PAGE NO. SH		TITLE	PART NO.	EC NO.	FEATURE	B/M OR B/MS

** LOGIC TYPE   DIAGNOSTIC MANUAL   7

C80004.15*	F804*	2821-2540 SCAN PROG DESC	0840257	125643	.W.	0840128
C80004.15-	F804	2821-2540 CHNL REG AND CTRL	0840258	125643	.W.	0840128
080005.15-	F805	2821-2540 BUFFER ADDRESS	0840260	125643	.W.	0840128
C80006.15-	F806	2821-2540 PCH XLATOR OVLY 5	0840474	125643	.W.	0840128
C80012.15*	F80C*	2821-1403 UCS SCAN DESC	0840222	125655	.W.	0840124
C80012.15-	F80C	2821-1403 UCS SCAN RTN 1-2	0840223	125655	.W.	0840124
C80013.15-	F80D	2821-1403 UCS SCAN RTN 1-2	0840225	125655	.W.	0840124

TABLE OF CONTENTS

1. PURPOSE

1.1 INTENT

TO ISOLATE A SOLID DATA PATH FAILURE WITHIN THE 2821 -- 2540 ATTACHMENT.

2. PREREQUISITES

2.1 PROGRAM REQUIREMENTS

THE PROGRAM IS RUN WITH A DIAGNOSTIC MONITOR.
THE PROGRAM ASSUMES THAT THE CPU & CHANNEL ARE OPERABLE.
THE PROGRAM ASSUMES THAT I/O COMMANDS ARE OPERABLE.
THE PROGRAM IS RELOCATABLE.

2.2 EQUIPMENT REQUIREMENTS

PROGRAM LOADING DEVICE
HARD COPY OUTPUT DEVICE
CPU - OPERABLE
CHANNEL - OPERABLE
8K MINIMUM STORAGE
2540 READER/PUNCH
2821 CONTROL UNIT WITH FOLLOWING REQUIREMENTS--
  CONTROL CIRCUITS FUNCTION PROPERLY.
  ERROR CHECKING CIRCUITS FUNCTION PROPERLY.
  READER & PUNCH CAN BE MADE READY

2.3 PROGRAM IDENTIFICATION NUMBERS

TO MINIMIZE MAINTENANCE COSTS FOR FUTURE PROGRAM REVISIONS DUE TO ENGINEERING CHANGE ACTIVITY, THE FOLLOWING ID NUMBERS HAVE BEEN ASSIGNED TO VARIOUS PORTIONS OF THIS PROGRAM PACKAGE.

ID NUMBER	ASSIGNMENT
F804*	DESCRIPTION OF COMPLETE PROGRAM WHICH INCLUDES ALL ROUTINE OVERLAYS.
F804	OBJECT DECKS AND ASSEMBLER PROGRAM LISTINGS FOR ROUTINE OVERLAYS 01 AND 02.

ID		ASSIGNMENT
F805		OBJECT DECKS AND ASSEMBLER PROGRAM LISTINGS FOR ROUTINE OVERLAYS 03 AND 04.
F806		OBJECT DECK AND ASSEMBLER PROGRAM LISTING FOR ROUTINE OVERLAY 05.

NOTE THE SEARCH NUMBER FOR THIS PROGRAM IS 804-- 805 AND 806 CAN NOT BE USED.

3. USE PROCEDURE

3.1 LOADING

STANDARD VIA DM AS DESCRIBED IN THE USERS GUIDE.

SINCE THIS PROGRAM PACKAGE UTILIZES THE PROGRAM OVERLAY CONCEPT, ALL ROUTINES MUST BE LOADED AND RUN IN ID NUMBER SEQUENCE.

3.2 OPERATING

3.2.1 GENERAL OPERATING

THE READER AND PUNCH MUST BE MADE READY BEFORE RUNNING THIS PROGRAM. THE PUNCH MUST BE LOADED WITH AT LEAST 20 BLANK CARDS PER PROGRAM PASS.

3.2.2 SENSE SWITCH USAGE --COMMON TO ALL ROUTINES--

THE SENSE SWITCHES SHOWN BELOW ARE IN THE SENSE SWITCH BYTE OF THEIR RESPECTIVE SECTION PREFACE. THE CHARACTER X REPRESENTS THE RELOCATION FACTOR CONTAINED IN REGISTER 15 DURING RUN TIME. THE SWITCH BITS ARE ZERO WHEN OFF, AND ONE WHEN ON.

SENSE SW. =	FUNCTION	SECTION OR ROUTINE	BYTE AND BIT
0	OFF--PROCEED NORMALLY	ENTIRE SECTION	X004
	ON--SHORT LOOP ON START I/O - TEST I/O		0
1	OFF--PROCEED NORMALLY	,,	X004
	ON--ENTER UTILITY SCOPE ROUTINE		1
2	OFF--PROCEED NORMALLY	,,	X004
	ON--LOG OUT DATA ACCUMULATION TABLE		2
6	OFF--PROCEED NORMALLY	,,	X004
	ON--PRINT SECTION TITLE		6

3.2.3 UTILITY ROUTINE SET UP PROCEDURES

THIS IS A RESIDENT ROUTINE. IT CAN ONLY BE ENTERED AT THE BEGINNING OF EACH ROUTINE OR AFTER THE ANALYSIS RESULTS AND LOG OUT PRINTOUT OF EACH ROUTINE. THIS ROUTINE WILL BE ENTERED AT THESE TIMES IF SECTION SENSE SWITCH 1 IS SET TO 1.

WHEN THIS ROUTINE IS ENTERED, AN OUTPUT MESSAGE WILL INFORM THE C.E. TO PRESS CONSOLE STOP, THEN ENTER THE SCOPING DATA. THIS DATA IS TO BE ENTERED, IN HEX, VIA THE CONSOLE SWITCHES AS INDICATED BELOW.

    BYTE 0   1   2   3

```
BIT   01234567 01234567 01234567 01234567
      -----------------------------------------
      I                 I      I        I
GRA   I                 I-OP CODEI  )   I  )--SLI FLAG, BIT 2
      I                 I  SEE  I   *   I  *--SKIP FLAG, BIT 3
      I                 I  6.1  I       I
      I-----+-----------I-------I-------I-------I
      I                 I       I       I
GRB   I-------CONTENTS OF DATA FIELD------I
      I                               I
      I--------+--------I-----I-----------I
      I                 I     I           I
GRC   I----CCW COUNT----I     II/O ADDRESS-I
      I                 I     I           I
      -----------------------------------------
```

NOTES--THE FOUR BYTES OF DATA ENTERED IN GRB WILL
       BE RIPPLED THROUGHOUT THE CCW DATA FIELD.
     --IF THE CCW COUNT EXCEEDS 180 BYTES, THE ROUTINE
       WILL FORCE IT TO 180.
     --THE MAIN STORAGE LOCATIONS OF PERTINENT FIELDS
       USED BY THIS ROUTINE ARE LISTED BELOW. X DENOTES
       THE CONTENTS OF GENERAL REGISTER 15.

       SIO INSTRUCTION -- X6C6 THRU X6C9
       CAW -- X048 THRU X04B
       CCW -- X0E8 THRU X0EF
       DATA FIELD -- X234 THRU X2E7

AFTER THE ABOVE DATA HAS BEEN ENTERED, THE C.E. COULD
SET UP ONE OF THE FOLLOWING OPTIONS BEFORE PRESSING
CONSOLE START.

   1. SET SECTION SENSE SWITCH 0 TO 1 TO PUT THE SELECTED
      OP IN A TIGHT START I/O - TEST I/O LOOP.

   2. SET SECTION SENSE SWITCH 0 TO 0 TO PERFORM THE
      SELECTED OP ONCE. IN THIS CASE THE UTILITY ROUTINE
      WILL PERFORM THE SELECTED OP ONCE, THEN REQUEST NEW
      SCOPING DATA.

   3. SET SECTION SENSE SWITCHES 0 AND 1 TO ZERO. IN
      THIS CASE, THE SELECTED OP WILL NOT BE PERFORMED,
      AND A BRANCH BACK TO THE MAIN PROGRAM WILL OCCUR.

