiver cards, which permit attachment of devices using the Airline Reservation interface. The RPQ also permits attachment of directly connected devices through their associated driver/receiver cards.

The following lists the features used in conjunction with the above features:

- **\*Loop Adapter (4830)** – Permits direct system attachment to a single lobe loop having devices that operate at speeds of either 9600 bps or 38.4K bps.
- **Loop Adapter, Second Lobe (4835)** – Permits system attachment to a second physical loop cable (lobe), which functions as a logical part of the first lobe and increases the loop physical distance.
- **\*EIA RS-232-C CCITT V.24/V.28/X.21 bis (3701)** – Permits system attachment to an external modem, data communications equipment, or directly connected devices, all of which operate at speeds of up to 9600 bps.
- **\*CCITT V.35 (1550)** – Permits direct system attachment to devices that transfer information at speeds of up to 9600 bps.
- **\*Integrated Modem – nonswitched (5500)** – Permits system attachment to common carrier nonswitched (leased) line facilities having connected devices that operate at speeds of either 600 bps or 1200 bps.
- **\*Integrated Modem – switched (5501)** – Permits system attachment to common carrier switched line facilities with auto-answer having connected devices that operate at speeds of up to either 600 bps or 1200 bps.
- **\*CCITT X.21 Nonswitched (5655)** – Permits system attachment to data circuits non-switched equipment (DCE) that operate at speeds of 2400, 4800, or 9600 bps. The 8140 and any attached 8101s can also operate at 48,000 bps.
- **\*Digital Data Service (5660)** – Permits system attachment to AT&T's Data-Phone\*\* Digital Service Network through their Channel Service Unit (CSU) having connected devices that operate at speeds of either 2400, 4800, or 9600 bps.
- **Multi-Speed Clock (5200)** – Provides business machine clocking for directly connected devices that operate at speeds of either 4800 or 9600 bps. This feature can provide multiple speeds simultaneously.
- **\*ALC/EIA (RPQ MK6959)** – Permits system attachment to an external modem, data communications equipment, or directly connected devices, all of which operate at speeds of up to 9600 bps.

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\*These cards are pin compatible.

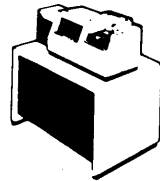
\*\*Trademark of American Telephone and Telegraph Co.

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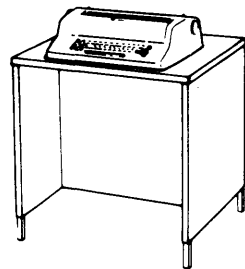
## GR300 Attachable Devices

The following section briefly describes and shows the devices that attach to the 8100 Information System. Refer to Chapter 2 for specific information relating to the facilities needed for attachment, and also for the IBM program product that supports them.

**129 Card Data Recorder (RPQ MK6956).** An 80-column card reader or punch that attaches only to the 8101 through the display and printer adapter.

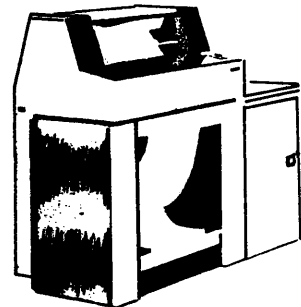


**2502-A1 Card Reader – 3782-2 Card Attachment Unit.** Reads 80-column cards at speeds up to 150 cpm. Two mutually exclusive features permit the operator to change the machine to read either 51-column or 66-column cards.

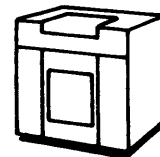


**2741 Communication Terminal.** A Selectric-base terminal that functions both as a local typewriter and a remote communications I/O device for scientific and text-handling applications. It connects only to start/stop communications facilities and transfers data at a speed of 134.5 bps.

**2780 Protocol Devices.** Any device that conforms to 2780 protocol can attach to the 8100 through certain facilities for attaching communications (FAC) codes.



**3203 Standalone Printer Model 3.** Attaches directly to the 3777. The model 3 uses the 1416 interchangeable train cartridge. The 3203 permits feeding continuous forms up to 20 inches wide and 132 print positions. Character spacing is 10 per inch. (RPQ 8K0892.)



**3262-2, 12 Printer.** An output printer which is loop attached to the 8100 system and which provides 650 lpm nominal speed with a 48-character set. 132 print positions are standard. Horizontal spacing is 10 characters per inch. Vertical spacing is 6 or 8 lines per inch under system control. Forms skipping and spacing are program controlled.

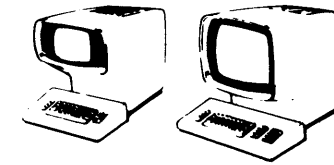


**3274-51C Control Unit.** Each 3274 Model 51C can support the attachment of up to eight of the following devices in any combination:

- IBM 3278 Models 2, 3, 4, 5
- IBM 3279 Models 2A, 3A, 2B, 3B
- IBM 3287 Models 1, 2, 1C, 2C
- IBM 3289 Models 1, 2



**3276-11, 12, 13, 14 Control Unit/Display Station.** A keyboard/display cluster control unit that permits system connection of any combination of up to seven additional 3278s, 3287s, or 3289 Models 1 and 2. The four models, respectively, have character capacities of 960, 1920, 2560, and 3440 characters. The 3276 can also operate with a 480-character capacity for Model 11 and a 960-character capacity for Models 12–14 when using 3277-compatible display formats.



**3277-1, 2 Display Station.** A keyboard/display terminal that has two models which differ in screen character capacity. The Model 2 is four times larger and can display 1920 characters. Both models connect to the 8100 through the display and printer adapter. Features are: (1) a selector light pen, which controls certain screen areas for further processing, (2) copy, which permits information transfer to another display or to a 3284, 3286, 3287, or 3288 printer, (3) audible alarm, which activates when entering the next-to-last position on a line, and (4) keylock, which logically controls access to the display image.



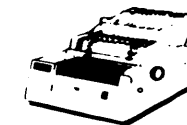
**3278-1, 2, 3, 4 Display Station.** A keyboard/display terminal that attaches to the 8100 only through the 3276, has the same corresponding display size model characteristics as the 3276, and can be located up to 1500 meters (4920 feet) from it. It can also operate using a 3277-compatible display format with character capacities identical to the 3276.



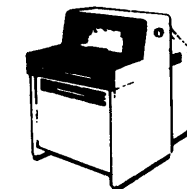
**3279-2A, 2B, 3A, 3B Color Display Station, Models 2A and 3A.** Models 2A and 3A provide 4-color mode. Models 2B and 3B provide 7-color mode, extended highlighting mode (reverse video, blink, underscore), and supports the programmed symbols (PS) feature.



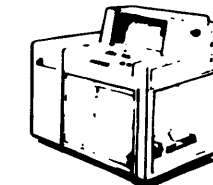
**3284-1, 2 Printer.** A 40 character-per-second wire matrix printer whose models differ in buffer capacity and attach to the 8100 through the display and printer adapter. The Model 2 buffer capacity (1920 characters) is four times larger than the Model 1.



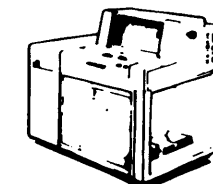
**3286-1, 2 Printer.** A 66 character-per-second wire matrix printer whose models differ in buffer capacity and attach to the 8100 through the display and printer adapter. The Model 2 buffer capacity (1920 characters) is four times larger than the Model 1.



**3287-1, 2, 11, 12 Printer.** A table-top bidirectional wire matrix printer whose four models have speeds of either 80 or 120 characters per second. Models 11 and 12 transfer data on a 38.4K bps loop, while Models 1 and 2 attach only to the 3276.



**3288-2 Line Printer.** A 120 line-per-minute printer with a 1920-character buffer capacity that attaches to the 8100 through the display and printer adapter.



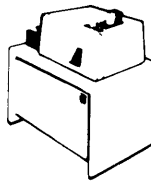
**3289-1, 2 Line Printer.** A chain printer containing a built-in forms stand and stacker. The two models vary in print speeds of up to 155 or 400 lpm using a 48-character print set, and attach directly to a 3276 or 3274 (Model 51C) Control Unit as a device.



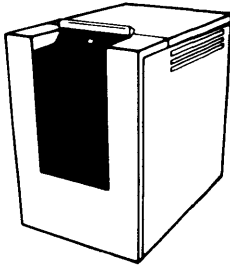
**3289-3 Line Printer.** An enhanced version of 3289-1 and 2 that also functions as a control unit. It permits attachment of the 3782 Models 1 and 2, which, in turn, permits attachment of the 3521 and 2502. The 3289-3 also permits attachment of the 3501. The 3289-3 can accommodate five chain configurations, only one of which is standard, and all are operator-interchangeable. The number of characters in a set and the line speed are inversely proportional. Its features can (1) alert the operator of the need for manual intervention by sounding an audible alarm, and (2) logically disable all input, output, or data control at the printer by a keylock mechanism. It provides carriage control for vertical operation by using control characters contained in the print data sets, and tab control for horizontal operation to eliminate transmission of spaces. It also permits an operator to switch-select a rate of 1200 or 2400 bps to match the loop on which the printer operates.



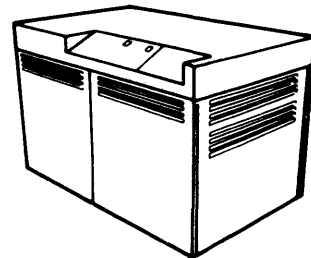
**3501 Card Reader.** An 80-column table-top card reader with a maximum speed of 50 cards per minute that attaches to the 8100 only through the 3289-3.



**3521 Card Punch — 3782-1 Card Attachment Unit.** An 80-column card punch whose features permit 12-row column-by-column card printing, and/or punch and validity checking using a read station. Any feature reduces the maximum speed of 50 cards per minute by half.



**3601/3602 Finance Communication Controller.** For information on the 3601/02, refer to the 3600 System library.



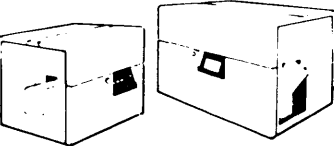
**3631/3632-1A, 1B Plant Communication Controllers.** Programmable controllers used to data link-attach the 3640 family of plant communication terminals to the 8100. The 3631 has only diskette storage, while the 3632 has both diskette and disk storage facilities. Terminals connect to the 3631/3632 either by loop facilities or SDLC protocol, and each controller can have two loops. Additional control/application storage can be increased in 16K-byte increments. The two 3631 models differ in diskette storage capacity, while the two 3632 models have a two-sided diskette, and differ in disk storage capacity.



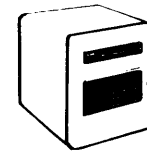
**3641-1, 2 Reporting Terminal.** A terminal that connects either to a loop or to the 3631/3632, and enables remote data entry by: (1) a 35- or 70-position keyboard with a 22-position alphameric 5 x 7 matrix gas panel display, (2) using the Magnetic Reader Attachment feature that permits connection of either the Magnetic Hand Scanner or the Magnetic Slot Reader, and (3) a digital-in digital-out feature that permits the customer to use devices such as solid state relays, analog-to-digital converters, transducers, etc., to input to the 3641-1. The 3641-2 is an expanded version of the 3641-1 that connects either to a loop or to the 3631/3632, and permits all functions incorporated by the Model 1, in addition to reading of 80-column cards and 10 columns of numeric badge information. Only two of the three available functions (card reader, badge reader, and Magnetic Reader Attachment) are permitted on each 3641-2.



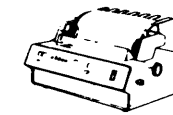
**3642-1, 2 Encoder Printer (Manual or Auto-feed).** A printer that connects either to a loop or to the 3631/3632, and which prints up to 10 lines and magnetically encodes alphameric data on magnetic stripe documents. Model 2 (auto-feed) has a hopper, uses continuous forms, and has form-bursting capability. The 48-character print set encodes up to 70 characters/line, depending on document size.



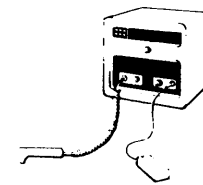
**3643-2, 3, 4 Keyboard/Display.** A gas panel display terminal that connects either to a loop or to the 3631/3632. The models differ in screen capacity from 240 to 1024 characters and use either a 7 x 9 or a 5 x 7 dot matrix. The expanded keyboard feature increases keyboard functions for all models, and the Magnetic Hand Scanner or Magnetic Slot Reader connects by using the Magnetic Reader Attachment feature.



**3644-1 Automatic Data Unit.** A terminal that connects either to a loop or to the 3631/3632, and enables customers to attach sensors, actuators, or other digital equipment. The unit permits data collection to occur either at certain intervals or on an interruption basis, and the data can then be processed by the 3644 or sent directly to the 8100. It can also generate and send responses to the attached devices without 8100 interaction. The manual I/O feature provides a 22-position display and a 35-position function keyboard to permit online 3644 data and status inquiry. Manual 3644 control, as well as data and status inquiry and modification, can occur offline with this feature.



**3645 Printer.** An 8-wire matrix printer that connects either to a loop or the 3631/3632. It uses a 94-character set to print at a speed up to 120 characters per second bidirectionally. The forms tractor features are recommended for multipart paper and continuous forms. The Large Character Print feature provides for program control of character sizes that are approximately two, four, and eight times larger than standard.



**3646-1 Scanner Control Unit.** This control unit has two standard and two feature ports, all of which are individually addressable. It connects either to a loop or to the 3631/3632, and uses three error indicators to provide unit status. These ports permit any combination of up to four Magnetic Hand Scanners or Magnetic Slot Readers to attach to the 3631/3632.



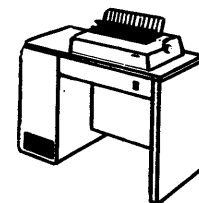
**3647—Time and Attendance Terminal.** A data entry terminal designed for attendance and other data entry labor reporting applications. The basic 3647 has a magnetic scanner adapter and a four-digit display which can be used for time of day. Two optional features are available:

- Function switch — A six-position rotary switch that is customer definable.
- Control feature — Provides control signals to allow door opening, audible alarms, and other features.

An optional magnetic slot reader mounting bracket accessory provides attachment for a slot reader.



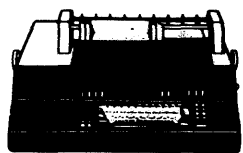
**3732 Text Display Station.** Consists of a visual display unit and a typewriter-style keyboard. The keyboard is attached (by cable) to the display unit, which has a 381-mm (15-inch) antiglare screen. The 3732 connects to the 8100 through the Display/Printer adapter.



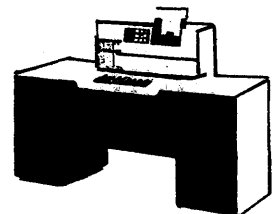
**3736 Printer.** A bidirectional impact printer that has a printing speed of up to 55 characters per second. It can print on both cut sheets and continuous stationery; the paper has a maximum width of 381 mm (15 inches). The 3736 connects to the 8100 through the Display/Printer adapter.

**3750 Switching System (World Trade only).** For 3750 information, refer to the 3750 System library.





**3767-1, 2, 3 Communication Terminal.** This bidirectional wire matrix printer operates both as a local typewriter and a communications terminal. Models differ in print speed, and the buffer expansion feature increases buffer size up to 512 bytes. Print suppression provides security, and a feature uses a keylock mechanism to limit device access. The Magnetic Stripe Reader feature provides scanning capability, and the Calculate-Scientific feature uses a temporary storage facility to permit scientific calculations in offline mode. The alternate character set feature permits use of character sets other than the keyboard-designated assignments.



**3777 Model 3.** A high-speed remote job entry terminal which is a member of the 3770 Data Communication System. The 3777 Model 3 is an SNA multiple logical unit terminal. (RPQ 8K0892.)

**3780 Protocol Devices.** Any device that conforms to 3780 protocol can attach to the 8100 through certain facilities for attaching communications (FAC) codes.

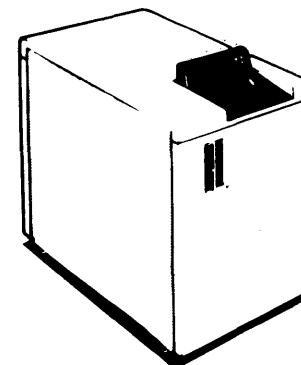
**3782-1, 2 Card Attachment Unit.** Control unit whose models attach the 2502 (3782-1) and the 3521 (3782-2) to the 8100 through the 3289-3 Line Printer. It also provides the hardware mounting facility for these devices. See 2502 or 3521 for illustration.

**3842 Loop Control Unit.** Uses its own integrated modem to connect a loop to a data link, requires a 3872 modem at the other end, and transfers data at speeds of either 1200 or 2400 bps.

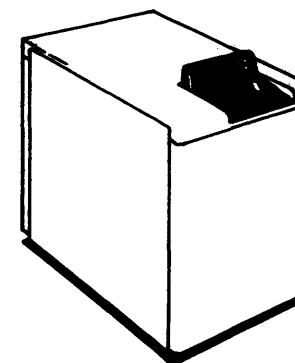
**3843 Loop Control Unit.** This loop control unit does not have an integrated modem, and requires two 3872 modems for loop information transfer to a data link at speeds of 1200 or 2400 bps.

**3872/3874/3875 Modems.** A family of synchronous modems with half-speed capability that operates over common-carrier nonswitched voice-grade lines, equivalent privately owned nonswitched lines, or public switched networks. They operate in point-to-point, multipoint, or switched line applications, and can be wrap-tested either within the unit or end to end. Transmission modes are duplex, half duplex, or half speed, and the respective speeds are: 3872-1200/2400 bps, 3874-2400/4800 bps, and 3875-4800/7200 bps. They connect to SDLC, BSC, or IBM Type 3 line control protocols. Features permit (1) voice communication through telephone handset, and (2) multiple (up to three) controls, devices, or multiplexers at one location, for backup purposes.

**3976-1, 3 Modem (World Trade only).** Model 1 operates in duplex or half-duplex mode over a 2-wire, nonswitched telephone line at speeds of up to 200 bps. Model 3 operates either on a 2-wire switched telephone line or in continuous carrier mode over a 4-wire, nonswitched telephone line at speeds of 600 or 1200 bps.

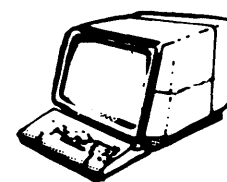


**8101-A10, A11, A13 Storage and Input/Output Unit.** Attaches directly to the 8130/8140 I/O panel by cables, and can contain disk and diskette storage, as well as communications adapters, tape adapters, display/printer adapters, and driver/receivers. Model A10 does not have a disk storage device, Model A11 uses a 29-Mb capacity disk, and Model A13 has a 64-Mb capacity disk. The 8140 permits attachment of up to four 8101s, but only two may have facilities for attaching communications, while the 8130 permits attachment of up to two. For further configuration limitations and capabilities, refer to CP160 in Chapter 2.

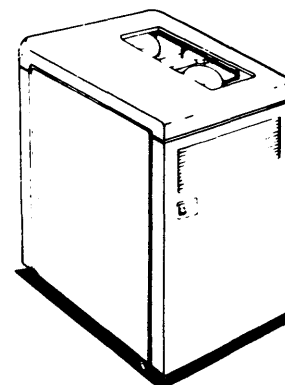


**8101-A20, A23, A25 Storage and Input/Output Unit.** Attaches directly to the 8130/8140 I/O panel by cables, and can contain disk and diskette storage, as well as communications adapters, tape adapters, display/printer adapters, and driver/receivers. Model A20 does not have a disk storage device, Model A23 uses a 64-Mb capacity disk, and Model A25 has two 64-Mb capacity disks. Model A25 does not contain diskette storage. Up to four 8101s can be attached to an 8140; but only two may have facilities for attaching communications, while only two 8101s may be attached to an 8130. For further configuration limitations and capabilities, refer to CP160 in Chapter 2.