THE C.E. CAN EXIT FROM THE UTILITY ROUTINE BY PRESSING
CONSOLE STOP AT ANY TIME, SET SECTION SENSE SWITCHES 0
AND 1 TO ZERO, THEN PRESS CONSOLE START.

3.3 HALTS

3.3.1 NORMAL HALTS

NONE

3.3.2 ERROR HALTS --COMMON TO ALL ROUTINES--

THE PROGRAM WILL NOT STOP ON ANY ERROR HALTS UNLESS THE
HALT ON ERROR SENSE SWITCH IS ON IN THE DIAGNOSTIC MONITOR.

3.3.3 SPECIAL HALTS --COMMON TO ALL ROUTINES

THE PROGRAM WILL ONLY HALT ON THE SPECIAL HALTS
IF THE CORRESPONDING SENSE SWITCHES ARE SET.

HALT AFTER LOG OUT OF ACCUMULATED DATA

IF THE OPERATOR REQUESTS THE LOG OUT OF THE ACCUMULATED

DATA, THE PROGRAM WILL HALT AFTER THE LOG OUT. IN
ORDER TO CONTINUE, THE CONSOLE INTERRUPT KEY MUST BE
DEPRESSED.

HALT TO SET UP INFORMATION FOR UTILITY ROUTINE.

IF THE OPERATOR REQUESTS TO USE THE BUILT-IN UTILITY
ROUTINE, THE PROGRAM WILL LOOP TO WAIT FOR THE C.E. TO
PRESS CONSOLE STOP --REFER TO SECTION 3.2.3 FOR DETAILS
CONCERNING THE BUILT-IN UTILITY ROUTINE.

3.4 TERMINATION

THE PROGRAM RETURNS CONTROL OF THE SYSTEM TO MONITOR VIA
MONITOR CALL SVC D6.

4. PRINTOUTS

4.1 TITLE PRINTOUTS

THE FOLLOWING TITLE PRINTOUTS WILL OCCUR ONLY IF SECTION SENSE
SWITCH 06 IS SET TO 1.

-2821 SCAN/2540 ATTACHMENT, CHANNEL REGISTER FLT

ABOVE PRINTOUT IS THE TITLE FOR ROUTINE OVERLAY 01

-2821 SCAN/2540 ATTACHMENT, CONTROL PROGRAM

ABOVE PRINTOUT IS THE TITLE FOR ROUTINE OVERLAY 02.

-2821 SCAN/2540 ATTACHMENT, BUFFER ADDRESSING FLT

ABOVE PRINTOUT IS THE TITLE FOR ROUTINE OVERLAY 03.

-READ XLATE FLT-

ABOVE PRINTOUT IS THE TITLE FOR ROUTINE OVERLAY 04.

-PUNCH XLATE FLT-

ABOVE PRINTOUT IS THE TITLE PRINTOUT FOR ROUTINE OVERLAY 05.

4.2 INSTRUCTIONS TO THE OPERATOR --COMMON TO ALL ROUTINES--

-I/O ADDR XXX CAW YYYYYYYY GOT CC1 CSW STATUS 0200 SNS 40-
-MAKE THIS UNIT RDY WITH BLANK CARDS-

ABOVE MESSAGE WILL BE PRINTED IF INTERVENTION REQUIRED IS
ENCOUNTERED WHEN TRYING TO EXECUTE AN I/O OPERATION.
XXX DEFINES THE UNIT ADDRESS AND Y--Y DEFINES THE CHANNEL
ADDRESS WORD DATA. THE PROGRAM WILL LOOP FOR 20 SECONDS TO
ALLOW THE UNIT TO BE MADE READY. THE MESSAGE WILL BE REPEATED
EVERY 20 SECONDS IF THE CONDITION IS NOT RECTIFIED.

4.3 ERROR MESSAGES

4.3.1 ERROR MESSAGES COMMON TO ALL ROUTINES

-I/O ADDR XXX CAW YYYYYYYY GOT CC 0 BUT NO INTERRUPT-

ABOVE MESSAGE WILL BE PRINTED IF NO I/O INTERRUPT OCCURS
WITHIN 10 SECONDS OF RECEIVING CONDITION CODE 0 TO AN
I/O OPERATION. XXX DEFINES THE UNIT ADDRESS AND Y--Y

DEFINES THE CHANNEL ADDRESS WORD DATA. THE PROGRAM
WILL RETRY THE I/O OPERATION.

-I/O ADDR XXX CAW YYYYYYYY GOT CC U CSW STATUS VVVV SNS ZZ-

ABOVE MESSAGE WILL BE PRINTED WHEN UNEXPECTED UNIT OR
CHANNEL STATUS IS RECEIVED IN RESPONSE TO AN I/O OPERATION.
XXX DEFINES THE UNIT ADDRESS, Y--Y DEFINES THE CHANNEL
ADDRESS WORD DATA, U DEFINES THE CONDITION CODE --0 OR 1--,
VVVV DEFINES THE UNIT AND CHANNEL STATUS, AND ZZ DEFINES
THE SENSE DATA. THE PROGRAM WILL RETRY THE I/O OPERATION.

-I/O ADDR XXX CAW YYYYYYYY GOT CC U-

ABOVE MESSAGE WILL BE PRINTED WHEN CONDITION CODE 2 OR 3
IS RECEIVED IN RESPONSE TO A START I/O. XXX DEFINES THE
UNIT ADDRESS, Y--Y DEFINES THE CHANNEL ADDRESS WORD DATA,
AND U DEFINES THE CONDITION CODE. THE PROGRAM WILL RETRY
THE I/O OPERATION.

-DIAG CK RD UNIT XXX NOT OK, WILL TRY AGAIN-

ABOVE MESSAGE WILL BE PRINTED IF THE DIAGNOSTIC CHECK READ
COMMAND DOES NOT TRANSFER DATA TO THE CPU. XXX DEFINES
THE UNIT ADDRESS. THE PROGRAM WILL RETRY THE OPERATION.

4.3.2 ERROR MESSAGES COMMON ONLY TO ROUTINE 02 --CONTROL PROGRAM--

-ERR 001-
ABOVE MESSAGE DEFINES AN ADDRESS REGISTER PROBLEM.

-ERR 002 THRU 004-
RESERVED

-ERR 005-
ABOVE MESSAGE DEFINES A CHANNEL REGISTER PROBLEM.

-ERR 006-
ABOVE MESSAGE DEFINES PROBLEM WITH BUFFER INHIBIT LINES
AND/OR CONTROLS OR SENSE AMPS WITH DATA CHECK.

-ERR 007-
ABOVE MESSAGE DEFINES A CHANNEL REGISTER PROBLEM.

-ERR 008-
ABOVE MESSAGE DEFINES A PROBLEM WITH BUFFER INHIBIT LINES
AND/OR CONTROLS OR SENSE AMPS WITH NO DATA CHECK.

-ERR 009-
ABOVE MESSAGE DEFINES A PROBLEM WITH PARITY BIT INHIBIT
LINES OR CONTROLS OR PARITY SENSE AMP. COULD ALSO BE
INTERMITTENT PARITY PROBLEM.

-ERR 010-
ABOVE MESSAGE DEFINES A FALSE READ TRANSLATE PROBLEM IN
READ TRANSLATE CHECK CIRCUITS.

-ERR 011-
ABOVE MESSAGE DEFINES A DATA REGISTER PROBLEM.

-ERR 012-
ABOVE MESSAGE DEFINES A FALSE PUNCH TRANSLATE CHECK.

-ERR 013-
ABOVE MESSAGE DEFINES MULTIPLE ERRORS -COULD BE FALSE
PUNCH AND/OR FALSE READ TRANSLATE CHECKS.

-ERR 014-

ABOVE MESSAGE DEFINES FALSE PARITY CHECKS.

-ERR 015-
ABOVE MESSAGE DEFINES FALSE PUNCH TRANSLATE CHECKS.

-ERR 016-
ABOVE MESSAGE DEFINES MULTIPLE ERRORS -COULD BE FALSE
TRANSLATE AND/OR FALSE PARITY ERRORS.

-ERR 017-
ABOVE MESSAGE DEFINES FALSE PARITY CHECKS.

-ERR 018-
ABOVE MESSAGE DEFINES READ BUFFER OR DIAGNOSTIC WRITE
PROBLEM.

-ERR 019-
ABOVE MESSAGE DEFINES INTERMITTENT FALSE READ TRANSLATE
CHECKS.

-ERR 020-
ABOVE MESSAGE DEFINES INTERMITTENT PARITY CIRCUIT PROBLEM.

-ERR 021-
ABOVE MESSAGE DEFINES MULTIPLE ERRORS.

-ERR 022-
ABOVE MESSAGE DEFINES DATA REGISTER OR READ TRANSLATE
PROBLEM.

-ERR 023-
ABOVE MESSAGE DEFINES MULTIPLE ERRORS.

-ERR 024-
ABOVE MESSAGE DEFINES A PUNCH TRANSLATE PROBLEM.

-ERR 025-
ABOVE MESSAGE DEFINES A PUNCH TRANSLATE PROBLEM.

-ERR 026-
ABOVE MESSAGE DEFINES A FALSE PARITY CHECK PROBLEM.

-ERR 027 THRU 029-
RESERVED

4.3.3 ERROR MESSAGES COMMON ONLY TO ROUTINE 01 --CHANNEL REG FLT--

-ERR 030-
NO CHANNEL REGISTER BITS WILL TURN ON
LOGIC PAGE 32.11.12.1
CIRCUITS - B1D10, B1E09, B1A12
LOGIC PAGE 32.11.13.1
CIRCUITS - B1E12, B1E11, B1D02
LOGIC PAGE 32.11.16.1
CIRCUITS - B1C04, B1E18

-ERR 031-
NO RESET TO CHANNEL REGISTER
LOGIC PAGE 32.11.13.1
CIRCUITS - B1E12, H1E11, B1D02

-ERR 032-
CHANNEL REG -0- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.12.1
CIRCUITS - B1D09, B1D11, B1A11
LOGIC PAGE 32.11.21.1
CIRCUITS - B1H02

-ERR 033-
CHANNEL REG -0- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.12.1
CIRCUITS - B1D09, B1D11, B1A11, B1B07, B1D10
LOGIC PAGE 32.11.21.1
CIRCUITS - B1H02

-ERR 034-
CHANNEL REG -1- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.12.1
CIRCUITS - B1D09, B1D11, B1A11
LOGIC PAGE 32.11.21.1
CIRCUITS - B1H02

-ERR 035-
CHANNEL REG -1- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.12.1
CIRCUITS - B1D09, B1D11, B1A11, B1B07, B1D10
LOGIC PAGE 32.11.21.1
CIRCUITS - B1H02

-ERR 036-
CHANNEL REG -2- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.13.1
CIRCUITS - B1H10, B1E10, B1D12, B1E12, B1F09
LOGIC PAGE 32.11.23.1
CIRCUITS - B1H02

-ERR 037-
CHANNEL REG -2- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.13.1
CIRCUITS - B1H10, B1E10, B1D12, B1E12, B1B07, B1F09
LOGIC PAGE 32.11.23.1
CIRCUITS - B1H02
LOGIC PAGE 42.32.01.1
CIRCUITS - B4D16

-ERR 038-
CHANNEL REG -3- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.13.1
CIRCUITS - B1H10, B1E10, B1D12, B1F09
LOGIC PAGE 32.11.24.1
CIRCUITS - B1G07

-ERR 039-
CHANNEL REG -3- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.13.1
CIRCUITS - B1H10, B1E10, B1D12, B1E12, B1B07, B1F09, B1E12
LOGIC PAGE 32.11.24.1
CIRCUITS - B1G07
LOGIC PAGE 42.32.01.1
CIRCUITS - B4G23, B4D16

-ERR 040-
CHANNEL REG -4- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.14.1
CIRCUITS - B1F09, B1H10, B1F10, B1D12, B1C07, B1E12
LOGIC PAGE 32.11.25.1
CIRCUITS - B1G08

-ERR 041-
CHANNEL REG -4- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.14.1
CIRCUITS - B1H10, B1F10, B1D12, B1C07, B1E12, B1F09
LOGIC PAGE 32.11.25.1
CIRCUITS - B1G08
LOGIC PAGE 42.32.01.1
CIRCUITS - B4E16, B4G23

-ERR 042-
CHANNEL REG -5- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.14.1
CIRCUITS - B1H10, B1F11, B1F10, B1G10, B1F09, B1C07
LOGIC PAGE 32.11.23.1
CIRCUITS - B1H02

-ERR 043-
CHANNEL REG -5- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.14.1
CIRCUITS - B1H10, B1F11, B1F10, B1C07, B1G10, B1F09
LOGIC PAGE 32.11.23.1
CIRCUITS - B1H02
LOGIC PAGE 42.32.01.1
CIRCUITS - B4E16, B4G19

-ERR 044-
CHANNEL REG -6- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.15.1
CIRCUITS - B1E08, B1H10, B1G11, B1F11, B1G10
LOGIC PAGE 32.11.26.1
CIRCUITS - B1G08

-ERR 045-
CHANNEL REG -6- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.15.1
CIRCUITS - B1E08, B1H10, B1G11, B1F11, B1G10, B1C07
LOGIC PAGE 32.11.26.1
CIRCUITS - B1G08
LOGIC PAGE 42.32.02.1
CIRCUITS - B4F16, B4D08

-ERR 046-
CHANNEL REG -7- BIT DOES NOT TURN ON
LOGIC PAGE 32.11.15.1
CIRCUITS - B1G10, B1H10, B1G11, B1F11
LOGIC PAGE 32.11.27.1
CIRCUITS - B1G09

-ERR 047-
CHANNEL REG -7- BIT DOES NOT TURN OFF
LOGIC PAGE 32.11.15.1
CIRCUITS - B1G10, B1H10, B1G11, B1F11, B1C07
LOGIC PAGE 32.11.27.1
CIRCUITS - B1G09
LOGIC PAGE 42.32.02.1
CIRCUITS - B4F16, B4G23

4.3.4   ERROR MESSAGES COMMON ONLY TO ROUTINE 03 --BUFFER ADDR FLT--

-ERR 050-
BAR PROBLEM - ERROR PATTERN IS ERRATIC. PROBLEM MAY
BE INTERMITTENT.
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06, B3G07
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05, B3H06
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07

-ERR 051-
BAR UNITS A OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06, B3F06, B3E05

-ERR 052-
RAR UNITS A INPUT TO BAR ALWAYS ACTIVE

LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 053-
PAR UNITS A INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 054-
BAR UNITS A OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06, B3F06, B3E05

-ERR 055-
RAR UNITS A INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 056-
PAR UNITS A INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 057-
BAR UNITS B OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06, B3F06, B3E05

-ERR 058-
RAR UNITS B INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 059-
PAR UNITS B INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 060-
BAR UNITS B OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06, B3F06, B3E05

-ERR 061-
RAR UNITS B INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 062-
PAR UNITS B INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G06

-ERR 063-
BAR UNITS C OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07, B3F06, B3E05

-ERR 064-
RAR UNITS C INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 065-
PAR UNITS C INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 066-
BAR UNITS C OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07, B3F06, B3E05

-ERR 067-
RAR UNITS C INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 068-
PAR UNITS C INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 069-
BAR UNITS D OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07, B3F06, B3E05

-ERR 070-
RAR UNITS D INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 071-
PAR UNITS D INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 072-
BAR UNITS D OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07, B3F06, B3E05

-ERR 073-
RAR UNITS D INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 074-
PAR UNITS D INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.15.1
CIRCUITS - B3G07

-ERR 075-
BAR UNITS E OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05, B3F06, B3F05