**Note: 8101 shown is Model A25.**



**8775 Display Station.** A keyboard/display terminal that connects either to a directly attached or a data-link attached loop, and which incorporates many features contained in other IBM display devices. It permits attachment of the Magnetic Slot Reader, has a selector pen, security features, end-of-line alarm, display high-lighting, a programmable character set, and APL keyboard facilities. Up to 3440 characters can display at one time. For a more detailed description, refer to *An Introduction to the 8100 Information System*, GA27-2875.



**8809-1A, -1B, -2, -3 Magnetic Tape Unit.** A 9-track, phase-encoded (PE), 1600-bpi magnetic tape unit that operates either at 0.3175 meters per second (12.5 ips) in start/stop mode, or 2.54 meters per second (100 ips) in streaming (burst) mode. Programming selects these modes as well as the two different interblock gaps used. Tape compatibility exists between those generated on the 8809 and any 2400 or 3400 series 1600-bpi PE drives. The four models differ in the logic contained within the unit, and their method of attachment as follows:

- Model 1A attaches to an 8101 and uses the 8101 tape adapter.
- Model 1B attaches to either the 8130, 8140, or 8101. It has its own adapter, permits attachment of up to three more 8809s, and provides power for any 8809 Model 2 attached to it.
- Model 2 attaches to all other 8809 models and can only be the second or fourth drive because it has not logic power source, and receives power either from Model 1A, 1B, or 3. It does, however, provide logic signal regeneration for the third drive, if attached.
- Model 3 attaches only to the Model 2, has its own power, and provides logic signal and power regeneration to the fourth drive, if attached.

**ASR/TTY 33/35 Protocol Devices.** Any device that conforms to ASR/TTY 33/35 protocol can attach to the 8100 through certain FAC codes.

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## GR400 Maintenance Aids

The following section briefly describes the maintenance aids used to service the 8100 Information System. Refer to the appropriate chapters in this manual for detailed information, and to Chapter 2 for procedures regarding the use of the aids.

### GR410 Maintenance Device (MD)

The MD (Figure GR410-1) is the primary maintenance tool for the 8100 Information System, and provides a common maintenance approach to system hardware problems. This portable, programmable processor stores and loads offline and verification tests and also executes MAPs. It provides both standalone and interactive intelligent maintenance capabilities for the system, as well as self-diagnosis by performing its own bringup, hardware parity, and cyclic testing.

Three cables provide the interconnection necessary for its operation:

- One cable connects the MD to the 25-pin socket on the 8130/8140 01H gate behind the front covers, but uses only eight of these signal lines. It can be connected at any time without interrupting the customer's program, providing MD power is on.
- A second, or power cable, connects to the 115V ac source located directly underneath the MD 25-pin connector.
- A third cable, the keypad/display cable, connects internally to the MD.

All three cables are 183 cm (6 ft) long, so the MD can be placed in a location other than the top of the 8130/8140.

The unit is lightweight (9.1 kg or 20 lbs.), small (46 cm or 18 in. long, 33 cm or 13 in. high, and 18 cm or 7 in. deep), and solidly built. It provides you with maintenance procedures that are stored on MD diskettes and presented on a display, and should accompany you on all maintenance activity.

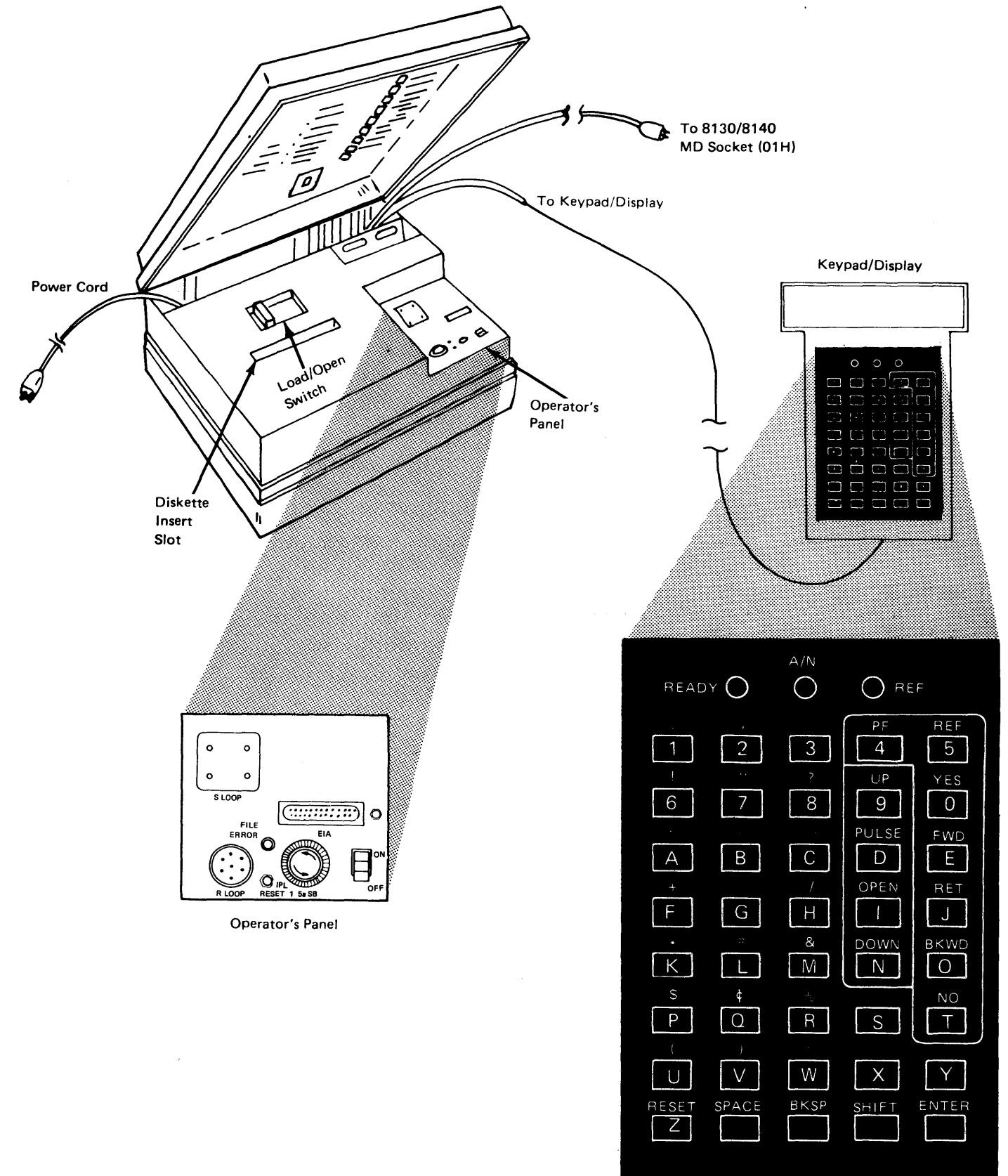


Figure GR410-1. Maintenance Device

## GR411 Components

- Power supply — Generates all voltages needed to operate the device.
- Processor — Contains 32K bytes of storage, 4K of which is read-only (ROS), and uses an instruction set similar to the 8100.
- Diskette drive — Provides read capability for programs and data that have previously been written on single density, double-sided MD diskettes. It also provides write capability for performing such tasks as system configuration and diskette copying.  
MD processor storage, together with an MD diskette formatted at 256 bytes/sector, has a logical addressing capability of 500K bytes.
- Keypad/display — A small hand-held unit that enables data transfer between the user and the MD. By using the display, the MAPs and MD utilities issue prompts to the user through the display, and provide directions for specific actions. The keypad has three MD status indicators and 40 pushbuttons that permit full alphameric functions and provide test program interaction. The 80-character LED display consists of four lines of 20 characters each, which provides prompt messages to the user.
- Diskette LOAD/OPEN switch — Permits you to manually load or remove MD diskettes.
- Operator panel — The MD operator panel has the following components:
  - Power ON/OFF switch
  - File error indicator
  - IPL/RESET switch
  - Power supply fuse
  - Sockets that provide attachment capability for other devices. There are standard sockets for EIA interface, an IBM 8100 Information System loop (R LOOP), and an IBM Supermarket loop (S LOOP). In this manner, offline tests can analyze failures by direct connection to the MD.

## GR412 MD Operation

Operation of the MD in processor-interactive mode occurs when executing an IPL with the MD connected. This enables the MD and BOP to function as the system input device. During offline and verification testing and MAP operation, the MD interacts with the processor, and you use the MD keypad to input responses that are prompted by the MAPs and used for fault isolation and analysis.

If an error occurs in the automatically invoked ROS bringup tests during system IPL, the MD might not transfer information to the processor correctly, so the MD must be used without system interaction or connection. In this case, it functions as a tool to display either the bringup (BU) or the power (PA) MAP. These MAPs use your input to the keypad/display to analyze and determine the cause of failure.

All offline tests reside on five diskettes. The 8100 ship group contains these diskettes, and, once configured, become system-unique.

The contents of the five MD diskettes are listed below:

**Diskette 1**

- Bringup MAP and tests (BU)
- System control facility MAP and tests (SC)
- Expanded function panel MAP and tests (used for 8140 only) (SP)
- 8130/8140/8101 power MAP (PA)
- The following MD utility programs: Restore, Free-Lance, Copy, PE, Append, and Configuration

**Diskette 2**

- All communications tests and the communications MAP (CA)
- The following MD utility programs: Restore, Copy, Free-Lance, and PE

**Diskette 3**

- Display and printer adapter MAP and tests (AD)
- Disk and disk adapter MAP and tests (FA)
- Diskette and diskette adapter MAP and tests (DA)
- 8809 Models 1A and 1B device and adapter MAP and tests (TA)
- The following MD utility programs: Restore, Copy, Free-Lance, and PE

**Diskette 9**

- All 364X tests
- The following MD utility programs: Restore, Copy, Free-Lance, and PE

**Diskette 70**

- All ALC communications tests for RPQ MK6959 (CZ)
- The following MD utility programs: Restore, Copy, Free-Lance, PE, and Configuration

## GR420 System Tests

The 8100 Information System tests are structured to exercise various functional areas of the hardware within the 8130, 8140, or 8101. They run either offline (when the Service Representative has the system), or interactively online (when the customer has the system). When running online, there are certain restrictions according to the operating system used.

Certain 8100 hardware and devices can only be tested offline. These are: processor storage, the disk storage drive, and the diskette storage drive. Other hardware can be tested in either online or offline mode. These are: all communications features, displays and printers, and tape drives. Refer to the specific test procedures that discuss these restrictions in more detail.

The test control monitor (TCM) provides the program link between the processor and the test program. There are two TCMs used for testing the 8100, and their use depends on whether the tests were invoked either offline, or online using DPCX.

All tests are grouped into a set of routines that test either the adapter or the device according to certain test selection options. Device routines usually test a specific function, but adapter routines perform sequential hardware testing. Each routine tests more of the adapter card hardware than the previous routine, until testing at least 90% of the adapter. For example, the first routine usually performs a basic check of the bus-to-adapter card data flow by reading adapter basic status. The second routine usually sets and resets every bit in a register or a group of registers. As each routine completes, control passes to the next routine until all routines have completed successfully. After testing all routines specified by the selection options, a display value indicates successful test completion, and, if any routine fails, the displayed value indicates the error.

## GR421 General Invocation and Operation

You can manually invoke a test at a terminal, at the 8130/8140 BOP, or from the MD. You can also select specific test options, such as running only the adapter tests, running both adapter and device tests, or running tests on any physical address level up to a maximum of eight levels. All test routines can be selected, and others run only when selected.

**Note:** *Some adapter routines do not run if you select the Run All options, and are selectable only.*

Each routine can be individually selected and run once, or, if an intermittent error occurs, the routine can be looped. To loop a routine, you must specify the "L" field properly in the 81BC prompt message. Refer to CP600 "Common Test Procedures and Messages" in Chapter 2 for an explanation of the 81BC prompt message response.

Some tests have manual intervention stops. These MI stops are used in certain routines to permit you to make decisions at specific testing points, such as for data input, station addresses, or to interpret the test results.

If you specified the "S" field option in the 81BC prompt message to also run tests on the attached device, control passes to those routines that test the attached device after the adapter tests complete.

*GR422 MAPs and Their Function***Description**

Maintenance Analysis Procedures (MAPs) are an integral part of the system maintenance test capability. They provide the user with step-by-step symptom determination procedures that lead to a repair action.

All MAPs consist of five sections, some of which are obvious to the user:

1. MAP Menu – Initial entry into any MAP uses the MAP menu, which permits you to select the desired test function or operation. The MD displays the menu which, when selected, contains the functions or operations provided by that particular MAP. You then select an option by entering one character into the MD keypad. This entry can specify the use of offline checkout procedures, or the use of a test error message as input. As these options are not consistent, refer to the respective Chapter 5 sections for the individual MAP menu options.

The following explains the above-mentioned options:

- a. Offline checkout option – Performs offline tests to either verify good machine path or to correct any problems encountered. The MAP first ensures system availability and then loads the test into processor storage.
- b. Test error message option – Bypasses the good machine path portion of the test and goes directly to MAP fault isolation. It should be used when either you or the customer detect a test error message. After selecting this option, you enter the test error message and specify whether online or offline tests should be run. This option then either isolates the error or verifies a repair action.

All menu selections are followed by the physical address (PA) path entry at message 80BC. This entry must conform to the particular PA level path format for the device under test. Comparison and validation between the PA specified and the configuration table value occurs before any testing, and a test area saves the PA entry. Refer to CP600 "Common Test Procedures and Messages" in Chapter 2 for information concerning the 80BC and 81BC prompt messages, and to CP210 "Addressing Levels" to further understand what the 80BC entry specifies.

2. Good Machine Path – Determines what tests to run, and in what sequence, to determine proper operation. Within this section, you enter an input that determines the routine selections, loop options, and selection options. Testing occurs according to these options, and the test either runs to completion without an error (message PA00), or generates an error message with a format that depends on the individual test. You also might be referred to the XX300 section and might use a copy of the error log for further fault isolation.
3. Failure Determination – Uses a test error message to determine possible failure causes. Each Chapter 5 XX240 section describes the meaning of these messages. It also prompts the initiation of any repair action that does not require removing power from the device.

**Location**

4. FRU Isolation/Correction – Directs you to perform certain repair actions according to the failure determined by the MAPs. The device under test can be powered off, repaired, and then returned to operational status, and the MAP can then continue at the point where the repair action was initiated.
5. Verification – Verifies correct operation after a repair action, and, if no errors are found, displays a PA00 message. If an error still occurs, it is compared to the previous error. The MAP then directs you to the same section for further fault isolation if the same error occurred, or to a different section for any others.

All MAPs, as well as the offline tests, reside on MD diskettes. The 8100 ship group contains these diskettes, and, once configured, become system-unique. The first MD diskette must be configured for each IBM 8100 Information System, and all contain the diskette menu as well as certain data and programs used by the MD for MAP operation.

The MAPs and their location are listed below:

**Diskette 1**

- Bringup MAP (BU)
- System control facility MAP (SC)
- Expanded function panel MAP (used for 8140 only) (SP)
- 8130/8140/8101 power MAP (PA)

**Diskette 2**

- Communications MAP (CA)

**Diskette 3**

- Display and printer adapter MAP (AD)
- Disk and disk adapter MAP (FA)
- Diskette and diskette adapter MAP (DA)
- 8809 Models 1A and 1B device and adapter MAP (TA)

## Operation and Use

Each MAP provides step-by-step procedures for the Service Representative. The need for MD system connection and interaction depends on the operation performed:

- 8100 power problems and MD utilities do not require system connection or interaction. The programs contained on the MD diskette generate all prompt messages, and information transfer occurs only between the diskette and MD processor storage. You interact with the MAP or utility program through the MD by using the MD keypad/display.

**Note:** Power fault isolation uses a failure index which initiates repair action according to a symptom, which must agree with the failure index symptom title. If the PA MAP fixes the problem, a verification action plan checks the results. Should the PA MAP isolate the failure to another adapter or device, it instructs you to go to that particular MAP for repair action and then return to the power MAP for verification.

- Bringup tests use the BOP display, and you use the BU MAP for MD to system interaction. To perform a complete test of the system's operational capability, you should use this MAP with the MD to perform bringup testing.

**Note:** The basic bringup tests are automatically invoked from a power-on sequence, pressing the Reset/IPL pushbutton, or for other actions. Also, the extended bringups can be invoked from the system resident device if using an IBM operating system.

- MAPs other than PA and BU are also contained on MD diskettes (see the individual Chapter 5 sections). The General Failure Index sections contained at the beginning of each Chapter 1 section can usually direct you to an action plan that refers you to a MAP according to the failure indication.

Each MAP performs the actions required according to the MAP menu selection. When the MAP finds a problem with a particular adapter or device, it provides prompts through the MD display to direct you toward appropriate fault isolation procedures. The Chapter 5 reference information associated with each MAP provides the additional information necessary. Should the MAP not immediately determine the problem, it refers you to certain sections of the reference material for further fault isolation. Each MAP also directs you to verify correct operation after a repair action. If the problem still cannot be determined after using all MAP steps, you should request aid.

See Figures GR422-1 through GR422-5 for the hardware tested by each MAP.