-ERR 076-
RAR UNITS E INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 077-
PAR UNITS E INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 078-
BAR UNITS E OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05, B3F06, B3F05

-ERR 079-
RAR UNITS E INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1

CIRCUITS - B3H05

-ERR 080-
PAR UNITS E INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 081-
BAR TENS A OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05, B3F06, B3F05

-ERR 082-
RAR TENS A INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 083-
PAR TENS A INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 084-
BAR TENS A OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05, B3F06, B3F05

-ERR 085-
RAR TENS A INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 086-
PAR TENS A INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H05

-ERR 087-
BAR TENS B OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06, B3F07, B3F05

-ERR 088-
RAR TENS B INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 089-
PAR TENS B INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 090-
BAR TENS B OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06, B3F07, B3F05

-ERR 091-
RAR TENS B INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 092-
PAR TENS B INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 093-

BAR TENS C OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06, B3F07, B3F05

-ERR 094-
RAR TENS C INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 095-
PAR TENS C INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 096-
BAR TENS C OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06, B3F07, B3F05

-ERR 097-
RAR TENS C INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 098-
PAR TENS C INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.16.1
CIRCUITS - B3H06

-ERR 099-
BAR TENS D OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07, B3F07, B3G05

-ERR 100-
RAR TENS D INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07

-ERR 101-
PAR TENS D INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07

-ERR 102-
BAR TENS D OUTPUT NEVER ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07, B3F07, B3G05

-ERR 103-
RAR TENS D INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07

-ERR 104-
PAR TENS D INPUT TO BAR NEVER ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07

-ERR 105-
BAR TENS E OUTPUT ALWAYS ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07, B3F07, B3G05

-ERR 106-
RAR TENS E INPUT TO BAR ALWAYS ACTIVE
LOGIC PAGE 32.20.17.1
CIRCUITS - B3H07
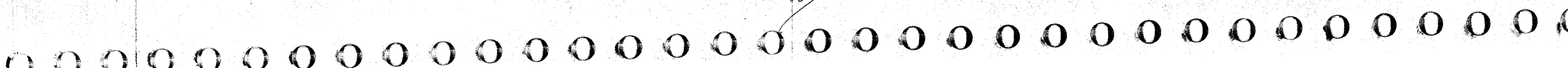
-ERR 107-
  PAR TENS E INPUT TO BAR ALWAYS ACTIVE
  LOGIC PAGE 32.20.17.1
  CIRCUITS - B3H07

-ERR 108-
  BAR TENS E OUTPUT NEVER ACTIVE
  LOGIC PAGE 32.20.17.1
  CIRCUITS - B3H07, B3F07, B3G05

-ERR 109-
  RAR TENS E INPUT TO BAR NEVER ACTIVE
  LOGIC PAGE 32.20.17.1
  CIRCUITS - B3H07.

-ERR 110-
  PAR TENS E INPUT TO BAR NEVER ACTIVE
  LOGIC PAGE 32.20.17.1
  CIRCUITS - B3H07

-ERR 111-
  RAR PROBLEM THAT COULD BE CAUSED BY ONE OF THE FOLLOWING
    1. UNITS OR TENS TRIGGERS A OR B ALWAYS ACTIVE
       LOGIC PAGE 32.20.11.1
       CIRCUITS - B3E08, B3E09
       LOGIC PAGE 32.20.12.1
       CIRCUITS - B3F08, B3F09, B3B09
    2. UNITS TRIGGER A NEVER ACTIVE
       LOGIC PAGE 32.20.11.1
       CIRCUITS - B3E08
    3. TENS TRIGGERS D OR E NEVER ACTIVE
       LOGIC PAGE 32.20.12.1
       CIRCUITS - B3F11, B3F12, B3C12

-ERR 112-
  PAR PROBLEM THAT COULD BE CAUSED BY ONE OF THE FOLLOWING
    1. UNITS OR TENS TRIGGERS A OR B ALWAYS ACTIVE
       LOGIC PAGE 32.20.13.1
       CIRCUITS - B3G08, B3G09
       LOGIC PAGE 32.20.14.1
       CIRCUITS - B3H08, B3H09, B3B10
    2. UNITS TRIGGER A NEVER ACTIVE
       LOGIC PAGE 32.20.13.1
       CIRCUITS - B3G08
    3. TENS TRIGGERS D OR E NEVER ACTIVE
       LOGIC PAGE 32.20.14.1
       CIRCUITS - B3H11, B3H12, B3C12

-ERR 113-
  RAR UNITS TRIGGER B NEVER ACTIVE
  LOGIC PAGE 32.20.11.1
  CIRCUITS - B3E09

-ERR 114-
  PAR UNITS TRIGGER B NEVER ACTIVE
  LOGIC PAGE 32.20.13.1
  CIRCUITS - B3G09

-ERR 115-
  RAR UNITS C TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.11.1
  CIRCUITS - B3E10

-ERR 116-
  PAR UNITS C TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.13.1
  CIRCUITS - B3G10

-ERR 117-
  RAR UNITS D TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.11.1
  CIRCUITS - B3E11

-ERR 118-
  PAR UNITS D TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.13.1
  CIRCUITS - B3G11

-ERR 119-
  RAR TENS B TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.12.1
  CIRCUITS - B3F09

-ERR 120-
  PAR TENS B TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.14.1
  CIRCUITS - B3H09

-ERR 121-
  RAR TENS C TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.12.1
  CIRCUITS - B3F10

-ERR 122-
  PAR TENS C TRIGGER NEVER ACTIVE
  LOGIC PAGE 32.20.14.1
  CIRCUITS - B3H10

-ERR 123-
  RAR PROBLEM THAT COULD BE CAUSED BY ONE OF THE FOLLOWING
    1. UNITS OR TENS TRIGGERS D OR E ALWAYS ACTIVE
       LOGIC PAGE 32.20.11.1
       CIRCUITS - B3E11, B3E12
       LOGIC PAGE 32.20.12.1
       CIRCUITS - B3F11, B3F12, B3B09, B3B10
    2. UNITS ADVANCE NEVER ACTIVE
       LOGIC PAGE 32.20.11.1
       CIRCUITS - B3F13
    3. TENS ADVANCE NEVER ACTIVE
       LOGIC PAGE 32.20.12.1
       CIRCUITS - B3F14, B3C18, B3F15

-ERR 124-
  PAR PROBLEM THAT COULD BE CAUSED BY ONE OF THE FOLLOWING
    1. UNITS OR TENS TRIGGERS D OR E ALWAYS ACTIVE
       LOGIC PAGE 32.20.13.1
       CIRCUITS - B3G11, B3G12
       LOGIC PAGE 32.20.14.1
       CIRCUITS - B3H11, B3H12, B3B11
    2. UNITS ADVANCE NEVER ACTIVE
       LOGIC PAGE 32.20.13.1
       CIRCUITS - B3G13
    3. TENS ADVANCE NEVER ACTIVE
       LOGIC PAGE 32.20.14.1
       CIRCUITS - B3G14, B3F15, B3C18

-ERR 125-
  RAR UNITS C TRIGGER ALWAYS ACTIVE
  LOGIC PAGE 32.20.11.1
  CIRCUITS - B3E10

-ERR 126-
  PAR UNITS C TRIGGER ALWAYS ACTIVE
  LOGIC PAGE 32.20.13.1
  CIRCUITS - B3G10

-ERR 127-
　　RAR PROBLEM -- ERROR PATTERN CANNOT BE IDENTIFIED.
　　PROBLEM MAY BE INTERMITTENT.
　　LOGIC PAGES 32.20.11.1 AND 32.20.12.1
　　CIRCUITS - ALL INDICATED IN ABOVE LOGIC PAGES

-ERR 128-
　　PAR PROBLEM -- ERROR PATTERN CANNOT BE IDENTIFIED.
　　PROBLEM MAY BE INTERMITTENT.
　　LOGIC PAGES 32.20.13.1 AND 32.20.14.1
　　CIRCUITS - ALL INDICATED IN ABOVE LOGIC PAGES