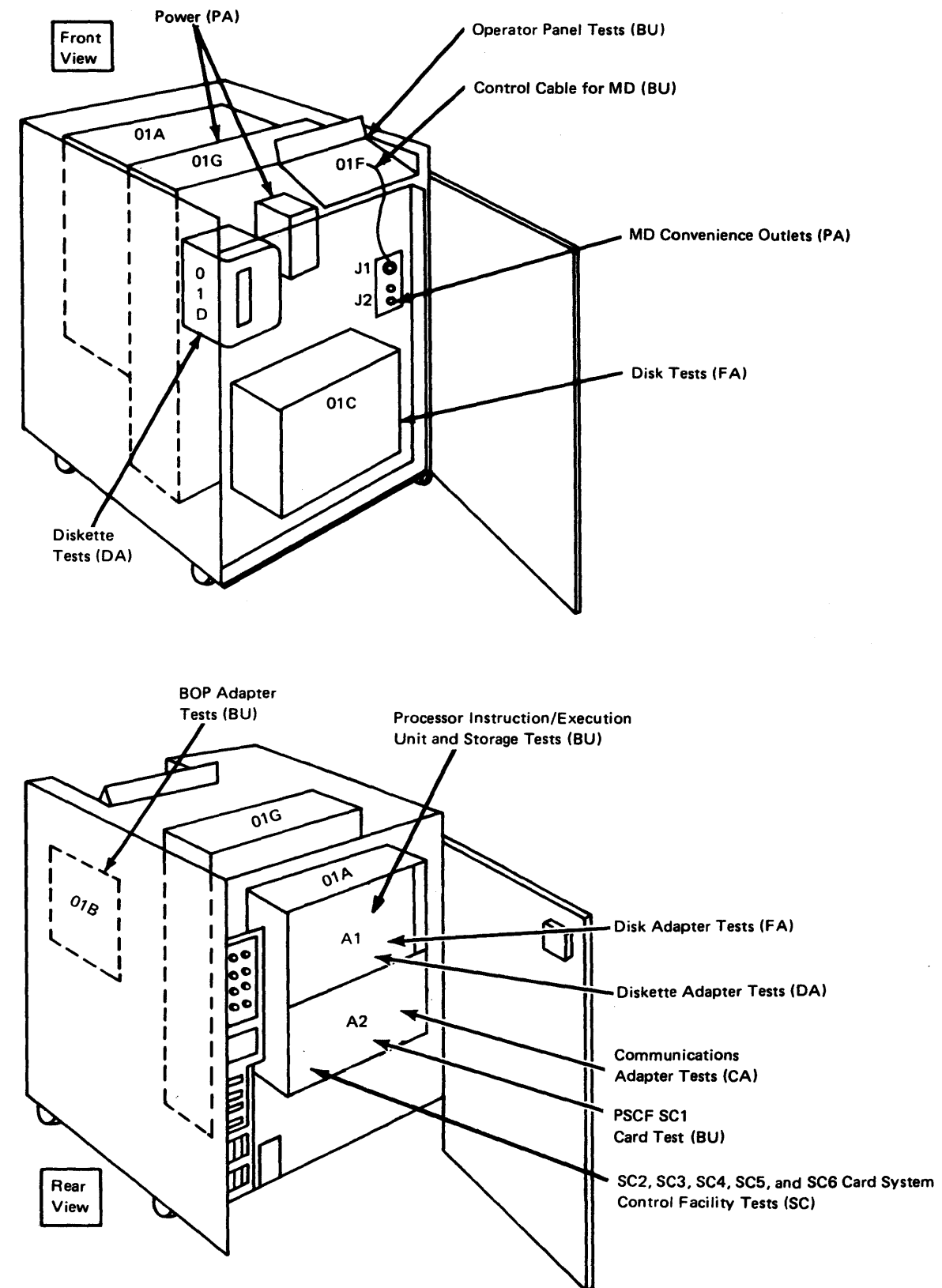


Figure GR422-1. 8130 Hardware Tested by MAPs

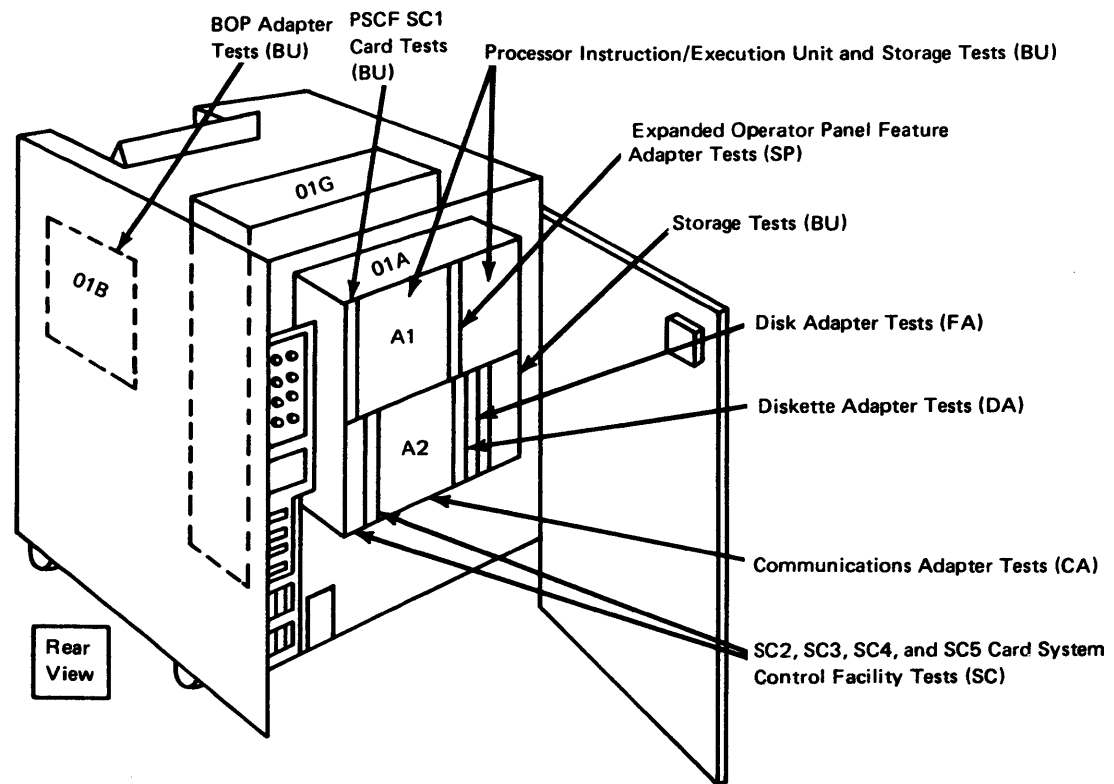
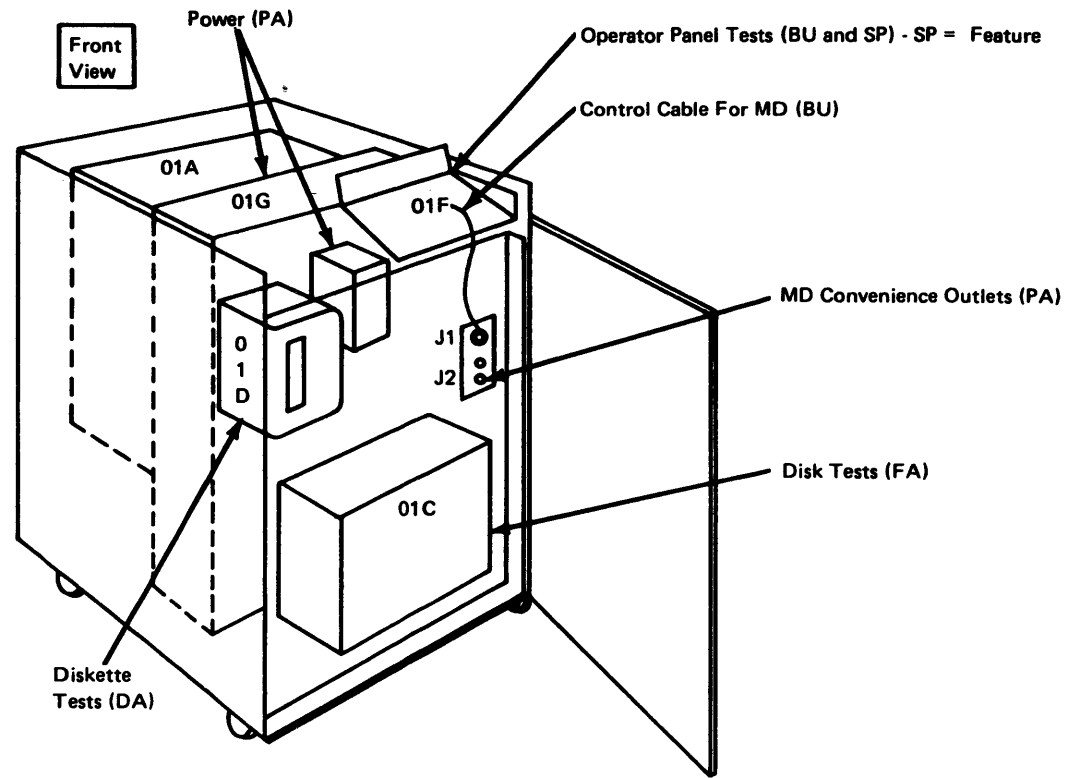


Figure GR422-2. 8140 Models AXX Hardware Tested by MAPs



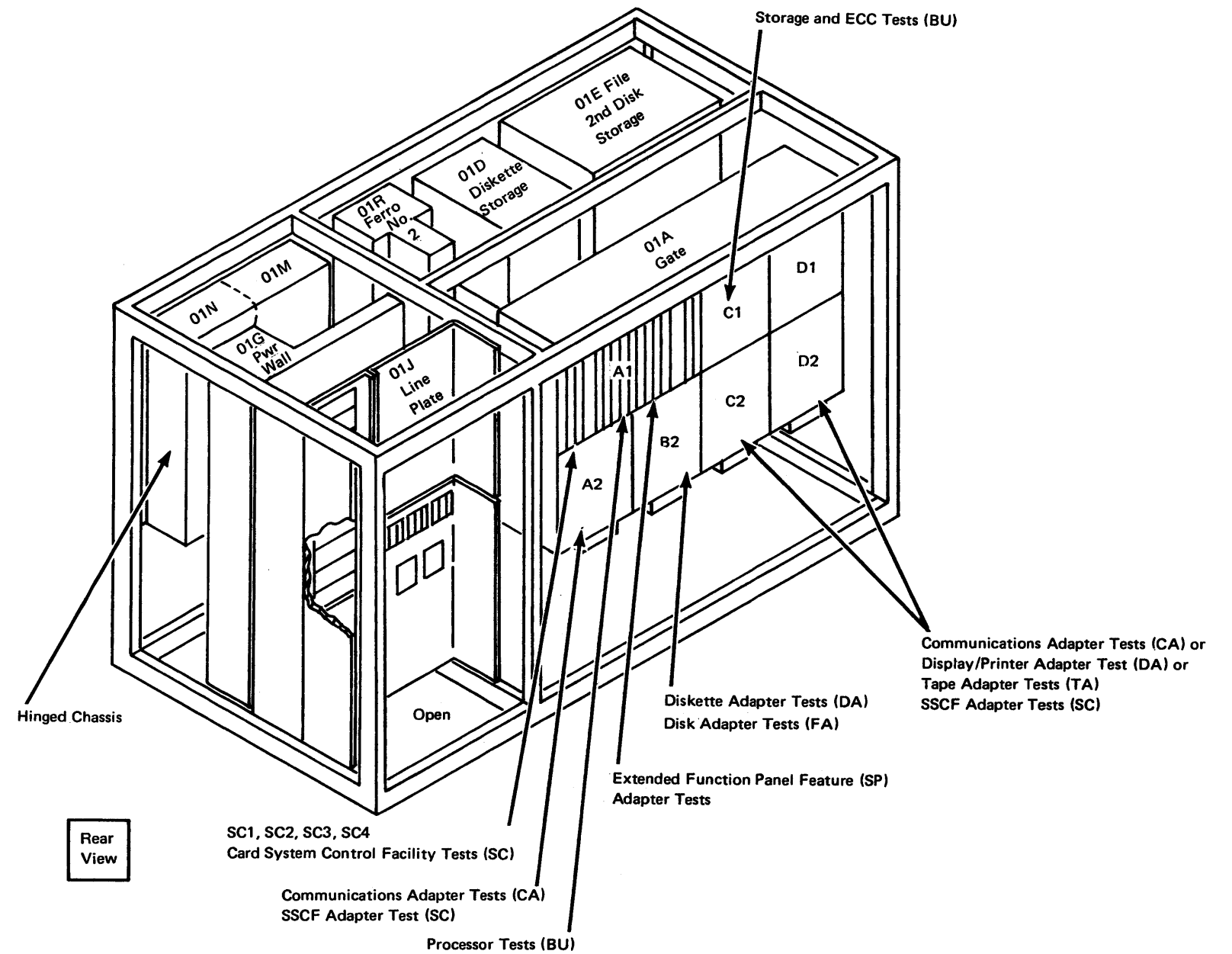
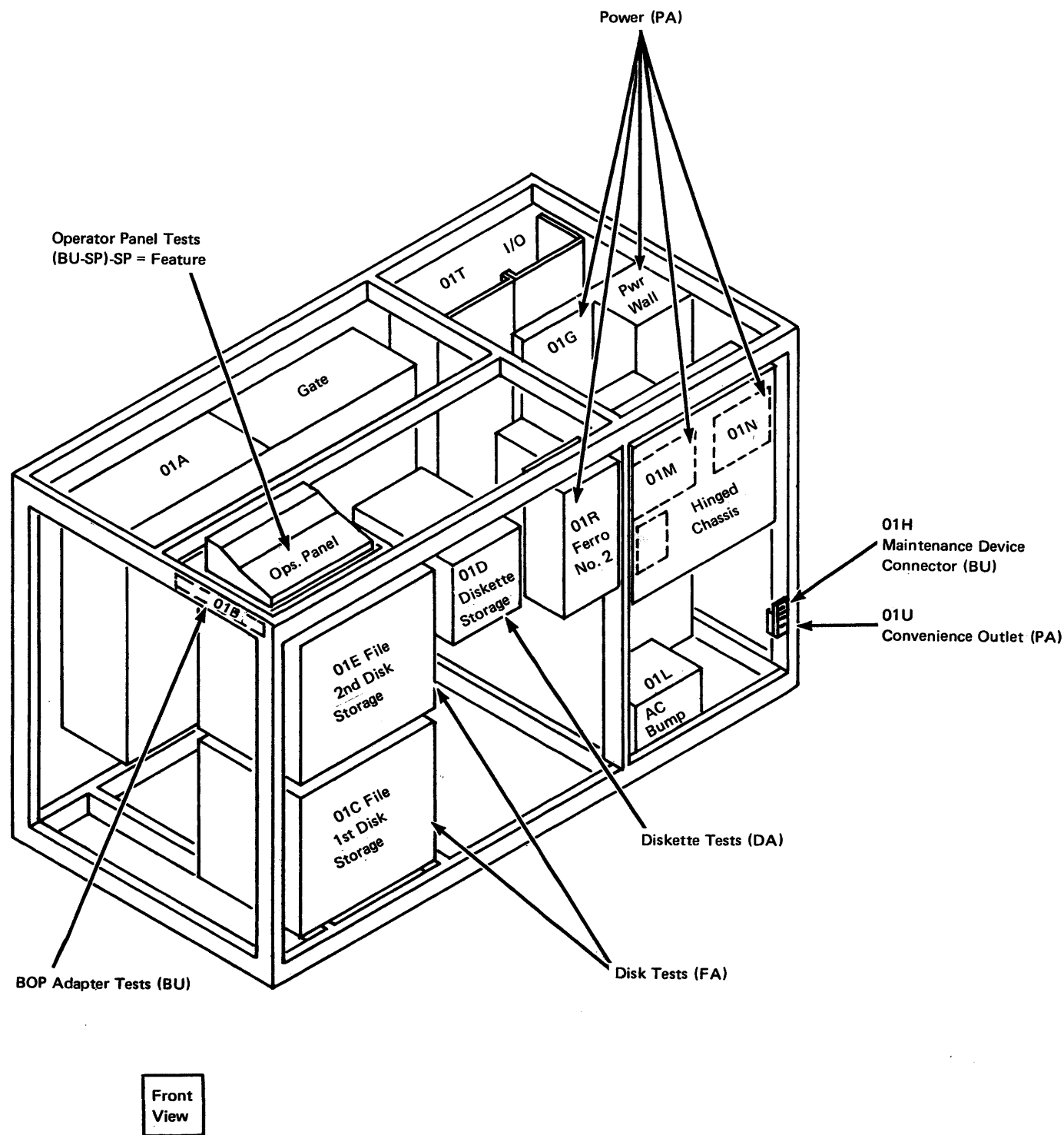


Figure GR422-3. 8140 Models BXX Hardware Tested by MAPs

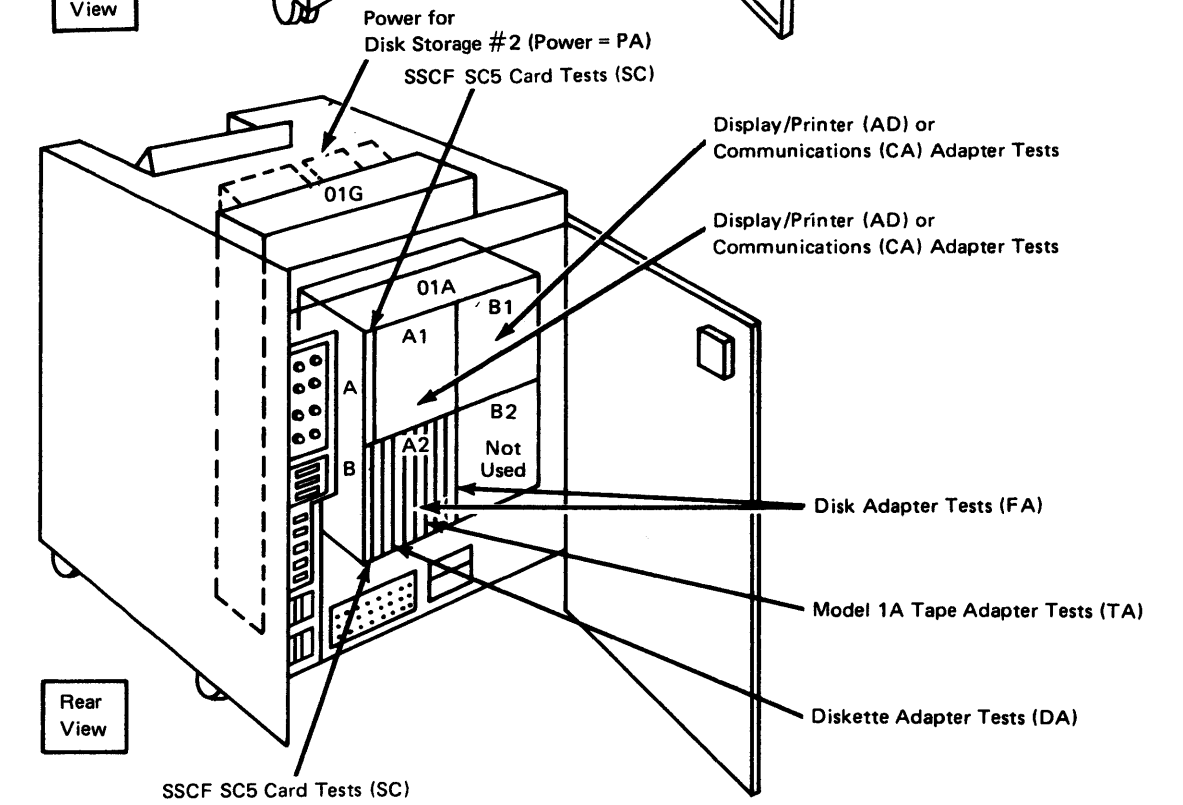
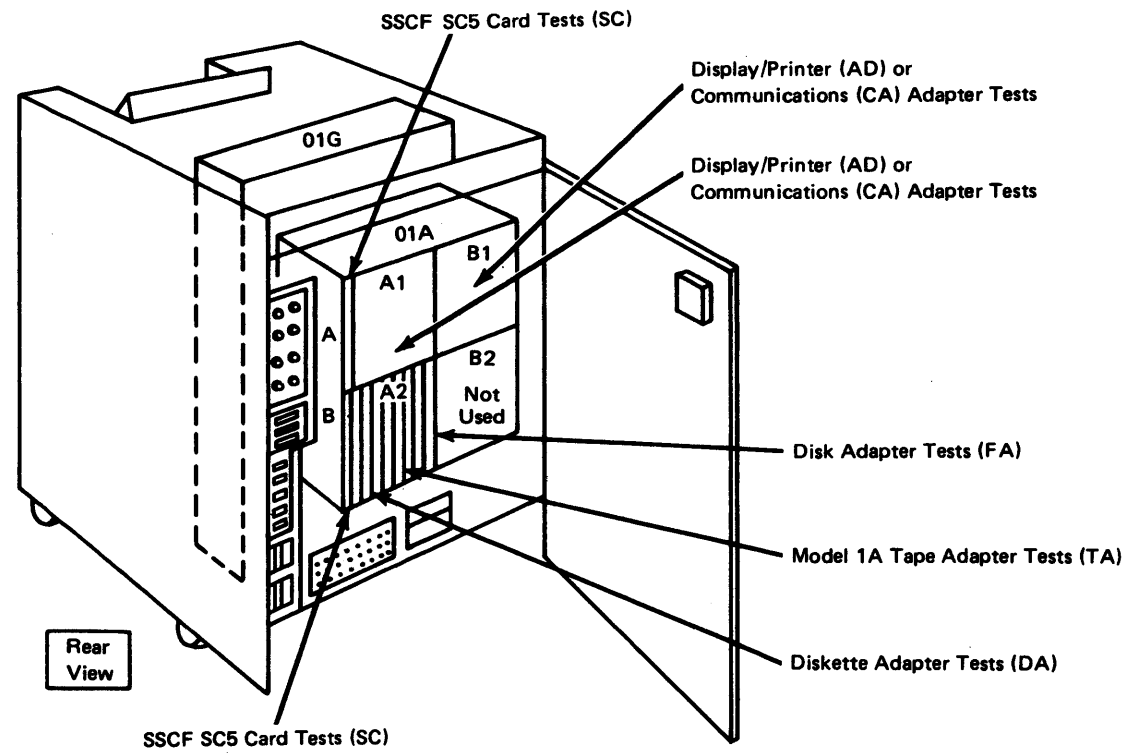
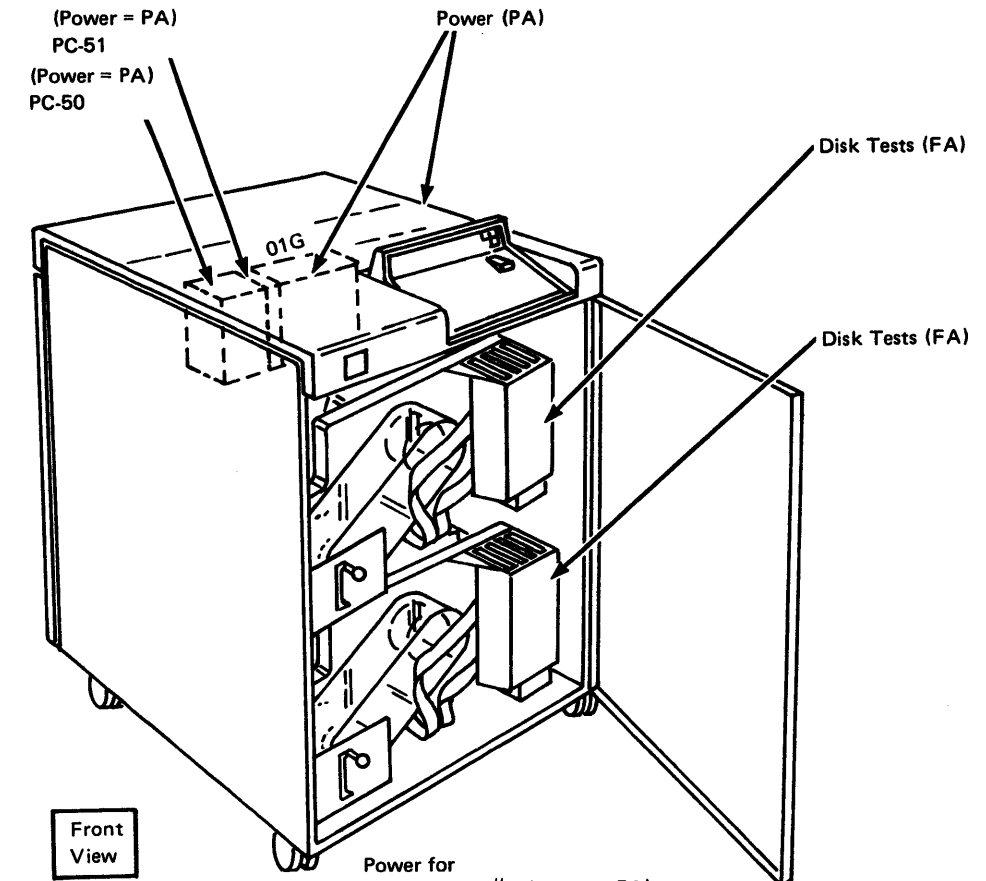
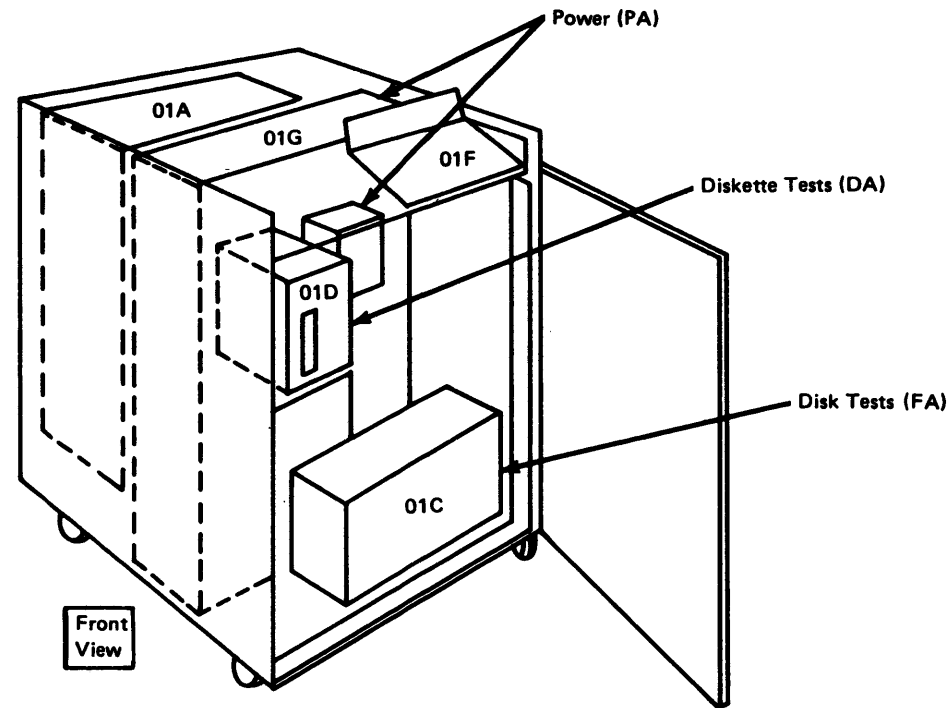
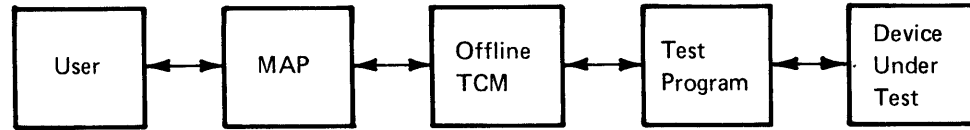


Figure GR422-4. 8101 Models A11, A13, and A23 Hardware Tested by MAPs

Figure GR422-5. 8101 Model A25 Hardware Tested by MAPs

GR423 Offline Tests

Offline tests permit the Service Representative to perform fault isolation on any component of the 8100. When invoking a MAP (contained on the MD diskettes), the MAPs, offline tests, offline test control monitor (TCM), and the device under test interact with the user to functionally test device operation. The following diagram shows this interaction:



Offline Test Control Monitor

The MAP links the user to the offline TCM and test program through either the BOP or MD. The TCM, in turn, provides the interaction between the test program, device, and the MAP. The TCM does not interact directly with the device under test as this is a function of the individual offline test program.

The offline TCM provides the following functions during offline testing:

- Analyzes and verifies input messages.
- Transfers control to another test section, utility, or program that can be executing on any interrupt level.
- Transfers data to another test section.
- Sets the appropriate sense switches in the test section, which are then interrogated by macro instructions.
- Loads other programs, such as tests and utilities.
- Transfers a pointer to a test section, which then permits access to specific configuration data.
- Interrogates I/O interrupts and transfers them to a predetermined test section location.
- Interrogates I/O system checks and transfers them to a predetermined test section location.
- Retries an I/O operation after an I/O machine check interruption occurs.
- Handles system checks and displays error messages.
- Alters register information transfer.

The offline TCM also controls options that specify certain modes of testing, which are:

- Which adapter is tested
- If only the adapter is tested
- Which device is tested
- If manual intervention tests should be run
- If only a specified routine should be run
- If a specified routine should be looped
- If while looping a specified routine, an error output should occur
- If an error occurs, should it be ignored.

The offline TCM loads into processor storage from an MD diskette. Loading should be done only after successful completion of the basic and extended bringup tests, and usually,

after testing the system control facility, depending on the problem. After loading, processor status is as follows:

- Control blocks, program status vectors, general register storage, and the error interrupt request vector are initialized.
- Common and master masks are set.

The previously specified test then loads into processor storage, and the test receives control from the TCM. This test, in conjunction with the functions provided by the offline test control monitor, then controls any further diagnosis.

See Figures GR423-1 and GR423-2 to determine which components can be tested offline.

Test Group	Functional Area Tested	RTN(s)	MAP ID
Basic bringup tests	Part of the processor I/E unit, processor storage, and the data bus between the processor I/E unit and the MD	01-26	BU
Extended bringup test	Remaining untested part of the processor I/E unit and processor storage	12-37	BU
Floating point	All floating-point functions (8140 Models A41-A44 only)	1A-22	BU
Basic operator panel	Adapter Adapter and panel	3A 3B-3D*	BU BU
Expanded operator panel	Adapter Panel	01-19 20-31*	SP SP
Display/printer	Adapter Adapter and device Adapter and device manual intervention	01-03 04-0B 0C-0E	AD AD AD
Diskette storage	Adapter Diskette drive Write test—adapter, device, and diskette Adapter and device manual intervention	01-04 05-10 11-26 27	DA DA DA DA
Disk storage	Adapter Adapter and disk drive Fixed heads	01-19 20-47 50*	FA FA FA
Tape	Adapter	01, 03, 04 02, 05 06, 15	TA TA TA
	Tape drive	40-56 5A-5B* 60, 61, 63, 65, 68, 6D* 62* 64-67*	TA TA TA TA TA
PSCF	Adapter	01-09 0F-15 17-1D 20-2D	SC SC SC SC
SSCF	Adapter	30-33 40-47 51-52 60-63 69 6F-75 79-7B 87-89	SC SC SC SC SC SC SC
SCF	System tests	90-9A 9C-A2 AE-C0	SC SC SC

\*Selectable routine only.

Figure GR423-1. Offline Test Summary

RT	Description	SDLC	BSC S-S	Adr Lvl	Invocation (see Notes)				
					Offline		DPCX	CSU	MI
					MAPs	F/L			
01	Adapter card tests	X	X	1	X	X	X	X	
02	Adapter card tests	X	X	1	X	X	X	X	
03	Adapter card tests	X	X	1	X	X	X	X	
04	Adapter card tests	X	X	1	X	X	X	X	
05	Adapter card tests	X	X	1	X	X	X	X	
06	Adapter card tests	X	X	1	X	X	X	X	
07	Adapter card tests	X	X	1	X	X	X	X	
08	Adapter card tests	X	X	1	X	X	X	X	
09	Adapter card tests	X	B	1	X	X	X	X	
0A	Adapter card tests	X	B	1	X	X	X	X	
0B	Adapter card tests	X	B	1	X	X	X	X	
0C	Adapter card tests	X	B	1	X	X	X	X	
0D	Adapter card tests	X	S	1	X	X	X	X	
0E	Adapter card tests	X	B	1	X	X	X	X	
0F	Adapter card tests	X	B	1	X	X	X	X	
10	Adapter card tests	X	S	1	X	X	X	X	
11	Adapter card tests	X	S	1	X	X	X	X	
12	Adapter card tests	X	B	1	X	X	X	X	
13	Adapter card tests	X	B	1	X	X	X	X	
14	Adapter card tests	X	S	1	X	X	X	X	
15	Adapter card tests	X	X	1	X	X	X	X	
16	Internal/external data wrap	X	X	1	X	X	X		
18	Loop adapter card test	X		1	X	X		M/8	
19	Integrated modem (nonswitched)	X	X	1	X	X		X	
20	Integrated modem (switched)	X	X	1	X	X		X	
21	DDSA test	X	X	1	X	X			
22	DDSA internal wrap	X	X	1	X	X		X	
25	Auto answer	X	X	1	16	16			17
51	Loop - 1 lobe	X		1	15	15	15		
52	Loop - 2 lobe	X		1	15	15			
53*	Data link group	X		1	P/5	5	5		
61	EIA - direct connect	X	X	1	6	6		M/6	
63	EIA/V.35 - external test	X	X	1	7	7		M/7	
64	IBM modem analyzer	X	X	1	X	X			17
66	DDSA - external	X	X	1	9	9		9	
67	X.21 - external 1	X		1	9	9			
68	X.21 - external 2	X		1	9	9			
71*	SDLC secondary link	X		2		10	11		17
72	Data link loop - poll test	X		2	X	X			17
73	Loop station relay pick	X		1	12	12			
75*	Link/loop group analysis	X		1	5	5	5		17
76	Loop beacon/ordinal sequence	X		1		5	5		17
77*	BSC link - requestor		X	2		13			17
78*	BSC link - responder		X	2		14			17
79*	2741 all characters		X	2		X			17
80*	2741 tilt, rotate, twist		X	2		X			17
81*	2741 special function		X	2		X			17
82*	2741 read		X	2		X			17
83*	2741 echo		X	2		X			17
84*	2741 attention key		X	2		X			17
85*	TTY aux line test		X	2		X			17
86*	TTY aux echo test		X	2		X			17

RT	Description	SDLC	BSC S-S	Adr Lvl	Invocation (see Notes)				
					Offline		DPCX	CSU	MI
					MAPs	F/L			
87*	2741 aux line		X	2		X			17
88	Loop - 1 lobe poll test	X		1		X	X		17
89	Loop - 2 lobe poll test	X		1		X			17
90\$	SDLC link test cmd-no data	X		2/3		5	5		
91\$	SDLC link test cmd - data	X		2/3		5	5		
92\$	Monitor mode	X		2/3		5	5		
93\$	SDLC link test - user data	X		2/3		5	5		17
94\$	Line analysis	X		2/3		5	5		17
95*	384X SDLC test cmd	X		2		5	X		
96*	384X loop data	X		2		5	X		
97	Configuration self-test to 384X	X		2		5	X		
98	384X loop beacon and ordinal	X		2		5	X		17
99*	384X loop-lobe analysis	X		2		5	X		17
F0#	ALC/EIA (nonswitched) internal wrap			1	X	X	X		
F1#	ALC/EIA direct connect			1	X	X	X		
F2#	ALC/EIA external test			1	X	X	X		

Notes:

- \* - Link level test
  - \$ - Link level test; level 2 addressing for directly attached loops or data link stations; level 3 addressing for data link attached loop devices.
  - B - BSC only
  - F/L -- Free-lance
  - M - Modified
  - MI - Manual Intervention messages
  - P - If Primary
  - S - Start-Stop only
  - X - Normal invocation
  - # - ALC (RPQ MK6959)
1. Address level 1
  2. Address level 2
  3. Address level 3
  4. Not used.
  5. Group stations/devices/units must be in a ready condition before this test is invoked.
  6. These tests must be run when the EIA-direct connect cable is isolated from the direct-connected host/device using the EIA-direct connect wrap plug.
  7. Use the V.35 wrap plugs or the EIA modem cable test switch to isolate the EIA modem or V.35 communications cable from the external modem or host connection.
  8. For CSU only, a loop wrap plug must be installed at the end of the loop cable(s) before running this test.
  9. This test must be run with the external cable switch in the test position.
  10. The host or controller must send SDLC link test commands to the 8100 Processor (invoke routine 71). Coordination between the two sites is required for the start and end of test. This test requires manual intervention. See Chapter 2 for routine termination procedures.
  11. Use DPCX SDLC link test procedure, CA223.
  12. See CA551/CA653 for setup procedures. See Chapter 2 for termination procedures.
  13. The responding unit must be ready to respond.
  14. This test should be initiated before a requesting device/unit issues a test request.
  15. Loop cable(s) must be plugged into the loop station connector(s) (LSC).
  16. The external communications cable must be attached to both the 8100 and the telephone line via the Data Access Arrangement.
  17. Refer to CA210 for Manual Intervention messages.

Figure GR423-2. Communications Test Summary

## GR424 Not Used

### GR425 DPCX Online Tests

The DPCX operating system supports concurrent online testing by using the SYSTCM Utility (999). When invoking SYSTCM online from a terminal, you must enter either 999 or the program name (SYSTCM). The DPCX TCM then presents two distinct prompt messages:

1. The first prompt message displays 80BC, and also the physical address path (PA) of the invoking terminal, the station address, and the port address.
2. The second message displays 81BC, which prompts you for the desired options in the format "SLRRB".

**Note:** *DPCX does not support the MD online.*

Refer to Figure GR423-2 to determine which communications tests can be run online under DPCX.

### DPCX Test Control Monitor

The DPCX TCM provides the following functions during online testing:

- Analyzes and verifies part of the input message.
- Loads the appropriate test and gives control to it.
- Outputs test messages.
- Allows the user to input test parameter and error-reporting messages.
- Terminates testing when completed.

The DPCX TCM controls certain options that are identical to those done by the offline TCM, provides the same program link between the user and the online tests as does the DPPX TCM, and runs concurrently with the customer application. Refer to GR423 for a description of these functions. It differs from the other TCMs in that it can also be invoked automatically by the system.

Automatic invocation performs all operations done by manual invocation, and needs to provide an extra program link not used when manually selected. Initiation occurs as a result of error return codes, which then select the proper program links according to the error generated. Manual intervention routines are not performed when in automatic TCM mode, as no information transfer occurs between the program and the user. This method will not be discussed, as it uses SMNs to indicate all input errors or those that result from testing. These SMNs are listed in Chapter 1, ST220.

Manual TCM operation must be preceded by a logon procedure that specifies a valid USERID to enable use of system resources. Messages prompt for the test entry and options desired, and the test initiates either from an interactive terminal or the BOP. After specifying the invoking device, operational procedures are identical to the other TCMs.

### GR430 Utilities and Test Commands

Various utility programs and test commands are available on an 8100, some of which reside on MD diskettes and others which are a function of the operating system used.

### GR431 Maintenance Device Utilities

The following paragraphs briefly describe the utilities contained on the MD diskettes.

**Note:** *Not all MD utilities are on each diskette. Refer to GR413.*

### Configuration Utility

The Configuration Utility permits you to configure the MD diskettes, thus permitting use of the MAPs and offline tests contained on these diskettes. The utility resides on test diskette 01, and is selected by specifying utility option 6.

It performs the following functions:

- Adds or changes communications feature link options.
- Adds and deletes configuration table entries for terminals attached to the 8100.
- Adds and deletes configuration table entries for 8101, 8130, and 8140 features.
- Displays the 8100 configuration.

Each MD diskette has configuration table entries that define the attached devices and their features. These entries must be identical on all MD diskettes, and, if any changes are made on MD diskette 01, they must also be changed on the others.

**Note:** *You must use the Append Utility with the customer setup (CSU) diskette to initially configure the system and write the configuration tables to MD diskette 01. You must then use the Copy Utility to write the configuration information from MD diskette 01 to MD diskettes 02, 03, and 09.*

To decrease input time, some configuration information initially resides on the factory-shipped diskettes, and you only complete the system-unique information. Also included in the ship group, system configuration charts provide you with a means to perform diskette configuration and maintain a permanent hard-copy record.

### Free-Lance Utility

The Free-Lance Utility permits the MD to function as an 8100 terminal. It is used:

- To run offline tests in free-lance mode.
- To run tests on those devices that depend on the 8100 for testing, but do not have a MAP to test them. These are: 3277, 3284, 3286, 3288, 3641, 3642, 3643, 3644, 3646, 3647, 3732, and 3736.
- To perform a basic checkout of the system hardware to determine a failing area prior to MAP selection.
- To perform a basic checkout on ALC communications hardware for RPQ MK6959.

When using the Free-Lance Utility, the procedures are the same as described in CP600 (Chapter 2) "Common Test Procedures and Messages".

The locations of the test programs differ and depend on how you invoke free-lance mode:

- In offline mode, the TCM and test programs reside on MD diskettes and load into processor storage.

**Copy Utility**

This utility copies a complete configuration table from any MD or CSU diskette to any other MD or CSU diskette. This utility resides on MD diskette numbers 01, 02, 03, and 09, and is invoked by specifying utility selection 3.

It is used to copy an updated configuration table from MD diskette 01 to MD diskettes 02, 03, and 09 and the CSU diskette. It is also used to copy the existing configuration table from these diskettes to a new set of CSU or MD diskettes.

**Note:** Do NOT use the Copy Utility to build the original system configuration from the CSU diskette on an initial 8100 call. Use the Append Utility.

The Copy Utility ensures that you are using either a CSU or MD diskette, and that the table to be copied contains configuration information, one entry of which must be the processor configuration entry.

**Append Utility**

A CSU diskette accompanies every 8101, 8130, and 8140, and contains a configuration table customized for that particular unit. This diskette must be used in combination with the Append Utility to build a system configuration table for the MD diskettes. The utility accomplishes this by combining each CSU diskette table into a master system table.