-ERR 129-
　　PROBLEM IN CIRCUITS USED TO DETECT COLUMN 80
　　LOGIC PAGE 32.31.05.1
　　CIRCUITS - B3A27, B3B05, B3B04

-ERR 130-
　　RAR UNITS E TRIGGER NEVER ACTIVE
　　LOGIC PAGE 32.20.11.1
　　CIRCUITS - B3D12, B3E13, B3F15

-ERR 131-
　　PAR UNITS E TRIGGER NEVER ACTIVE
　　LOGIC PAGE 32.20.13.1
　　CIRCUITS - B3D12, B3E14, B3F15

-ERR 132-
　　RAR TENS A TRIGGER NEVER ACTIVE
　　LOGIC PAGE 32.20.12.1
　　CIRCUITS - B3F08, B3B29

-ERR 133-
　　PAR TENS A TRIGGER NEVER ACTIVE
　　LOGIC PAGE 32.20.14.1
　　CIRCUITS - B3H08, B3B29

-ERR 134-
　　FALSE BAR ADDRESS CHECKS
　　LOGIC PAGES 32.20.18.1, 32.20.19.1
　　CIRCUITS - ALL INDICATED IN ABOVE LOGIC PAGES

-ERR 135 THRU 139-
　　RESERVED

4.3.5 ERROR MESSAGES COMMON ONLY TO ROUTINE 04 --READER
TRANSLATOR FLT--

ERROR NO.	DESCRIPTION	ALD PAGE	CIRCUITS
140	DATA RECORDS ARE MISSING OR ARE OUT OF SEQUENCE. THERE IS A TOTAL OF 129 DATA RECORDS SEQUENCE NUMBERED 084 THRU 212.		
141	CAN NOT ISOLATE READER TRANSLATOR FAILURE. SET SECTION SENSE SWITCH 2 TO 1 TO OBTAIN PROGRAM LOG OUT.		
142	CAN NOT SET DATA REG 12 TR WITH DIAGNOSTIC WRITE	32.20.31.1 42.23.03.1	B3F22,B3E22 B4D12

ERROR NO.	DESCRIPTION	ALD PAGE	CIRCUITS
143	DATA REG 12 TR ON SOLID	32.20.31.1 42.23.03.1	B3F22,B3E22,B3E18, B3H22 B4D12
144	CAN NOT SET DATA REG 11 TR WITH DIAGNOSTIC WRITE	32.20.31.1 42.23.03.1	B3G22,B3E22 B4D12
145	DATA REG 11 TR ON SOLID	32.20.31.1 42.23.03.1	B3G22,B3E22,B3E18, B3H22 B4D12
146	CAN NOT SET DATA REG 0 TR WITH DIAGNOSTIC WRITE	32.20.31.1 42.23.03.1	B3F23,B3E23 B4D12
147	DATA REG 0 TR ON SOLID	32.20.31.1 42.23.03.1	B3F23,B3E23,B3E18, B3H23 B4D12
148	CAN NOT SET DATA REG 1 TR WITH DIAGNOSTIC WRITE	32.20.32.1 42.23.03.1	B3G23,B3E23 B4D12
149	DATA REG 1 TR ON SOLID	32.20.32.1 42.23.03.1	B3G23,B3E23,B3E18, B3H23 B4D12
150	CAN NOT SET DATA REG 2 TR WITH DIAGNOSTIC WRITE	32.20.32.1 42.23.03.1	B3F24,B3E24 B4E12
151	DATA REG 2 TR ON SOLID	32.20.32.1 42.23.03.1	B3F24,B3E24,B3E19, B3H24 B4E12
152	CAN NOT SET DATA REG 3 TR WITH DIAGNOSTIC WRITE	32.20.32.1 42.23.03.1	B3G24,B3E24 B4E12
153	DATA REG 3 TR ON SOLID	32.20.32.1 42.23.03.1	B3G24,B3E24,B3E19, B3H24 B4E12
154	CAN NOT SET DATA REG 4 TR WITH DIAGNOSTIC WRITE	32.20.33.1 42.23.04.1	B3F25,B3E25 B4E12
155	DATA REG 4 TR ON SOLID	32.20.33.1 42.23.04.1	B3F25,B3E25,B3E19, B3H25 B4E12
156	CAN NOT SET DATA REG 5 TR WITH DIAGNOSTIC WRITE	32.20.33.1 42.23.04.1	B3G25,B3E25 B4E12
157	DATA REG 5 TR ON SOLID	32.20.33.1 42.23.04.1	B3G25,B3E25,B3E19, B3H25 B4E12
158	CAN NOT SET DATA REG 6 TR WITH DIAGNOSTIC WRITE	32.20.33.1 42.23.04.1	B3F26,B3E26 B4F12
159	DATA REG 6 TR ON SOLID	32.20.33.1 42.23.04.1	B3F26,B3E26,B3E20, B3H26 B4F12
160	CAN NOT SET DATA REG 7 TR WITH DIAGNOSTIC WRITE	32.20.34.1 42.23.04.1	B3G26,B3E26 B4F12
161	DATA REG 7 TR ON SOLID	32.20.34.1 42.23.04.1	B3G26,B3E26,B3E20, B3H26 B4F12
162	CAN NOT SET DATA REG 8 TR	32.20.34.1	B3F27,B3E27

#	Description	Ref	Card
	I WITH DIAGNOSTIC WRITE	42.23.04.1	B4F12
163	DATA REG 8 TR ON SOLID	32.20.34.1 / 42.23.04.1	B3F27,B3E27,B3E20, B3H27 / B4F12
164	CAN NOT SET DATA REG 9 TR WITH DIAGNOSTIC WRITE	32.20.34.1 / 42.23.04.1	B3G27,B3E27 / B4F12
165	DATA REG 9 TR ON SOLID	32.20.34.1 / 42.23.04.1	B3G27,B3E27,B3E20, B3H27 / B4F12
166	B3F22C TO B3E22C	32.20.31.1	B3E22,B3F22
167	B3E22A STUCK AT MINUS Y	32.20.31.1	B3E22
168	B3F22E TO B3E22D	32.20.31.1	B3E22,B3F22
169	B3E22E STUCK AT PLUS Y	32.20.31.1	B3E22
170	B3G22C TO B3E22H	32.20.31.1	B3E22,B3G22
171	B3E22L STUCK AT MINUS Y	32.20.31.1	B3E22
172	B3G22E TO B3E22P	32.20.31.1	B3E22,B3G22
173	B3E22Q STUCK AT PLUS Y	32.20.31.1	B3E22
174	B3F23C TO B3E23C	32.20.31.1	B3E23,B3F23
175	B3E23A STUCK AT MINUS Y	32.20.31.1	B3E23
176	B3F23E TO B3E23D	32.20.31.1	B3E23,B3F23
177	B3E23E STUCK AT PLUS Y	32.20.31.1	B3E23
178	B3G23C TO B3E23H	32.20.32.1	B3E23,B3G23
179	B3E23L STUCK AT MINUS Y	32.20.32.1	B3E23
180	B3G23E TO B3E23P	32.20.32.1	B3E23,B3G23
181	B3E23Q STUCK AT PLUS Y	32.20.32.1	B3E23
182	B3F24C TO B3E24C	32.20.32.1	B3E24,B3F24
183	B3E24A STUCK AT MINUS Y	32.20.32.1	B3E24
184	B3F24E TO B3E24D	32.20.32.1	B3E24,B3F24
185	B3E24E STUCK AT PLUS Y	32.20.32.1	B3E24
186	B3G24C TO B3E24H OR CAN NOT GET INVALID CARD CODE VIA 3 NT 4567	32.20.32.1 / 32.31.10.1	B3E24,B3G24 / B1G29
187	B3E24L STUCK AT MINUS Y OR B3E24L TO B1G29G	32.20.32.1 / 32.31.10.1	B3E24 / B1G29
188	B3G24E TO B3E24P	32.20.32.1	B3E24,B3G24
189	B3E24Q STUCK AT PLUS Y	32.20.32.1	B3E24
190	B3F25C TO B3E25C OR	32.20.33.1	B3E25,B3F25

#	Description	Ref	Card
	B1F30L STUCK AT PLUS Y OR CAN NOT GET INVALID CARD CODE VIA 4 NT 567	32.31.10.1 / 32.31.10.1	B1F30 / B1G30
191	B3E25A STUCK AT MINUS Y OR B3E25A TO B1G30F	32.20.33.1 / 32.31.10.1	B3E25 / B1G30
192	B3F25E TO B3E25D	32.20.33.1	B3E25,B3F25
193	B3E25E STUCK AT PLUS Y	32.20.33.1	B3E25
194	B3G25C TO B3E25H OR B1F29C STUCK AT PLUS Y OR CAN NOT GET INVALID CARD CODE VIA 5 NT 67	32.20.33.1 / 32.31.10.1	B3E25,B3G25 / B1F29 / B1G30
195	B3E25L STUCK AT MINUS Y OR B3E25L TO B1G30B	32.20.33.1 / 32.31.10.1	B3E25 / B1G30
196	B3G25E TO B3E25P	32.20.33.1	B3E25,B3G25
197	B3E25Q STUCK AT PLUS Y	32.20.33.1	B3E25
198	B3F26C TO B3E26C OR B3G26C TO B3E26H OR CAN NOT GET INVALID CARD CODE VIA 6 NT 7	32.20.33.1 / 32.20.33.1 / 32.31.10.1	B3E26,B3F26 / B3G26 / B1G30
199	B3E26A STUCK AT MINUS Y OR B3E26A TO B1G30G	32.20.33.1 / 32.31.10.1	B3E26 / B1G30
200	B3F26E TO B3E26D	32.20.33.1	B3E26
201	B3E26E STUCK AT PLUS Y	32.20.33.1	B3E26
202	**RESERVED**		
203	B3E26L STUCK AT MINUS Y OR B3E26L TO B1G30L	32.20.34.1 / 32.31.10.1	B3E26 / B1G30
204	B3G26E TO B3E26P	32.20.34.1	B3E26,B3G26
205	B3E26Q STUCK AT PLUS Y	32.20.34.1	B3E26
206	B3F27C TO B3E27C	32.20.34.1	B3E27,B3F27
207	B3E27A STUCK AT MINUS Y	32.20.34.1	B3E27
208	B3F27E TO B3E27D	32.20.34.1	B3E27,B3F27
209	B3E27E STUCK AT PLUS Y	32.20.34.1	B3E27
210	B3G27C TO B3E27H	32.20.34.1	B3E27,B3G27
211	B3E27L STUCK AT MINUS Y	32.20.34.1	B3E27
212	B3G27E TO B3E27P	32.20.34.1	B3E27,B3G27
213	B3E27Q STUCK AT PLUS Y	32.20.34.1	B3E27

No.	Description	Ref	Card
214	B3E22A TO B4A07A	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
215	B3E22L TO B4A07B	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
216	B4A07G STUCK AT MINUS Y	32.20.61.1	B4A07
217	B4A07G STUCK AT PLUS Y	32.20.61.1	B4A07
218	B3E22A TO B4A07D	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
219	B3E23A TO B4A07E	32.20.61.1 / 32.20.31.1	B4A07 / B3E23
220	B4A07C STUCK AT MINUS Y	32.20.61.1	B4A07
221	B4A07C STUCK AT PLUS Y	32.20.61.1	B4A07
222	B3E22L TO B4A07L	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
223	B3E23A TO B4A07H	32.20.61.1 / 32.20.31.1	B4A07 / B3E23
224	B4A07F STUCK AT MINUS Y	32.20.61.1	B4A07
225	B4A07F STUCK AT PLUS Y	32.20.61.1	B4A07
226	B3E22E TO B4A07P	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
227	B3E22Q TO B4A07Q	32.20.61.1 / 32.20.31.1	B4A07 / B3E22
228	B4A07R STUCK AT MINUS Y	32.20.61.1	B4A07
229	B4A07R STUCK AT PLUS Y	32.20.61.1	B4A07
230	B3E26Q TO B4A09R	32.20.62.1 / 32.20.34.1	B4A09 / B3E26
231	B3E25Q TO B4A09L	32.20.62.1 / 32.20.33.1	B4A09 / B3E25
232	B3E25E TO B4A09H	32.20.62.1 / 32.20.33.1	B4A09 / B3E25
233	B3E24Q TO B4A09F	32.20.62.1 / 32.20.32.1	B4A09 / B3E24
234	B3E24E TO B4A09E	32.20.62.1 / 32.20.32.1	B4A09 / B3E24
235	B3E26E TO B4A09Q	32.20.62.1 / 32.20.33.1	B4A09 / B3E26
236	B4A09P STUCK AT MINUS Y	32.20.62.1	B4A09
237	B4A09P STUCK AT PLUS Y	32.20.62.1	B4A09
238	B3E27Q TO B4A10D	32.20.62.1 / 32.20.34.1	B4A10 / B3E27
239	B3E23A TO B4A10C	32.20.62.1 / 32.20.31.1	B4A10 / B3E23

No.	Description	Ref	Card
240	B3E22E TO B4A10B	32.20.62.1 / 32.20.31.1	B4A10 / B3E22
241	B3E22Q TO B4A10A	32.20.62.1 / 32.20.31.1	B4A10 / B3E22
242	B3E27A TO B4A10E	32.20.62.1 / 32.20.34.1	B4A10 / B3E27
243	B4A10G STUCK AT MINUS Y OR B4A10G TO B4A14L	32.20.62.1 / 32.20.66.1	B4A10 / B4A14
244	B4A10G STUCK AT PLUS Y OR B4A14F STUCK AT MINUS Y	32.20.62.1 / 32.20.66.1	B4A10 / B4A14
245	B3E25E TO B4A10H	32.20.66.1 / 32.20.33.1	B4A10 / B3E25
246	B3E24E TO B4A10F	32.20.66.1 / 32.20.32.1	B4A10 / B3E24
247	B3E26E TO B4A10L	32.20.66.1 / 32.20.33.1	B4A10 / B3E26
248	B3E27E TO B4A10R	32.20.66.1 / 32.20.34.1	B4A10 / B3E27
249	B3E27L TO B4A10Q	32.20.66.1 / 32.20.34.1	B4A10 / B3E27
250	B4A10P STUCK AT MINUS Y	32.20.66.1	B4A10
251	B4A10P,B4A14G,OR B4A14C STUCK AT PLUS Y OR B4B14C OR B4B13D STUCK AT MINUS Y OR B4B14C TO B4C08G OR B4B13D TO B1G11F	32.20.66.1 / 32.20.66.1 / 32.20.66.1 / 32.11.15.1	B4A10,B4A14 / B4B14,B4B13 / B4C08 / B1G11
252	B3E27L TO B4A12A OR B4A07R TO B4A12L OR B3E24E TO B4A12H	32.20.65.1 / 32.20.34.1 / 32.20.61.1 / 32.20.32.1	B4A12 / B3E27 / B4A07 / B3E24
253	B3E24A TO B4A12R	32.20.65.1 / 32.20.32.1	B4A12 / B3E24
254	B3E27A TO B4A12B	32.20.65.1 / 32.20.34.1	B4A12 / B3E27
255	ALWAYS GET READ XLATE 4	32.20.65.1	B4A12,B4A13,B4B19, B4C16,B4B13
256	CAN NOT GET READ XLATE 4 VIA MINUS Y DATA REG 9.2.8	32.20.65.1	B4A12
257	B3E27E TO B4A14A OR B4B08C TO B4A14E	32.20.66.1 / 32.20.34.1 / 32.20.61.1	B4A14 / B3E27 / B4B08
258	B3E23L TO B4A14B	32.20.06.1	B4A14