The append utility resides on MD diskette 01 and is invoked by specifying utility selection 5. It performs the following functions:

- Builds the MD system configuration table and permits you to configure the MD diskettes. This should be done on the initial call.
- Builds a new system table if a set of MD diskettes is either lost or destroyed.
- Allows CSU diskette information to be added to the configuration table when 8101s are added to an existing system. It performs this by appending the information on the CSU diskette to the existing system table.

The utility creates a master system table by reading the configuration tables from either on MD diskette 01 or the CSU diskette, or both, and combines them in MD storage until all tables are appended. The utility then deletes certain common entries and writes the new table to MD diskette 01.

**Note:** The Copy Utility should then be used to write the system configuration tables on MD diskettes 02, 03, and 09.

The Append Utility checks if:

- MD diskette 01 already has configuration information.
- A CSU processor diskette has been loaded.
- The CSU diskette is configured.
- MD diskette 01 has been loaded.
- The appended entries are already in the configuration table.
- The 8101 CSU diskette contains processor entries.
- The CSU diskette contains SCF entries.

**Restore Utility**

If you executed a checkpoint save function during MAP operation, this utility permits you to restore the saved MAP and restart it from the last checkpoint. For example, if you interrupted a repair action, this utility permits you to restart the MAP at the last checkpoint, rather than at the beginning of the MAP.

**GR432 DPPX Test Commands and Utilities**

The following section briefly describes the test commands and utilities used by the DPPX operating system. With the exception of ELDA, these utility functions are actually commands that, in turn, invoke a set of subcommands to perform certain functions. For detailed information describing how to use them, see CP700 in Chapter 2.

**Error Log Data Analysis (ELDA) Utility**

ELDA permits you to locate, format, and display 8809 Tape Drive error-log records. It can be used to determine if 8809 failures are caused either by hardware or the magnetic tape media.

**DISPLAY.DEVICE Command**

This command displays the status of devices on a particular adapter. Therefore, you can determine if the device, which is specified by using its symbolic name, is either: (1) connected and can be used, (2) not operating and cannot be used, (3) not connected, or (4) cannot be used because the device's adapter is inactive.

**DISPLAY.ADAPTER Command**

This command displays the status of a particular adapter. Therefore, you can determine if the adapter, which is specified by using its symbolic name, is either: (1) active and can be used, (2) inactive because it was not found in the list of active adapters, (3) being deactivated and cannot be used, or (4) not operating and cannot be used.

**DISPLAY.NETWORK Command**

This command displays the status of network resources. To use the command, you need to know the symbolic names of the resources to be displayed. Information displayed by DISPLAY.NETWORK includes:

- Physical Unit (PU)
  - Active/Inactive status
  - PU type (1, 2, 4, or 5)
  - Link name associated with this PU for PU types 1, 2, and 4
  - Subarea ID of PU for PU types 4 and 5
  - Associated subarea PU names
  - Domain ID of SSCP managing this PU
- Logical Unit (LU)
  - Active/Inactive status
  - Associated PU name
  - Current session count
  - Maximum allowed session count
  - Domain ID of SSCP managing this LU

- SDLC Link
  - Active/Inactive status
  - List of physical units attached to this link
  - Domain ID of SSCP managing the link
- Logmode
  - The bind parameters specified on the DEFINE.NETWORK command

#### DISPLAY.ERRORLOG Command

This command displays error records stored in the DPPX error log, and can be used with or without IBM-supplied C-lists.

##### DISPLAY.ERRORLOG Functions Without C-Lists

Four subcommands are used to display the error log for specific error records, and also to determine the number of records stored in the error log.

- LOCATE – Determines the total number of records in the error log, as well as permits you to locate an error-log record by: class (type), class and subclass, adapter address, adapter and device address, date and time, and variable data.
- NULL – Repeats the last LOCATE subcommand.
- RESET – Resets the error record pointer at the start of the error-log data set.
- END – Terminates DISPLAY.ERRORLOG.

##### DISPLAY.ERRORLOG Functions with C-Lists

C-LISTS are a predefined group of DPPX commands and subcommands that perform specific operations and eliminate the need for entering individual commands. The seven C-LIST functions are:

- SYSIEPA – Scans the error log for class 5 subclass 1 records using the physical adapter address as the search parameter, and displays the first five records that satisfy the parameter.
- SYSIEPAM – Scans the error log for class 5 subclass 1 records using the physical adapter address as the search parameter. It displays either (1) the total number of records, (2) all the records, or (3) the first record that satisfies the parameter.
- SYSIEDA – Scans the error log for class 5 subclass 1 records using the physical adapter address and device address as the search parameters, and displays the first five records that satisfy the parameters.
- SYSIEDAM – Scans the error log for class 5 subclass 1 records using the physical adapter address and device address as the search parameters. It displays either (1) the total number of records, (2) all the records, or (3) the first record that satisfies the parameters.
- SYSIEGA – Scans the error log for class 5 subclass 1 records using the physical adapter address and group address as the search parameters. It displays either (1) the total number of records, (2) all the records, or (3) the first record that satisfies the parameters.
- SYSIEGEN – Scans the error log for any class or subclass record. It displays the first record and the 10 immediately following.
- SYSIETIM – Scans the error log using class, subclass, time and date as the search parameters. It displays either (1) the total number of records, (2) all the records, or (3) the first record that satisfies the parameters.

#### DISPLAY.STATISTICS Command

This command retrieves, displays, and stores the maintenance data from a 3276 into the DPPX error log.

#### GR433 DPCX Utilities

##### List Device (SYSLDEV)

The SYSLDEV utility can be used only online, and by either the service representative or the customer. It is invoked from an interactive terminal, and uses five options:

1. List devices
2. Display all tasks
3. Display tasks by task number
4. Display tasks by OIPD
5. Device by device address

##### System Error Log (SYSLERR)

The SYSLERR Utility permits you to search, display, and print the contents of the DPCX condition/incident log. It can be invoked only from an online terminal under DPCX.

The following options are available when using the SYSLERR Utility:

- Search by Incident Type (1, 2, 3, 4, 5)
- Search by PA (Physical Address)
- Search by LA (Logical Address)
- Search by sequence range
- Search by 3276 Control Unit
- Clear Log
- Print on a Printer

##### System Test Control Monitor (SYSTEMC)

The SYSTEMC Utility permits you to run online tests from either an interactive terminal or the 8130/8140 (BOP) when running under DPCX. The utility invokes the DPCX online TCM, and uses the 80BC and 81BC prompt messages, but there are DPCX-unique procedures necessary to display the 80BC prompt message.

##### System Request Control Operator's Message Queue (SYSREQ)

This function is used only during initial operating system installation and if requested by the customer to recover Control Operator messages. When requiring these messages at other times, the 8100 Control Operator must perform this message recovery.

After system installation, you do not have access to the Control Operator ID. The customer normally changes this password periodically after installation for security reasons.

The SYSREQ Utility prints or displays control messages from the 8100 Control Operator's queue, and is invoked using that ID. These messages describe the system condition or status and can prompt the Control Operator or service representative for additional system action. When invoked, this utility displays a single message and must be reinvoked to obtain another.

**System List Tape Statistical Data (SYSLTSD)**

When using the 8809 Magnetic Tape Drive, the condition of the magnetic tape affects tape drive performance. During use, the tape is stretched, flexed and rubbed, causing its oxide coating to crack or to be eroded. Particles of oxide, fingerprints, and dust contaminate its surface, multiplying erosion and breaking contact between the tape and the read/write head. This utility provides statistical information to separate tape media problems from tape drive problems.

The customer can also use this utility to determine if a particular reel of tape is causing an excessive number of errors and take the proper corrective action.

**System Print Error Log (SYSPRINT)**

This utility permits you to print or delete the error log by selecting a print group. You must first run the SYSRSLOG Utility to load the error log into print group 01, which can then be retrieved by this utility. Group 01, also called system group records, includes a print sequence number (PSN) range check within that group.

**3276 Error Log Request (SYSRSLOG)**

The SYSRSLOG Utility is used to request error logs from a 3276. It can be used by both the control operator or the service representative, and can either be displayed at the invoking terminal or placed in a print group. To print the error log, use the SYSPRINT Utility.

**GR440 Error Logs**

When running under IBM-provided programs, the processor uses certain automatic recovery techniques to reduce the impact of intermittent errors. Assuming that the particular function can be retried successfully, the processor stores the error in a predefined log area and processing continues. If the error cannot be recorded by this method, the IBM program incorporates automatic recovery procedures so that system malfunctions do not necessarily stop processing. An example of this type of recovery is the closing of a port on a given error count (threshold). An error condition code then displays to the customer at the designated operator console, or, if unavailable, at the BOP. This action permits you to implement various recovery techniques to attempt error circumvention. The error log area then permits you to analyze the errors that occurred by obtaining a copy of the log without interrupting the customer application.

An area of disk storage is reserved for an error log to retain system-recoverable errors, permanent errors, and various status information that occurred since the last time the log was reset. A copy of the contents of this log assists in fault isolation and predictive maintenance. DPPX and DPCX error logs are similar, but have certain format and operational differences. Refer to CP740 and CP830 in Chapter 2 for a discussion of the individual error logs and how to obtain them. Refer to the respective Chapter 5 sections for specific adapter/device-unique information on the error log format, meaning and use.

The error log contains solid or intermittent errors that have occurred since the last time the log was reset. Both IBM operating system programs have provisions for accepting log records from attached units and placing them in this error log area. Both also provide the capability to selectively retrieve records from the log and either display or print the formatted records. The selection can be specified by error type, error subtype, or physical address of the failing component. Error logging does not stop when a buffer full condition occurs, and each subsequent error overlays the first. Therefore, the log is scanned in a last-in first-out sequence so that the most recent incidents are retrieved first. The next record, a specified number of records, or all records according to the selection specified, can be retrieved by a single request. Records so retrieved are presented in a specified format which provides mnemonic labels for significant parameters and data fields. The MAPs are structured to interpret this data and provide you with specific instruction for subsequent action. The MAP reference material provides a description of these fields and interpretation of values where relevant to your action.

IBM 8100 Information Systems that do not use an IBM-supplied program do not have error-log facilities; therefore, offline tests must be used to try to recreate the failure.



## GR450 8130/8140 Operator Panels

### GR451 Basic Operator Panel (BOP)

Used as the input device during extended bringup testing, the BOP (Figure GR451-1) (1) also permits the entering of data and function parameters, (2) can establish IPL parameters, (3) resets the system, which then performs basic bringup testing, (4) contains the socket for the key used for panel security, if the feature is installed, (5) provides a 4-character hexadecimal display used for message output to either you or the customer, (6) provides power indications and the switch used to turn power on and off, and (7) provides the adapter necessary to operate the panel and the MD device. The following briefly describes the BOP switches, indicators, and pushbuttons:

- **Switches**
  - Power On/Power Off – Activates and deactivates 8100 power.
  - IPL Mode – Selects either primary or manual IPL mode.
  - Keylock – If installed, logically controls panel access.
- **Indicators**
  - Power On – 8130/8140 powered on.
  - Power On Disabled – 8130/8140 cannot power up.
  - Power/Thermal Check – Loss of -5V or 8130/8140 above operating temperature.
  - Operator Attention – Manual panel intervention required.
  - System Check – Processor, I/O, channel program, or primary program error.
  - I/O Interface Check – IPL or channel error.
  - Panel Check – Error on panel bus or in the BOP adapter card.
  - Wait – Processor not performing any instruction execution.
  - IPL – Initial program load in progress.
  - Test Mode – On during testing and blinks when errors occur.
- **Pushbuttons**
  - Clear Display – Resets BOP hexadecimal display to zeros.
  - Enter Data – Pressed after entering Data/Function pushbutton information to specify that the digits are a data input.
  - Enter Function – Pressed after entering Data/Function pushbutton information to specify that the digits are a function input.
  - Reset/IPL – Resets the 8130/8140, performs basic bringup testing, and IPLs the device according to the parameters specified previously.
  - Processor Test – Checks parity of four processor instruction/execution cards and uses BOP hex display to indicate results.
  - Lamp Test – Lights all indicators except the hex display.
  - Data/Function pushbuttons – Provide for hexadecimal information entry. Keylock (if installed) must be in Enable position.

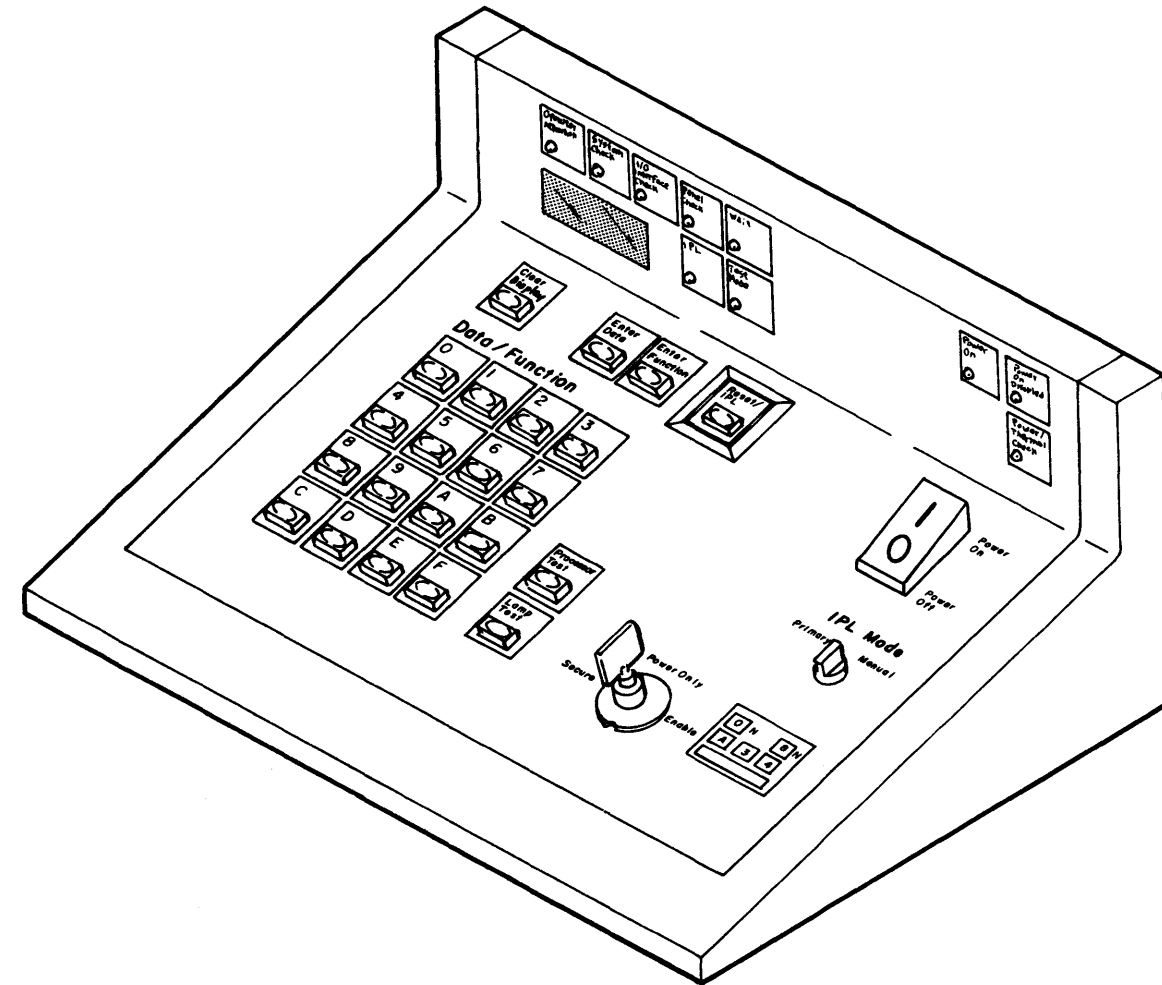


Figure GR451-1. Basic Operator Panel

**GR452 Expanded Function Operator Panel (8140 Only)**

The expanded function operator panel (EFP) and its associated adapter permit access to internal processor areas, such as registers and storage. The EFP must be programmed to enable its operation, and the system must be dedicated to its use. It also requires a knowledge of system architecture, the control program, and panel operation.

**Caution:** The EFP should not be activated unless the user completely understands its operation, or damage to the control program could result.

Correct operation can be tested by procedures contained in the SP MAP and the associated reference material under manual intervention routines. Refer also to Figure SP121-1 in Chapter 5 for an illustration of the EFP.

**Note:** Only DPPX supports the expanded function panel.

**GR460 Maintenance Library****GR461 Corequisite Manuals**

The following manuals are necessary for 8100 hardware fault isolation and repair depending on the machine types installed:

- **IBM 8130 Processor Parts Catalog, 5131-0069.**  
This manual shows all components of the 8130 Processor and lists the part numbers of these components according to logical groupings.
- **IBM 8140 Processor Parts Catalog, S126-0022.**  
This manual shows all components of the 8140 Processor, and lists the part numbers of these components according to logical groupings.
- **IBM 8101 Storage and I/O Parts Catalog, S126-0023.**  
This manual shows all components of the 8101 Storage and I/O Unit, and lists the part numbers of these components according to logical groupings.
- **IBM 8809 Magnetic Tape Unit Parts Catalog, S132-0009.**  
This manual shows all components of the 8809 Magnetic Tape Unit, and lists the part numbers of these components according to logical groupings.
- **IBM 8100 Information System: 8809 Magnetic Tape Unit Maintenance Information Manual.**  
This manual contains 8809 fault isolation procedures, and provides information that enables you to adjust, repair, or replace a FRU as necessary. It also shows 8809 locations and provides information concerning operational theory.  
  
**Note:** All fault isolation information for the 8809 adapter is contained in the 8100 MIM.
- **IBM 8100 Information System: 3277 Display Station 1 and 2 8100 System Attachment Online Test Procedures Troubleshooting Guide, SY27-2522.**  
This manual provides information necessary to service the 3277 Display Station Models 1 and 2 when attached to the 8100.
- **IBM 8100 Information System: 3284/3286 Printer Models 1 and 2 8100 System Attachment Troubleshooting Guide, SY27-2523.**  
This manual provides information necessary to service the 3284/3286 Printer Models 1 and 2 when attached to the 8100.
- **IBM 8100 Information System: 3287 Printer Models 1 and 2 8100 System Attachment Maintenance Information, SY27-2524.**  
This manual provides information necessary to service the 3287 Printer Models 1 and 2 when attached to the 8100.
- **IBM 8100 Information System: 3288 Line Printer Model 2 8100 System Attachment Troubleshooting Guide Including Text Print Feature, SY27-2525.**  
This manual provides information necessary to service the 3288 Line Printer Model 2 when attached to the 8100.

## GR462 Hardware Companion Manuals

The following describes available hardware manuals which may help to understand the 8130/8140:

- *An Introduction to the IBM 8100 Information System, GA27-2875.*  
This manual enables the reader to become familiar with the IBM 8100 Information System. It describes the interrelation of components and the system's approach to distributed processing, as well as discussing system concepts, programming support, hardware components and features, and attachable I/O devices.
- *IBM 8100 Information System Configurator, GA27-2876.*  
This manual provides information about features and units that can attach to the IBM 8100 Information System, and how to order them.
- *IBM 8100 Information System: Principles of Operation, GA23-0031.*  
This manual describes in detail the instructions used, and the architecture functional operation of an 8100.
- *IBM 8100 Information System: 8130 Processor Description, GA27-3196.*  
This manual discusses the 8130 and its command sequences, while describing how the processor hardware responds to them. It provides the operational information necessary to acquaint the programmer with the hardware, and the hardware-oriented audience into the software, at the Principles of Operation level.
- *IBM 8100 Information System: 8140 Processor Expanded Function Operator Panel Feature Description, GA27-2879.*  
This manual provides a description and the operating instructions for the 8140 Expanded Function Panel (EFP) feature.
- *IBM 8100 Information System: 8140 Processor Description, GA27-2880.*  
This manual discusses the 8140 and its command sequences, while describing how the processor hardware responds to them. It provides the operational information necessary to acquaint the programmer with the hardware, and the hardware-oriented audience into the software, at the Principles of Operation level.
- *IBM 8100 Information System: 8101 Storage and Input/Output Unit Description, GA27-2882.*  
This manual provides a high-level description of the functional capabilities of the IBM 8101 Storage and I/O Unit. It enables the reader to understand how the 8101 hardware responds to commands, as well as describing the hardware and how the hardware and software transfer information.
- *IBM 8100 Information System: Communications, Loop and Display/Printer Attachment Description, GA27-2883.*  
This manual describes the communications and display/printer facilities provided by the 8100 Information System hardware, including data link attached and directly attached loops. It discusses feature availability and capability, and also operational details concerning command sequences and how the hardware responds to them.
- *IBM 8100 Information System: Direct Access Storage Devices Description, GA23-0053.*  
This manual describes the disk storage devices used in the 8100 system, and how the hardware and software interrelate.