		32.20.32.1	B3E23
259	B4A14G STUCK AT MINUS Y	32.20.66.1	B4A14
260	**RESERVED**		
261	B3E24Q TO B4A22Q	32.20.66.1	B4A22
		32.20.32.1	B3E24
262	B3E26Q TO B4A22R	32.20.66.1	B4A22
		32.20.34.1	B3E26
263	B3E26E TO B4A22H	32.20.66.1	B4A22
		32.20.33.1	B3E26
264	ALWAYS GET READ XLATE 6	32.20.66.1	B4A22,B4A14,B4B13,
			B4C13
		32.11.15.1	B1G11
265	B4A22P STUCK AT PLUS Y	32.20.66.1	B4A22
	OR	32.11.14.1	B1F10
	B4B13C STUCK AT MINUS Y	32.20.66.1	B4B13
266	B3E22E TO B4B07B	32.20.61.1	B4B07
		32.20.31.1	B3E22
267	B3E23E TO B4B07A	32.20.61.1	B4B07
		32.20.31.1	B3E23
268	B4B07G STUCK AT MINUS Y	32.20.61.1	B4B07
269	B4B07G STUCK AT PLUS Y	32.20.61.1	B4B07
270	B3E23E TO B4B07D	32.20.61.1	B4B07
		32.20.31.1	B3E23
271	B3E22Q TO B4B07E	32.20.61.1	B4B07
		32.20.31.1	B3E22
272	B4B07C STUCK AT MINUS Y	32.20.61.1	B4B07
273	B4B07C STUCK AT PLUS Y	32.20.61.1	B4B07
274	B3E27E TO B4B07H	32.20.61.1	B4B07
	OR	32.20.34.1	B3E27
	B4A08A TO B4C10Q	32.20.63.1	B4C10
	OR	32.20.63.1	B4A08
	B4C23L TO B1C10B	32.20.62.1	B4C23
275	B3E27Q TO B4B07L	32.20.61.1	B4B07
		32.20.34.1	B3E27
276	B4B07F STUCK AT MINUS Y	32.20.61.1	B4B07
	OR		
	B4B07F TO B4B23P	32.20.61.1	B4B23
277	B4B07F STUCK AT PLUS Y	32.20.61.1	B4B07
	OR		
	B4B23C STUCK AT MINUS Y	32.20.61.1	B4B23
278	B3E24E TO B4B09C	32.20.62.1	B4B09
		32.20.32.1	B3E24
279	B3E27E TO B4B09A	32.20.62.1	B4B09
		32.20.34.1	B3E27
280	B3E24Q TO B4B09D	32.20.62.1	B4B09
		32.20.32.1	B3E24

281	B3E25E TO B4B09E	32.20.62.1	B4B09
		32.20.33.1	B3E25
282	B3E23Q TO B4B09B	32.20.62.1	B4B09
		32.20.32.1	B3E23
283	B3E25Q TO B4B09F	32.20.62.1	B4B09
		32.20.33.1	B3E25
284	B3E26E TO B4B09G	32.20.62.1	B4B09
		32.20.33.1	B3E26
285	B3E26Q TO B4B09H	32.20.62.1	B4B09
		32.20.34.1	B3E26
286	B3E27Q TO B4B09Q	32.20.62.1	B4B09
		32.20.34.1	B3E27
287	B4B09P STUCK AT MINUS Y	32.20.62.1	B4B09
288	B4B09P STUCK AT PLUS Y	32.20.62.1	B4B09
289	B3E27Q TO B4B10F	32.20.63.1	B4B10
		32.20.34.1	B3E27
290	B3E24A TO B4B10L	32.20.63.1	B4B10
		32.20.32.1	B3E24
291	B3E23A TO B4B10E	32.20.63.1	B4B10
		32.20.31.1	B3E23
292	ALWAYS GET READ XLATE 0	32.20.63.1	B4B10,B4C10,B4C11
293	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG 0.2.N9	32.20.63.1	B4B10
294	B3E24Q TO B4B14D	32.20.66.1	B4B14
		32.20.32.1	B3E24
295	B3E25Q TO B4B14B	32.20.66.1	B4B14
		32.20.33.1	B3E25
296	B3E26Q TO B4B14A	32.20.66.1	B4B14
		32.20.34.1	B3E26
297	**RESERVED**		
298	B4B14C STUCK AT PLUS Y	32.20.66.1	B4B14
	OR		
	B4C08F STUCK AT MINUS Y	32.20.66.1	B4C08
299	B3E23L TO B4C08R	32.20.62.1	B4C08
	OR	32.20.32.1	B3E23
	B4A09P TO B4C14P	32.20.62.1	B4C14,B4A09
	OR		
	B4C23L STUCK AT PLUS Y	32.20.62.1	B4C23
300	B4C08A STUCK AT MINUS Y	32.20.62.1	B4C08
			B4C14
		32.11.12.1	B1D09
301	B3E22A TO B4C12D	32.20.64.1	B4C12
		32.20.31.1	B3E22
302	B3E22Q TO B4C12Q	32.20.64.1	B4C12
		32.20.31.1	B3E22

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303	NEVER GET READ XLATE 2	32.20.64.1	B4C12
		32.11.13.1	B1E10
304	CAN NOT BLOCK READ XLATE 2 VIA MINUS Y DATA REG 12.N11	32.20.64.1	B4C12
305	B3E26Q TO B4C13D	32.20.66.1	B4C13
		32.20.34.1	B3E26
306	B3E26E TO B4C13C	32.20.66.1	B4C13
		32.20.33.1	B3E26
307	B3E25Q TO B4C13B	32.20.66.1	B4C13
		32.20.33.1	B3E25
308	B3E25E TO B4C13A	32.20.66.1	B4C13
		32.20.33.1	B3E25
309	B4C13G STUCK AT MINUS Y	32.20.66.1	B4C13
310	B4C13G STUCK AT PLUS Y	32.20.66.1	B4C13
311	B3E26E TO B1F29D	32.31.10.1	B1F29
		32.20.33.1	B3E26
312	B3E26Q TO B1F29E	32.31.10.1	B1F29
		32.20.34.1	B3E26
313	B1F29C STUCK AT MINUS Y	32.31.10.1	B1F29
	OR		
	B1F29C TO B1G30A	32.31.10.1	B1G30
314	**RESERVED**		
315	B3E25Q TO B1F30G	32.31.10.1	B1F30
		32.20.33.1	B3E25
316	B3E26E TO B1F30E	32.31.10.1	B1F30
		32.20.33.1	B3E26
317	B3E26Q TO B1F30F	32.31.10.1	B1F30
		32.20.34.1	B3E26
318	B1F30L STUCK AT MINUS Y	32.31.10.1	B1F30
	OR		
	B1F30L TO B1G30D	32.31.10.1	B1G30
319	**RESERVED**		
320	**RESERVED**		
321	**RESERVED**		
322	ALWAYS GET INVALID CARD CODE	32.31.10.1	B1G30,B1G29,B1H31
		32.12.34.1	B1C27,B1C23,B1H17,
			B1A19
		32.11.25.1	B1G08
323	**RESERVED**		
324	B3E24Q TO B1H30A	32.31.10.1	B1H30
		32.20.32.1	B3E24
325	B3E26Q TO B1H30E	32.31.10.1	B1H30
		32.20.34.1	B3E26
326	B3E26E TO B1H30D	32.31.10.1	B1H30
		32.20.33.1	B3E26