## GR463 Software Companion Manuals

The following list describes software manuals which may help you understand the operation and maintenance of the IBM 8100 Information System.

- *Distributed Processing Programming Executive/Base Messages and Codes Manual, SC27-0407.*  
This manual lists and describes all four-digit system message numbers (SMNs) and codes issued by components of the DPPX/Base System, as well as all BOP or operator control terminal messages. For those that indicate errors, the Messages and Codes manual also supplies corrective actions, or the names of sections of other manuals where more detailed information can be found. The following summarizes the contents of the Messages and Codes Manual:  
Chapter 1. As an introduction for the manual, it contains information that applies to all messages, such as the meanings of user IDs, component and subcomponent codes, type (action) codes, reply IDs, and routing codes.  
Chapter 2. Describes all messages issued by the DPPX/Base System, and is subdivided by components with margin tabs for quick reference. Components are placed in the chapter by alphabetic order of the component code. Within each component, message descriptions are arranged by subcomponent code and message number. The description of each message contains the complete message identifier and text, an explanation of the condition indicated by the message, appropriate system action, appropriate operator action, appropriate programmer action, and, if applicable, a fault isolation reference.  
Appendix. Provides fault isolation procedures for system programmers and operators, since they are the primary audiences. Messages and codes requiring fault isolation are keyed to appropriate sections of this appendix. This Appendix is a foldout, so it may be referenced simultaneously with the message or code descriptions.
- *Distributed Processing Programming Executive/Base Operation, SC27-0406-0.*  
This manual provides information about controlling an IBM 8100 Information System using DPPX through the system operator terminal. It describes how to load and run programs, perform data set management, activate and deactivate resources, and recover from system problems.
- *Distributed Processing Programming Executive/Base Diagnosis: Guide, SC27-0410-0.*  
This manual describes how to diagnose system problems in DPPX, apply temporary fixes, and generate authorized program analysis reports (APARs).
- *Distributed Processing Control Executive Operations, SC27-0492.*  
This manual describes the operating procedures for DPCX and includes messages and codes.
- *Distributed Processing Control Executive Diagnosis Guide, SY38-3004.*  
This manual contains service tools for diagnosing panels in DPCX, plus an overview of DPCX logic and control blocks.

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## GR500 System Maintenance Approach

The customer should first determine if the problem is software or hardware by using problem determination techniques associated with software manuals. The *Messages and Codes* manuals provide operator assistance for either DPPX or DPCX, and other software manuals permit the customer or programming representative to determine hardware or software problem resolution by using dumps, traces, AIDS, utilities, or other available test techniques.

**Note:** *You should use this maintenance manual to resolve only hardware problems. If the failure cause cannot be isolated to either the hardware, software, or network by customer problem determination procedures, you should perform all hardware verification tests to ensure correct system operation.*

Customers can also participate in fault isolation to reduce the operational effect of a failure and to provide you with better information before placing a service call. When you arrive on site, you use the customer's information as an entry into the General Failure Index (GFI).

## GR510 Hardware Fault Isolation

You should initiate all 8100 Information System hardware fault isolation and repair activity from the General Failure Index (GFI) in instances where there is no obvious failure cause. The GFI directs you to a more specific failing area of the 8100 by using symptoms or error messages, and directs you to action plans, MAPs, or procedures.

If directed to an action plan or procedure, you remain in Chapter 1 and go to either section ST430 or ST440, respectively. If directed to a MAP, load the MD diskette containing the MAP into the MD, and, at the diskette menu, select the desired MAP.

When selecting a MAP as requested by the GFI, the MAP menu displays, and you enter a MAP option code. This symptom-oriented menu offers entry options such as for selecting offline tests, DPPX online tests, or other MAP-unique selections such as "visual problem" or "mechanical problem". Each selection is assigned value, which you enter into the MD keypad, and processing begins at the selected MAP option entry point. You then enter the information prompted by the MAP into the MD keypad, based on the result indicators of a logic probe, meter, oscilloscope, or other physical observations.

**Note:** *In instances where the customer does not use an IBM-licensed program, only offline testing can be performed.*

In the case where isolation has been to the FRU group level, the maintenance procedure is constructed to provide the prompting required to isolate the failing FRU without using a swapping technique. Repair of the failure consists of exchanging the designated FRU or FRU group with new components, or adjusting the appropriate device as prompted by the MAPs.

**Note:** *The customer must be made aware that during the period involved for replacement or repair, the failing unit must be dedicated to the maintenance activity. The IBM 8100 Information System does not provide for concurrent repair below the machine type level.*

After any repair action, you then run the appropriate test or customer program that detected the failure to verify the repair.

## GR520 Offline and Online Testing

IBM provides a comprehensive set of test programs for system maintenance. They operate either offline or online, and use the MD to perform these tests.

Offline tests require a dedicated processor and are invoked with the MD connected. You must first select the MD diskette that contains the required program (see GR413). You then IPL the system, which loads the offline test control monitor (TCM) from the MD diskette into processor storage. The MD then prompts requests for specific test selections. At the diskette menu, you then select a specific test, which also loads from the MD diskette into processor storage where it executes while interacting with the MD and the MAP. If the TCM cannot load because of a processor failure, the device cannot use processor interaction, but instead operates standalone for fault isolation, such as for bringup or power failures.

Online tests can be invoked after an IPL to the system-resident device, which contains the online TCM and test programs. DPCX provides online testing facilities. You must first log on the system from either the BOP or an interactive terminal, where you can then perform online concurrent testing from an interactive terminal. The monitor then controls operation of the system-resident tests, which run concurrently with the customer application, and the procedures are the same as for offline testing. Refer to CP610, "Common Test Invocation" in Chapter 2.

If not using the MD, but running under DPCX, system-resident online tests run concurrently with customer application programs. Both you and the customer can use this online testing capability.

**Note:** *In all online testing, the proper resources must be made available. This may involve the customer having to take certain devices offline.*

## GR600 Basic Data Flow

## GR630 8101

Sections GR610 through GR630 show the basic data flow of the 8130, 8140, and 8101. Where possible, they also show the MAP that tests those particular functions. Refer also to section GR422, which shows the hardware physical locations tested by the MAPs.

This section shows the data flow between the 8101 01T gate I/O panel and the three 8101 boards. Figure GR630-1 uses multiple parts, because the data flow depends on the features installed and can be between the I/O panel and the:

### GR610 8130

This section shows the data flow between the two 8130 logic boards and the:

- Disk storage adapter and drive
- Diskette storage adapter and drive
- Basic operator panel (BOP) adapter and BOP
- 01T gate I/O panel

Refer to Figure GR610-1.

- Display/printer adapter
- Communications adapter
- 8809 Model 1A tape adapter
- Disk storage adapter and drive
- Diskette storage adapter and drive

### GR620 8140

#### *GR621 Models AXX*

This section shows the data flow between the two 8140 logic boards and the:

- Disk storage adapter and drive
- Diskette storage adapter and drive
- Basic operator panel (BOP) adapter and BOP
- Expanded function operator panel (EFP) adapter and EFP
- 01T gate I/O panel

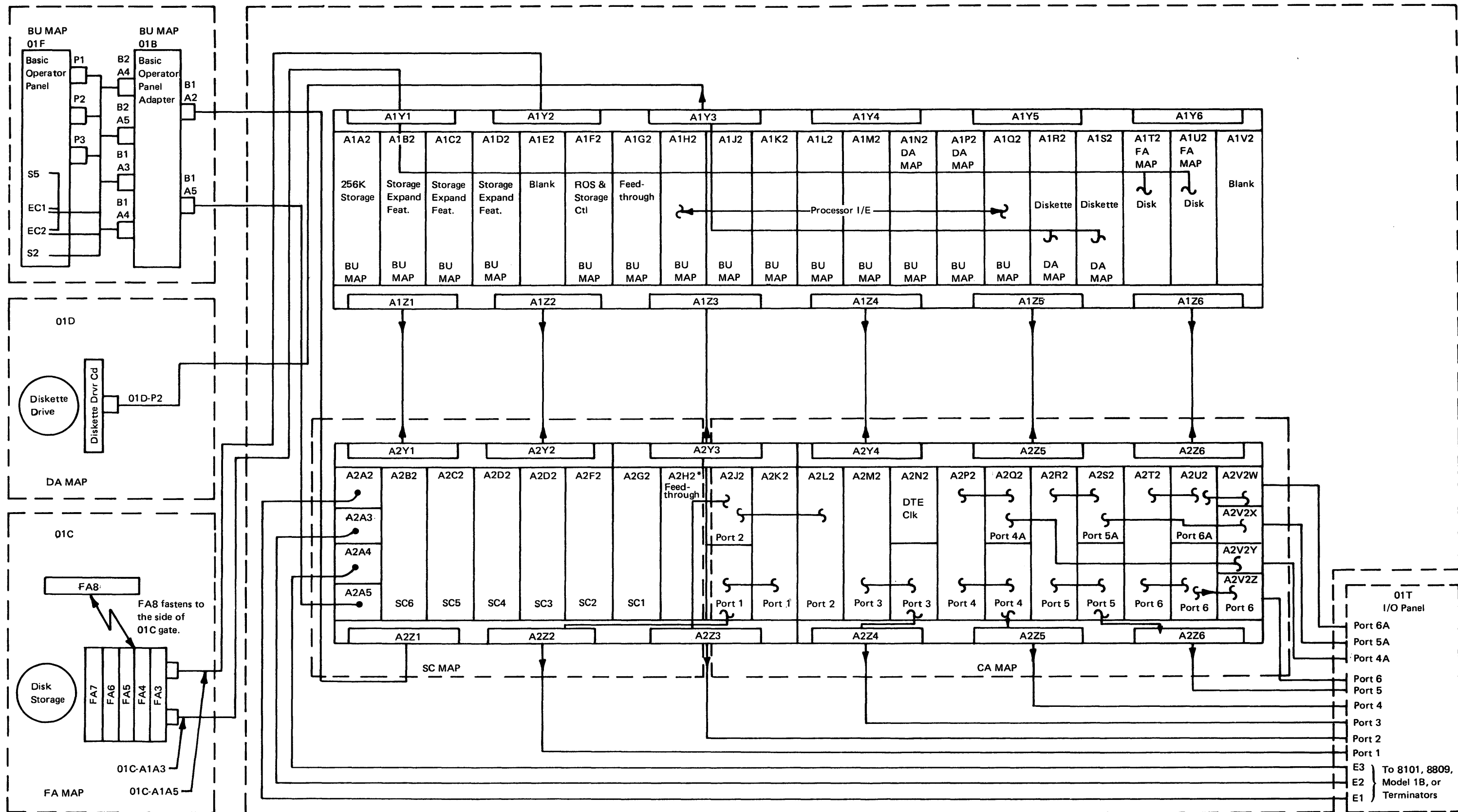
Figures GR621-1 and GR621-2 are similar, except that the 01A-A2 board card locations and allowed features differ because of models.

#### *GR622 Models BXX*

This section shows the data flow between the five 8140 logic boards and the:

- Disk storage adapters and drives
- Diskette storage adapter and drive
- 8809 Model 1A tape adapter
- Display/printer adapter
- Basic operator panel (BOP) adapter and BOP
- Expanded function operator panel (EFP) adapter and EFP
- Communications adapters
- 01T Gate I/O Panel

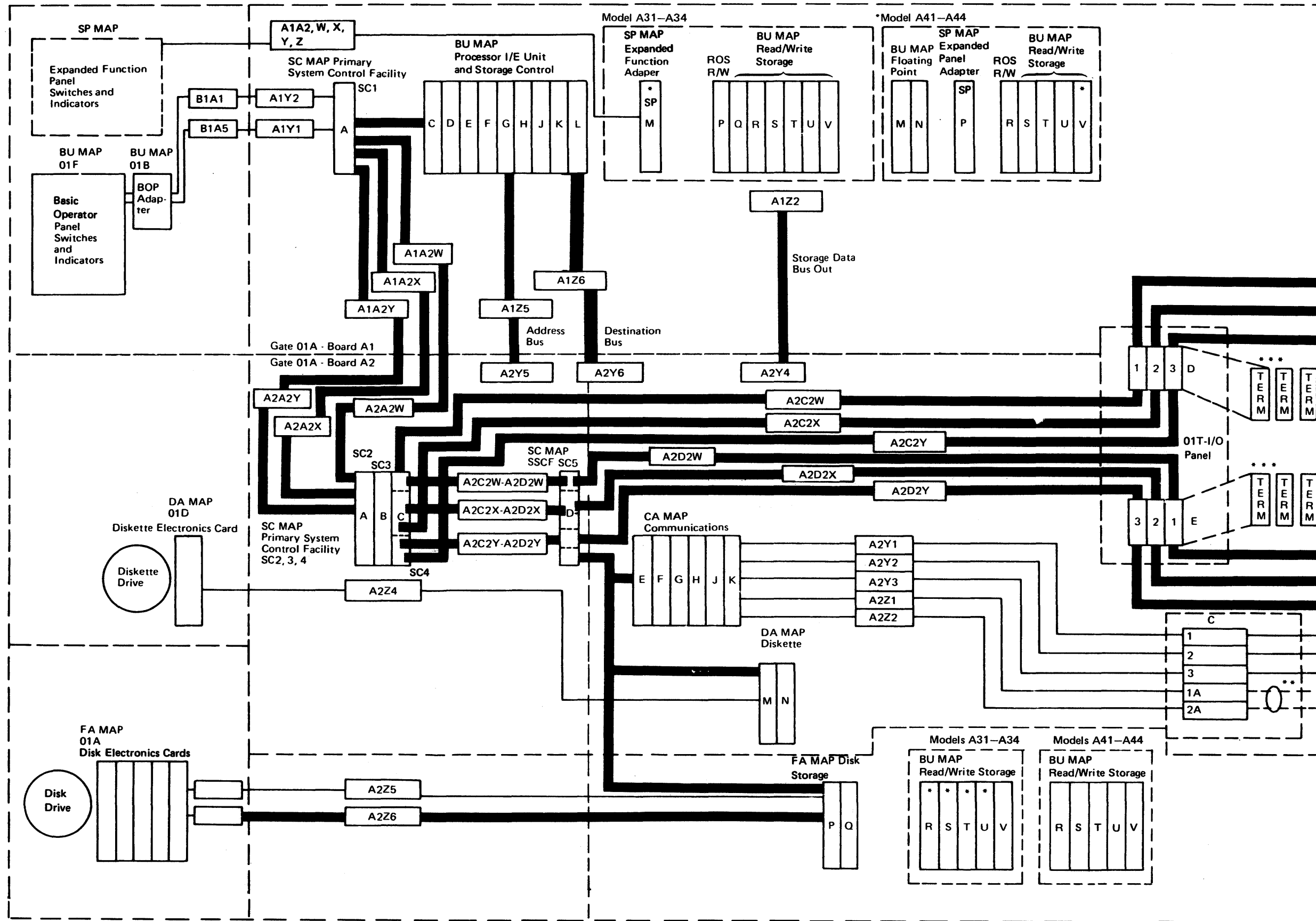
Refer to Figure GR622-1.



\*8130 without System Expansion Feature

Figure GR610-1. 8130 Card and Cable Locations





\*=Feature card  
 \*\*=If connector 1 is for the first lobe of a two-lobe loop, then connector 1A is for the second lobe of that loop. Similarly, if connector 2 is for the first lobe of a two-lobe loop, connector 2A is for the second lobe of that loop.  
 \*\*\*=If there are no 8101s attached, insert terminators in 8140 I/O panel positions D1, D2, D3, E1, E2, and E3 (6).

- 1 To 8101 or 8809-1B I/O Panel E1 Connector
- 2 To 8101 or 8809-1B I/O Panel E2 Connector
- 3 To 8101 or 8809-1B I/O Panel E3 Connector

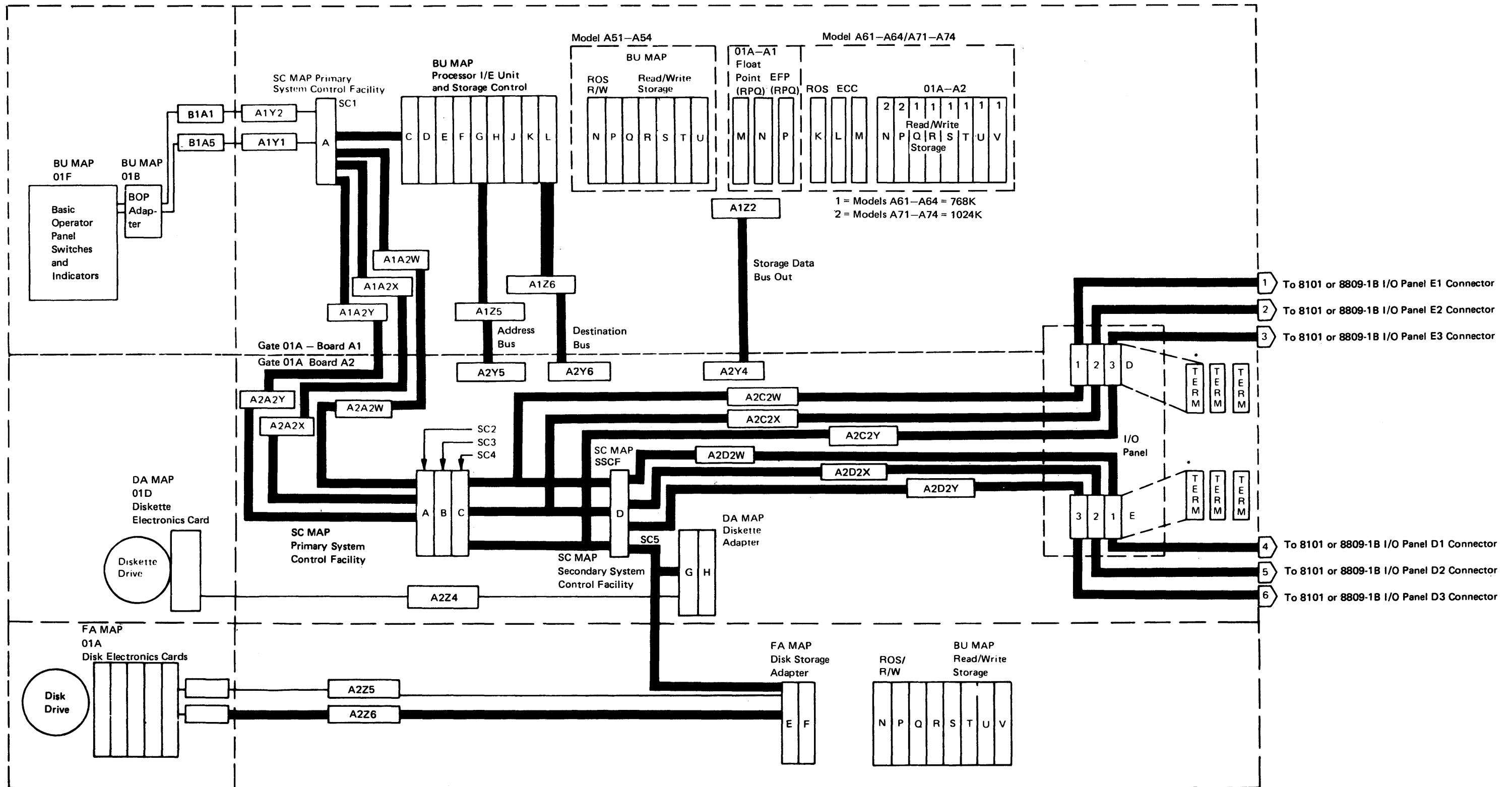
**Note 1:** If adding an 8101 left-hand build (viewed from front of the 8140): remove the 8140 terminators from E1, E2, and E3; insert the 8140/8101 cables in E1, E2, and E3 on the 8140, and in D1, D2, and D3 on the 8101; and insert the terminators (removed from the 8140) into E1, E2, and E3 in the 8101.

- 4 To 8101 or 8809-1B I/O Panel D1 Connector
- 5 To 8101 or 8809-1B I/O Panel D2 Connector
- 6 To 8101 or 8809-1B I/O Panel D3 Connector

- A To I/O Panel Communications Port 1 Connector
- B To I/O Panel Communications Port 2 Connector
- C To I/O Panel Communications Port 3 Connector
- D To I/O Panel Second Lobe Loop 1A Connector
- E To I/O Panel Second Lobe Loop 2A Connector

**Note 2:** If adding an 8101 right-hand build: remove the 8140 terminators from D1, D2, and D3; insert the 8140/8101 cables in D1, D2, and D3 on the 8140, and in E1, E2, and E3 on the 8101; and insert the terminators (removed from the 8140) into D1, D2, and D3 on the 8101.

Figure GR621-1. 8140 Basic Data Flow Models A31-A34, A41-A44



\*If there are no 8101s attached, insert terminators in 8140 I/O panel positions D1, D2, D3, E1, E2, and E3 (6).

**Note 1.** If adding an 8101 left-hand build (viewed from front of the 8140): remove the 8140 terminators from E1, E2, and E3; insert the 8140/8101 cables in E1, E2, and E3 on the 8140, and in D1, D2, and D3 on the 8101; and insert the terminators (removed from the 8140) into E1, E2, and E3 in the 8101.

**Note 2.** If adding an 8101 right-hand build: remove the 8140 terminators from D1, D2, and D3; insert the 8140/8101 cables in D1, D2, and D3 on the 8140, and in E1, E2, and E3 on the 8101; and insert the terminators (removed from the 8140) into D1, D2, and D3 on the 8101.

Figure GR621-2. 8140 Basic Data Flow Models A51-A54

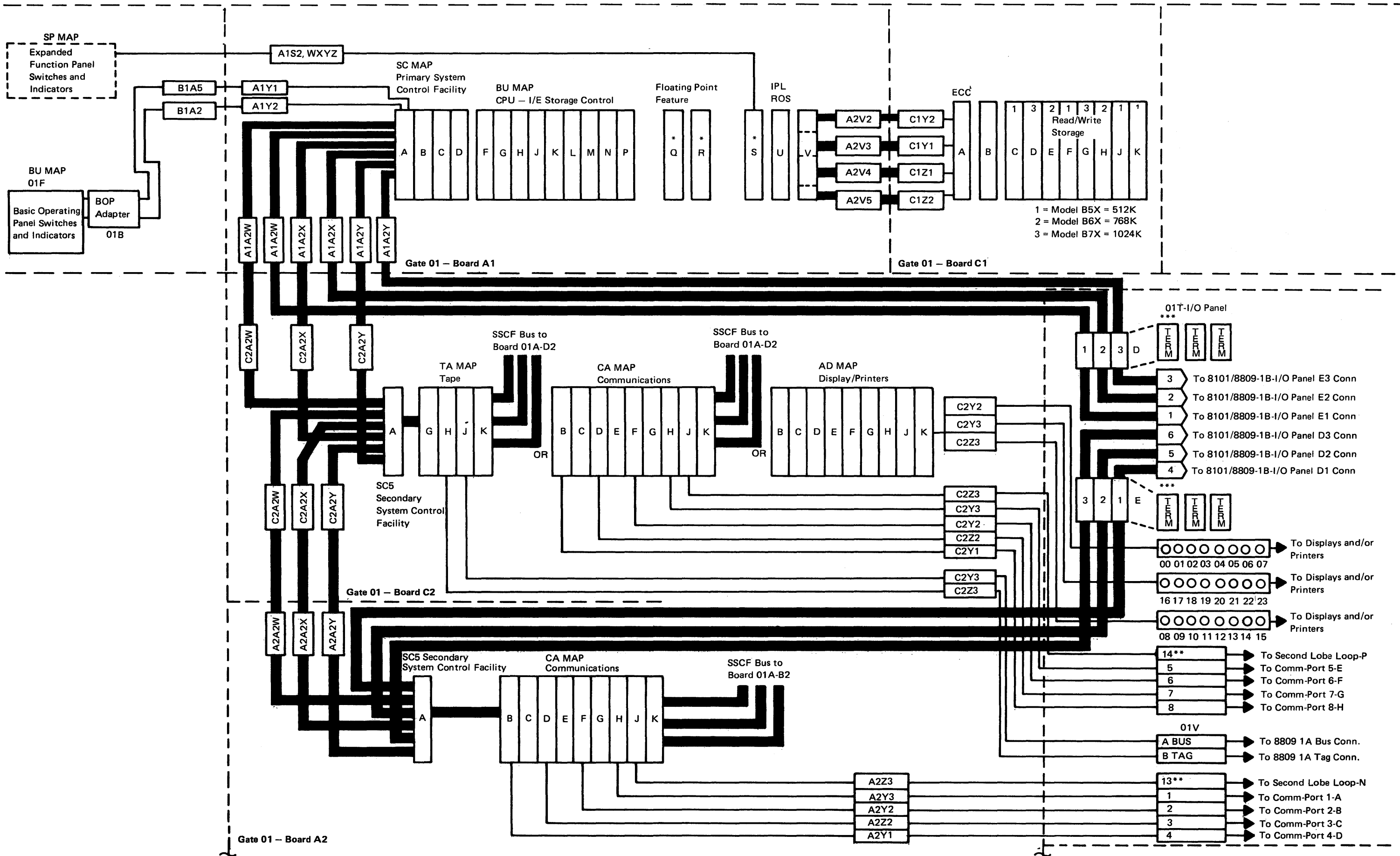
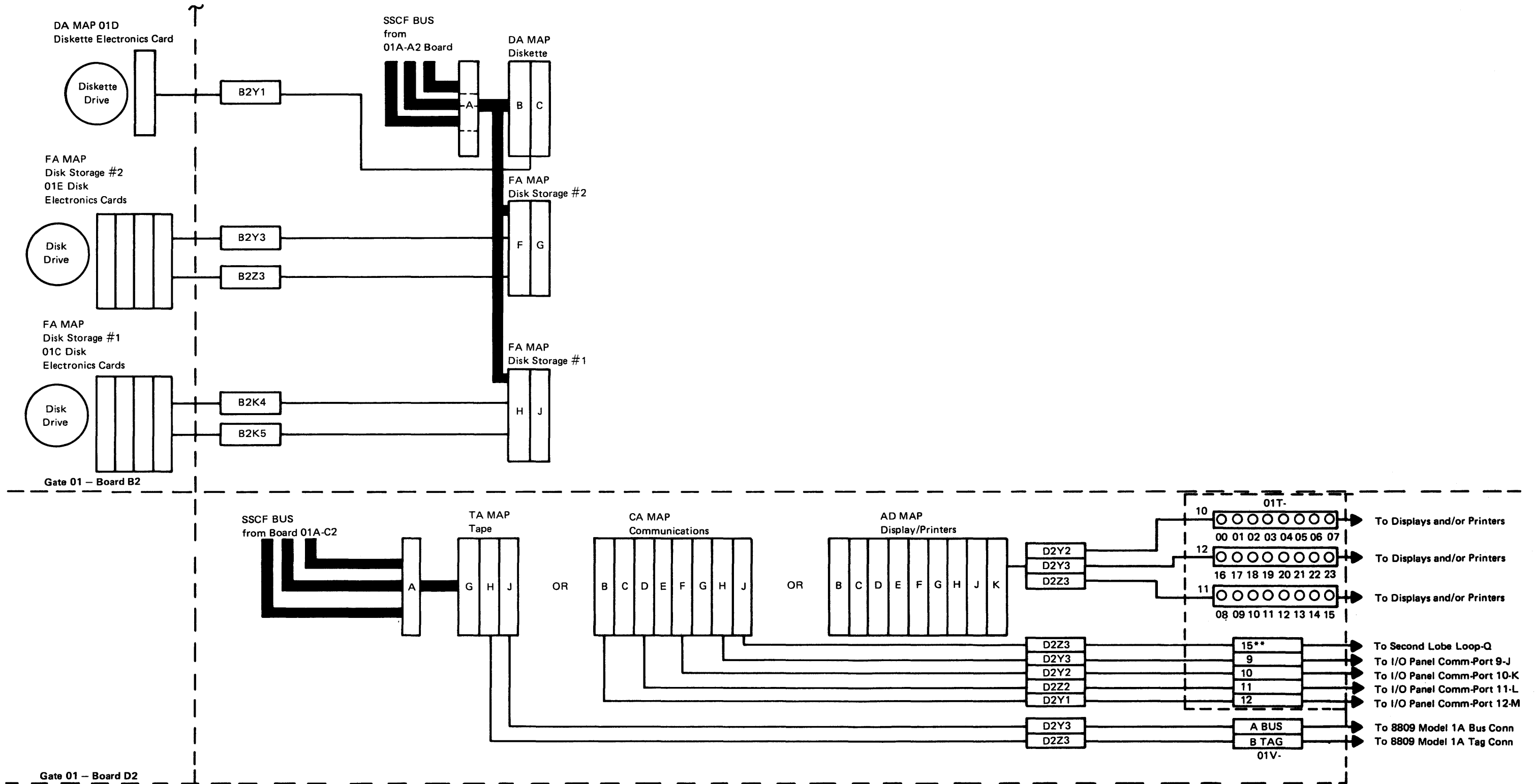


Figure GR622-1 (Part 1 of 2). 8140 Basic Data Flow Models B5X-B7X



\*=Feature card  
 \*\*=Second lobe of loop for Ports 1-4, 5-8, 9-12.  
 \*\*\*=If there are no 8101s attached, insert terminators in 8140 I/O panel positions D1, D2, D3, E1, E2 and E3(6).

● If adding an 8101 left-hand build (viewed from front of the 8140): remove the 8140 terminators from E1, E2, and E3; insert the 8140/8101 cables in E1, E2, and E3 on the 8140, and in D1, D2, and D3 on the 8101, and insert the terminators (removed from the 8140) into E1, E2, and E3 in the 8101.

● If adding an 8101 right-hand build: Remove the 8140 terminators from D1, D2, and D3; insert the 8140/8101 cables in D1, D2 and D3 on the 8140 and in E1, E2, and E3 on the 8101, and insert the terminators (removed from the 8140) into D1, D2, D3 on the 8101.

**Note:** Communications are allowed in 01A-C2 and 01A-D2 boards. If communications is resident in board 01A-C2 then 01A-D2 may have tape or display/printers. Tape and display/printers are mutually exclusive. These features are allowed only once in the 8140 Model BXX. Tape and display/printers may be resident in 01A-C2 but not together.

Figure GR622-1 (Part 2 of 2). 8140 Basic Data Flow Models B5X-B7X

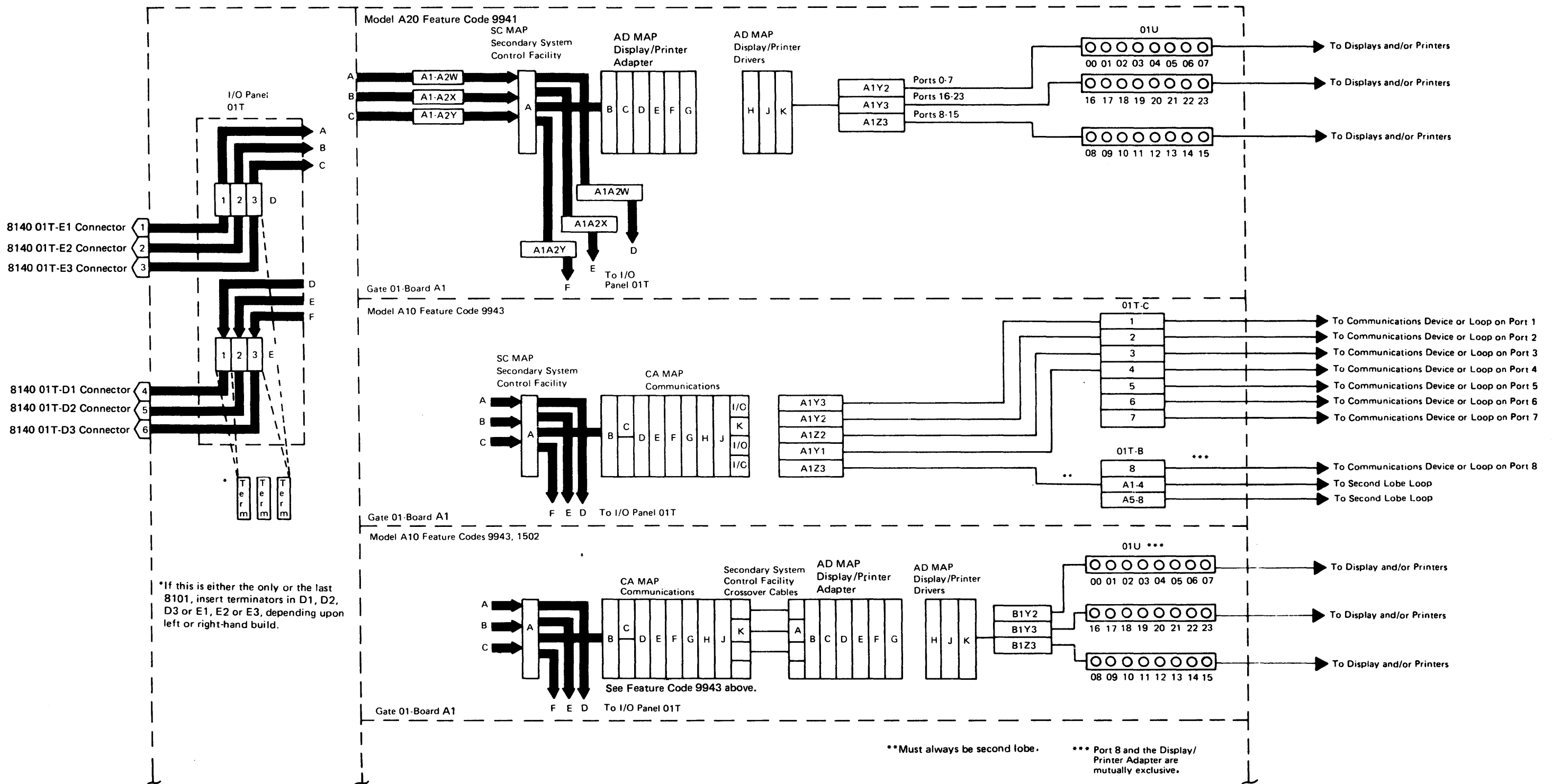


Figure GR630-1 (Part 1 of 5). 8101 Basic Data Flow

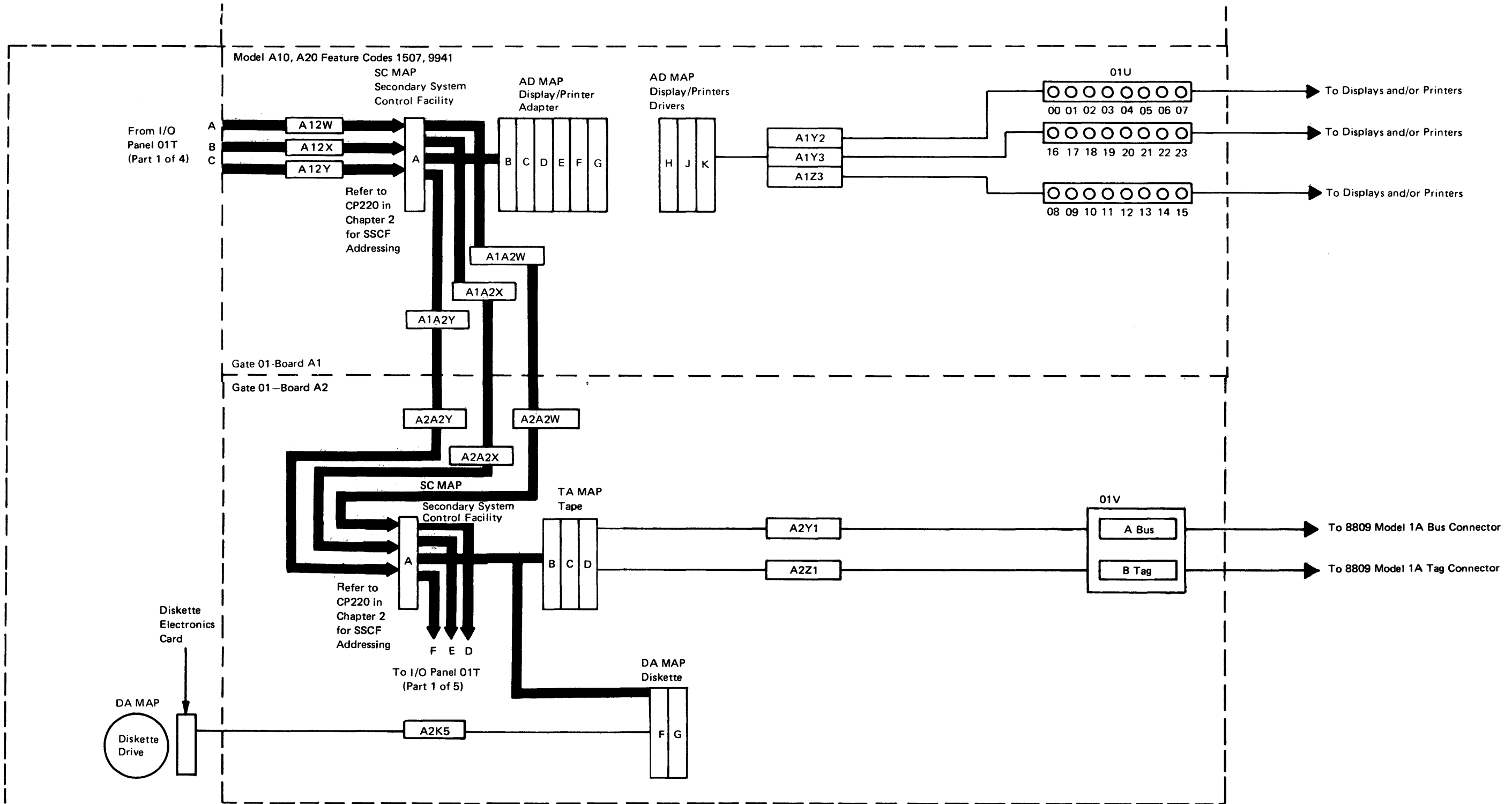


Figure GR630-1 (Part 2 of 5). 8101 Basic Data Flow

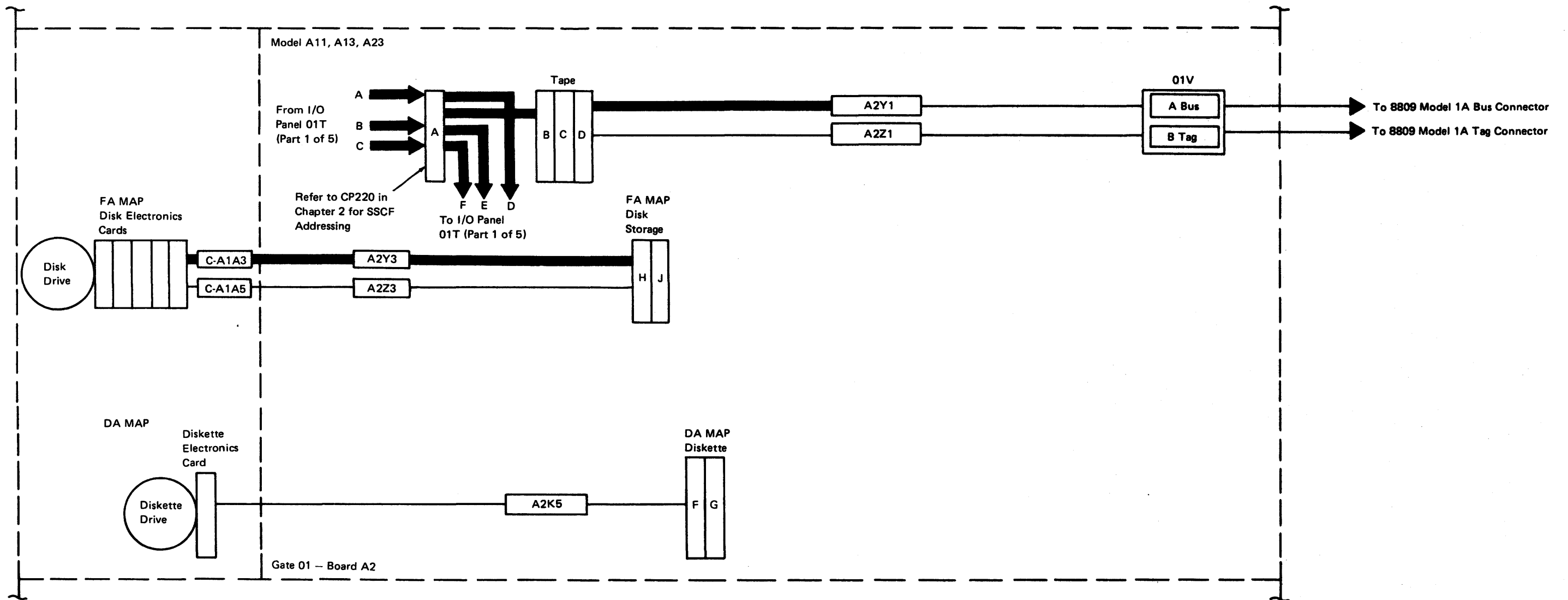


Figure GR630-1 (Part 3 of 5). 8101 Basic Data Flow

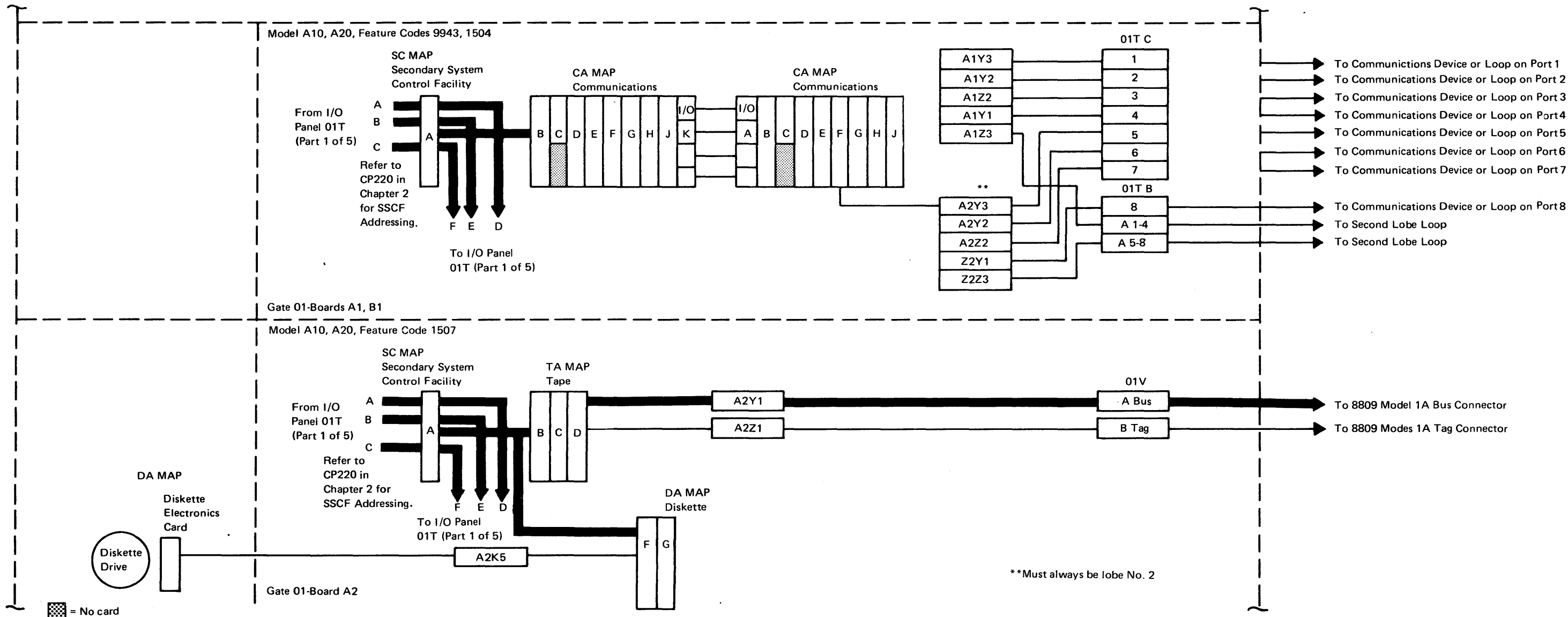


Figure GR630-1 (Part 4 of 5). 8101 Basic Data Flow



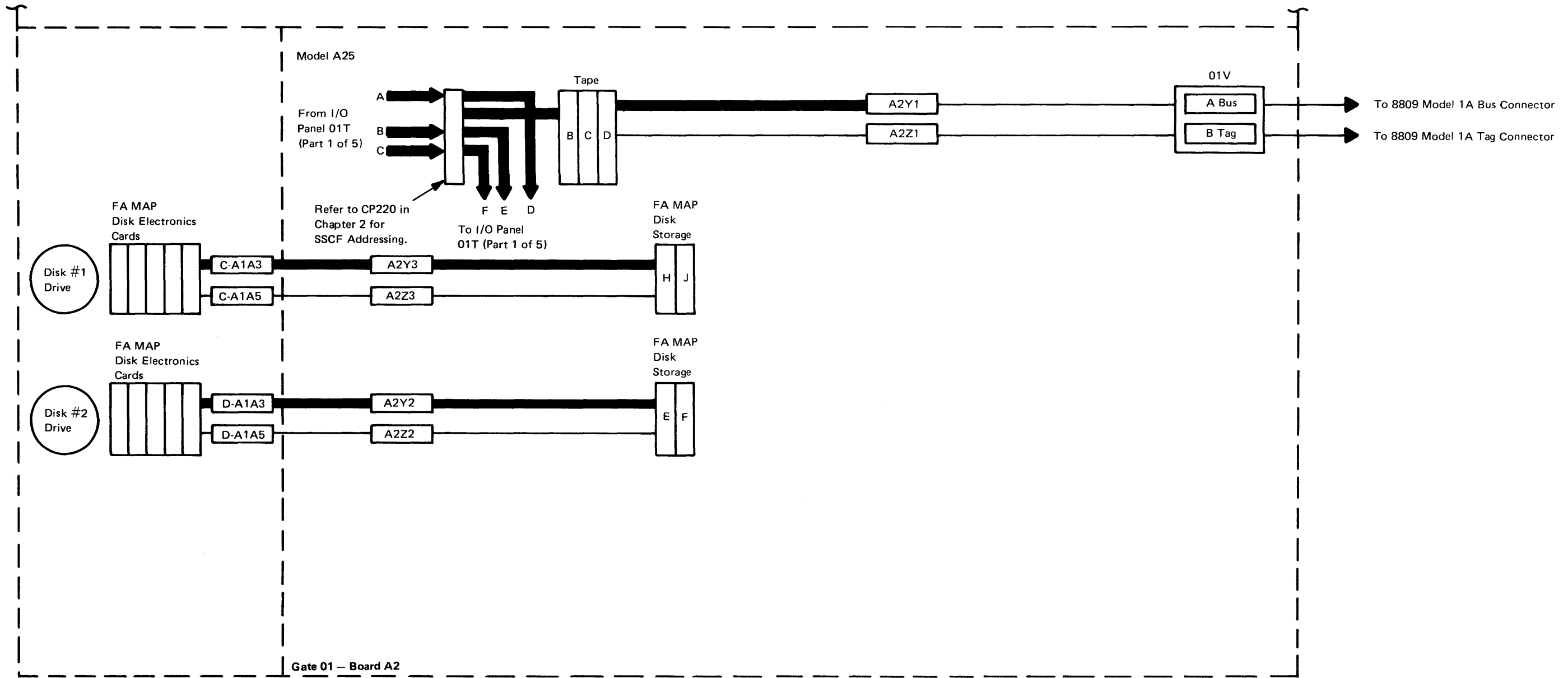


Figure GR630-1 (Part 5 of 5). 8101 Basic Data Flow.

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## GR700 8100 Information System Licensed Program Products

This section briefly describes the two primary IBM-licensed program products available to support the 8100 Information System hardware.

### GR710 Distributed Processing Programming Executive (DPPX)

DPPX is a versatile general-usage operating system consisting of the licensed DPPX/Base and its associated programs. DPPX supports the 8100 family of processors, as well as disks, diskettes, the 8101, 8809, and a wide variety of adapters used for terminals, other devices, and system-to-system communication. For discussion purposes, "DPPX" refers to the DPPX/Base and one or more associated programs, which are described by name.

DPPX is designed for distributed processing and supports three basic types of network configurations, which permit user selection to meet data processing requirements. These are:

- Standalone, where each processor operates without any information transfer with other processors
- Interconnected, where each 8130/8140 processor transfers information with other 8130/8140 processors through an SDLC data link
- Host-connected, where an 8130/8140 transfers information with a System/370 or 303X processor through an SDLC data link.

In a DPPX-distributed system, data processing resources can be placed where they afford the best user availability. Applications can be off-loaded from a host processor to remote locations and modified to execute in the 8130/8140, as well as executing new applications that are unique to the remote 8130/8140 locations. This ability to distribute processing functions permits a balanced approach by providing the necessary control at the central location and sufficient flexibility at the remote location.

DPPX provides support services for application development, including high-level languages and interactive application development tools. It can be programmed to handle many applications, which include business, scientific, and manufacturing control. It has a comprehensive set of facilities that enable effective management of DP operations including system installation and customization, system operation, and system growth.

### GR711 DPPX Licensed Programs

The following paragraphs list and briefly explain, where necessary, the DPPX family of licensed programs according to how they are used.

#### Application Development Programs

Programmers who know the following languages on other systems can easily become familiar with the following:

- DPPX/FORTRAN Compiler
- DPPX/FORTRAN Library
- DPPX/COBOL Compiler
- DPPX/COBOL Library

#### Application Support Programs

The following are particularly useful for coding in DPPX/COBOL:

- DPPX Distributed Presentation Services – COBOL programs that involve information transfer with a keyboard/display. Operators can use the DPPX/Distributed Presentation Services logic and full-screen data presentation capabilities to simplify the creation of screen layouts.
- DPPX Data Base and Transaction Management System – This program supplements DPPX/Base service by managing concurrent processing of user-written transaction programs, and controlling access to and protecting the integrity of shared data.
- DPPX Development Management System – Provides a simplified user interface for coding DPPX/COBOL programs from limited-user information. It produces DPPX/COBOL programs that can handle transactions, run as batch jobs, and involve the creation of screen layouts by DPPX Distributed Presentation Services.

#### Enhanced Network Access Programs

These programs are used in host to 8100 information transfer:

- DPPX Remote Job Entry Workstation Facility – Transfers information with a host System/370 or 303X RJE subsystem (such as JES2), and directs user-defined jobs to the host job queue to await execution.
- DPPX 3270 Data-Stream Capability – Permits users at some DPPX/8100-attached terminals to transfer information with selected 3270 applications at the host.

#### Network Management Programs

Two System/370 programs are used for network management, and enable centrally located personnel to use and manage 8100 DPPX facilities:

- Host Command Facility (HCF) – Permits a System/370 user to log on through a host-connected terminal and act as the system operator for a data link-connected DPPX/8100 application.
- Distributed Systems Executive (DSX) – Ensures orderly sessions between a System/370 and an 8130/8140, and manages the batch data transfer between the 8130/8140 and a host.

#### Specialized Application Programs

DPPX also provides the following specialized application programs:

- DPPX Sort/Merge
- DPPX Parameter Table Generation Facility for the 3644 Automatic Data Unit.
- DPPX Assembler

### GR712 Host Support Programs

The VTAM, ACF/VTAM, BTAM, TCAM, and ACF/TCAM host access methods support DPPX, while DOS/VS, OS/VS1, OS/VS2(SVS), and OS/VS2(MVS) support the host operating system. DPPX, in turn, supports 8100s attached to a System/370 through the 3704 or 3705, and a number of program products such as IMS/VS, CICS/VS, and TSO.

**GR713 DPPX/Base User Interface**

The DPPX/Base command facility serves as the primary user interface to the system, and provides an interface that permits use of an assembler program for system operation. Each user shares the access to the system programming interface provided by the DPPX command set, which can handle diverse requirements. DPPX uses this command set for installation, operation, administration, program development, and to describe user work and system resources.

A command entered from a terminal can either be processed immediately or scheduled for batch execution. Programmers coding an application can insert many terminal-entered commands into their programs, which execute by using a call to the command processing program. DPPX/Base commands are used to add licensed programs to the system, and to customize the system after program installation.

The commands handle the administrative concern of managing user work and system resources on a day-to-day basis. Special data set areas called profiles contain this information used by DPPX. An authorized terminal operator uses these commands, as well as those used for editing data sets, to create, change, and delete profiles. Other-profile-related commands aid in system operation. The authorized user can be designated as the system operator to direct system activity, and thereby use commands to start and stop applications and activate and deactivate terminals, printers, and other network resources. System control can be transferred at any time between (1) programs, (2) terminal users, and (3) terminal users and programs. An application executing in and controlling its own system can also control an application executing in another through a data link.

The interactive nature of DPPX permits customers to develop and use application programs. Application programmers can, therefore, increase system interactivity by using the DPPX/Base command facility to define their own commands or command lists, and then tailor them to their own needs.

**GR714 DPPX Debug Facilities**

While a program executes, a programmer can invoke the interactive debug facility from a terminal, to diagnose problems within the program. In this manner, program execution can be monitored by defining breakpoints and displaying and modifying the contents of storage, registers, or system status areas. COBOL- and FORTRAN-compiled programs can be diagnosed by including diagnostic statements within the program before compiling it, which become part of the individual compiler program. Dumps of the user storage address contents also aid in program debug.

**GR715 DPPX System Programming Installation and Customization**

After the hardware is installed, the DPPX program diskettes sent from an IBM Program Distribution Center are loaded. This process involves copying the data from the diskettes to the system-resident device, and then performing an IPL to initialize the system and operator's console. The user then customizes, or tailors, the system to match specific hardware and programming requirements. The DPPX/Base program provides various configuration definitions that specify different arrangements of hardware and programming and make customization easier. Each definition has a corresponding command list which defines and activates system devices. The definition also assigns various parameters which specify the system's processing characteristics. The customer only needs to decide which configuration results most nearly in the desired arrangement, then IPLs the system, and optionally makes any necessary changes. Subsequent customization changes and licensed program additions can be performed later from a terminal. This involves either changing only those devices involved, or specifying another DPPX/Base customization option, and does not require a complete system reconfiguration.

**GR720 Distributed Processing Control Executive (DPCX)**

DPCX is a licensed program product used to control the 8100 Information System, and to also control information transfer with a host system in a distributed system network application. It governs all 8100 resources and the access to them, while also providing a method of data exchange with the host through communications facilities. DPCX can operate an 8100 without use of a host, although complete independency does not exist. The following explains these host dependencies:

- User programs reside in a separate macro library at the host system. They must be assembled by the host and then validated by Program Validation Services (PVS) before being sent to the 8100 in executable form. The host can also optionally test these programs. (Once the user programs reside in the 8100, they are not directly executable by hardware; instead, they are performed by a series of subroutines within the 8100.)
- PVS must also validate user data set definitions, also called Data Set Control Blocks (DSCBs), before sending them to the 8100. The host also sends data to these DSCBs after they reside at the 8100.
- Any display terminal using full-screen processing uses the host to create these images. (Field-by-field processing does not require a host, but processes less screen data at one time.)

Therefore, although requiring a host for initial setup, DPCX can process data without frequent host information transfer. It functions as a standalone system by executing tasks, such as user programs and DPCX service functions, while also allocating system resources, without the need for host dependency.

DPCX functions and services permit the development of user applications, and can provide for the execution of up to 31 active tasks. (Tasks are considered active if they are ready for execution, although certain service functions permit only one active task at a given time.) To efficiently manage storage resources, tasks transfer between processor storage and disk storage, but execute only while in processor storage. At any one time, only part of the program resides in processor storage, while the remainder resides on either disk or diskette storage facilities.

DPCX assigns up to four device levels to a task, depending on system resources needed:

1. The primary device, always an operator terminal, remains allocated to the task.
2. The secondary device, such as a tape unit or a print data set, remains allocated until task completion.
3. The user-allocated tertiary device, such as a diskette drive, tape unit, or printer, becomes automatically released from the task if the program failed to specify its release.
4. The Level 4 device always indicates an active host communication session, and releases at the end of the session or program.

All device levels need not be used, but only four can be permitted.

**Note:** *These device levels should not be confused with the address levels used to specify level path entry for device addressing.*

System resources are either serially or concurrently shareable. Serially shareable resources, such as processor execution and device allocation, can only be used by one active task, whereas concurrently shareable resources, such as processor storage, disk storage, and the host communication network, can be used by several. This permits multiple use of resources by multiple tasks.

### *GR721 Methods of System Data Exchange Using DPCX*

Several DPCX functions, namely, Remote Job Entry (RJE), 3270 Data-Stream Compatibility (DSC), and bulk print, permit the host system to transfer information with a device attached to the 8100 without requiring user application programs. The following explains these functions:

- RJE submits jobs to the host system through the communications network and receives the results, which can be printed if desired.
- 3270 DSC logically connects the host application program to an operator terminal through the communications network, thus permitting direct information transfer from the operator terminal to the host program.
- Bulk print logically connects the host application program to an operator terminal through the communications network, thus permitting the sending of print data directly to an 8100 printer.

User programs can exchange data with the host either in interactive mode by using a terminal operator, or in batch mode without requiring operator intervention. These data sets also can reside on either diskettes or tapes, and data transfer can occur with systems other than the host.

DPCX also uses some service functions which reside on the disk storage of the 8130, 8140, or 8101, to permit operations such as host communication control, packing transaction data for batch information transfer to the host, and for printing data. Some of these service functions execute when selected by the terminal operator, some execute when selected by a user program, and still others execute when selected by another service function.

DPCX service functions also can perform specific types of information exchange, such as user programs, data set definitions (DSCBs), and print data. The type 1 and type 2 batch functions accomplish these exchanges without any operator terminal intervention. Diskettes and tapes can also exchange the same type of information by using Batch Data Exchange Services, which is part of DPCX host support.

### *GR722 DPCX System Resource Access Control*

Access privileges to system resources depend on the USERID specified during a logon procedure. The system administrator allocates various privileges to the user, according to the ID assignment.

- The control operator (ID 01) accesses restricted DPCX functions and can retrieve system messages, while also functioning as a terminal operator.
- The terminal operator can select a user program, or invoke certain service functions, such as those used to input or display data.
- The RJE operator controls only RJE operations. This function can also be performed by either a control or a terminal operator.

The user installs and customizes DPCX by incorporating certain IBM-supplied DPCX service functions, and programs and data bases from a 3790 Communications System can be adapted to the 8100 Information System only with minor changes.

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