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327	B3E25E TO B1H30B	32.31.10.1	B1H30
		32.20.33.1	B3E25
328	B3E25Q TO B1H30C	32.31.10.1	B1H30
		32.20.33.1	B3E25
329	B1H30G STUCK AT MINUS Y	32.31.10.1	B1H30
	OR		
	B1H30G TO B1G29B	32.31.10.1	B1G29
330	CAN NOT GET INVALID CARD CODE VIA 2 NT 34567	32.31.10.1	B1H30,B1G29
331	B4A07G TO B4A08R	32.20.61.1	B4A08,B4A07
332	B4A08A STUCK AT MINUS Y	32.20.61.1	B4A08
333	B4A07C TO B4A08P	32.20.61.1	B4A08,B4A07
334	B4A08C STUCK AT MINUS Y	32.20.61.1	B4A08
335	B4A07F TO B4A08G	32.20.61.1	B4A08,B4A07
336	B4A08F STUCK AT MINUS Y	32.20.61.1	B4A08
337	B4B07G TO B4A08Q	32.20.61.1	B4A08,B4B07
338	B4A08B STUCK AT MINUS Y	32.20.61.1	B4A08
339	B4B07C TO B4A08E	32.20.61.1	B4A08,B4B07
340	B4A08D STUCK AT MINUS Y	32.20.61.1	B4A08
341	B3E23Q TO B4A12F	32.20.65.1	B4A12
	OR	32.20.32.1	B3E23
	B4B13L STUCK AT MINUS Y	32.20.61.1	B4B13
	OR		
	B4B13L TO B4A12G	32.20.65.1	B4A12
342	**RESERVED**		
343	B3E27A TO B4A12E	32.20.65.1	B4A12
		32.20.34.1	B3E27
344	**RESERVED**		
345	CAN NOT GET READ XLATE 4 VIA DATA REG 8 NT 1 & NT T & NT E	32.20.65.1	B4A12
346	B3E24A TO B4A14H	32.20.66.1	B4A14
		32.20.32.1	B3E24
347	**RESERVED**		
348	**RESERVED**		
349	**RESERVED**		
350	B4A07R TO B4B08A	32.20.61.1	B4B08,B4A07
351	B4B07G TO B4B08B	32.20.61.1	B4B08,B4B07
352	B4B07C TO B4B08D	32.20.61.1	B4B08,B4B07
353	B4B08C STUCK AT MINUS Y	32.20.61.1	B4B08
354	B4B08C STUCK AT PLUS Y	32.20.61.1	B4B08

355	B4A07F TO B4B08Q	32.20.61.1	B4B08,B4A07
356	B4A07C TO B4B08R	32.20.61.1	B4B08,B4A07
357	B4A07G TO B4B08H	32.20.61.1	B4B08,B4A07
358	B4B08P STUCK AT MINUS Y	32.20.61.1	B4B08,B4C09
359	B4B08P STUCK AT PLUS Y	32.20.61.1	B4B08,B4C09
360	**RESERVED**		
361	**RESERVED**		
362	B4A07R TO B4B13H	32.20.61.1	B4B13,B4A07
	OR		
	CAN NOT GET READ XLATE 4 VIA	32.20.65.1	B4A12
	DATA REG 8 & NT 2 & NT T &		
	NT E		
363	**RESERVED**		
364	**RESERVED**		
365	**RESERVED**		
366	**RESERVED**		
367	**RESERVED**		
368	B4B09P TO B4C14R	32.20.62.1	B4C14,B4B09
	OR		
	B4B22A STUCK AT PLUS Y	32.20.62.1	B4B22
369	B4C14A STUCK AT MINUS Y	32.20.62.1	B4C14
	OR		
	B4C14A TO B4B22C	32.20.62.1	B4B22,B4C14
370	**RESERVED**		
371	B4C14C STUCK AT MINUS Y	32.20.62.1	B4C14
372	B4A09P TO B4C23D	32.20.62.1	B4C23,B4A09
373	B4C23E STUCK AT PLUS Y	32.20.62.1	B4C23
374	B4B09P TO B4C23P	32.20.62.1	B4C23,B4B09
375	B4C23Q STUCK AT PLUS Y	32.20.62.1	B4C23
376	B4C13G TO B1F10F	32.11.14.1	B1F10
		32.20.66.1	B4C13
377	ALWAYS GET READ XLATE 5	32.11.14.1	B1F10
378	B3E24A TO B1G29A	32.31.10.1	B1G19
		32.20.32.1	B3E24
379	**RESERVED**		
380	**RESERVED**		
381	**RESERVED**		
382	**RESERVED**		
383	B4C13G TO B1G29L	32.31.10.1	B1G29

		32.20.66.1	B4C13
384	**RESERVED**		
385	**RESERVED**		
386	**RESERVED**		
387	**RESERVED**		
388	**RESERVED**		
389	**RESERVED**		
390	**RESERVED**		
391	**RESERVED**		
392	**RESERVED**		
393	**RESERVED**		
394	B4B08C TO B4A11A	32.20.64.1	B4A11
		32.20.61.1	B4B08
395	B3E27Q TO B4A11D	32.20.64.1	B4A11
		32.20.34.1	B3E27
396	ALWAYS GET READ XLATE 1	32.20.64.1	B4A11,B4B11,B4C08,B4C14
		32.20.62.1	B4B22
		32.11.12.1	B1D09
397	NEVER GET READ XLATE 1 VIA	32.20.64.1	B4A11
	MINUS Y DATA REG NOT 2 ZONES		
	AND MINUS Y DATA REG NOT 9		
398	**RESERVED**		
399	**RESERVED**		
400	B3E27A TO B4A12B	32.20.65.1	B4A12
		32.20.34.1	B3E27
401	**RESERVED**		
402	**RESERVED**		
403	B4A08B TO B4A13A	32.20.65.1	B4A13
	OR	32.20.61.1	B4A08
	B4A08D TO B4B19Q	32.20.65.1	B4B19
		32.20.61.1	B4A08
404	B3E27A TO B4A13B	32.20.65.1	B4A13
		32.20.34.1	B3E27
405	B4A13G STUCK AT MINUS Y	32.20.65.1	B4A13
406	**RESERVED**		
407	B3E23L TO B4A14D	32.20.66.1	B4A14
		32.20.32.1	B3E23
408	**RESERVED**		
409	B4A14C STUCK AT MINUS Y	32.20.66.1	B4A14
410	**RESERVED**		

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#	Description	Ref	Card
411	B3E23E TO B4B10A / OR / B3E23Q TO B4C11L	32.20.63.1 / 32.20.31.1 / 32.20.63.1 / 32.20.32.1	B4B10 / B3E23 / B4C11 / B3E23
412	B3E23E TO B4B10A	32.20.63.1 / 32.20.31.1	B4B10 / B3E23
413	B3E23L TO B4B10R	32.20.63.1 / 32.20.32.1	B4B10 / B3E23
414	**RESERVED**		
415	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG NOT 0 AND NOT 8 NOT 9 AND 1	32.20.63.1	B4B10
416	B4B23C TO B4B10B	32.20.63.1 / 32.20.61.1	B4B10 / B4B23
417	B4C23E TO B4B10G	32.20.63.1 / 32.20.62.1	B4B10 / B4C23
418	**RESERVED**		
419	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG 2&3&4&5&6&7 AND NOT 8 NOT 9	32.20.63.1	B4B10
420	B4C23E TO B4B10P	32.20.63.1 / 32.20.62.1	B4B10 / B4C23
421	B4B08P TO B4B10D	32.20.63.1 / 32.20.61.1	B4B10 / B4B08
422	B3E27A TO B4B10Q	32.20.63.1 / 32.20.34.1	B4B10 / B3E27
423	**RESERVED**		
424	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG 2&3&4&5&6&7 AND 2 AND 8	32.20.63.1	B4B10
425	B4B08P TO B4B11D	32.20.64.1 / 32.20.61.1	B4B11 / B4B08
426	B4C23E TO B4B11F	32.20.64.1 / 32.20.62.1	B4B11 / B4C23
427	B3E27L TO B4B11E	32.20.64.1 / 32.20.34.1	B4B11 / B3E27
428	**RESERVED**		
429	CAN NOT GET READ XLATE 1 VIA MINUS Y DATA REG 2 ZONES AND 2&3&4&5&6&7 AND 9	32.20.64.1	B4B11
430	B3E27L TO B4B11E	32.20.64.1	B4B11
431	B3E27A TO B4B11B / OR / B3E23L TO B4B11Q / OR / B4B08C TO B4A11L	32.20.64.1 / 32.20.34.1 / 32.20.32.1 / 32.20.64.1 / 32.20.61.1	B4B11 / B3E27 / B3E23 / B4A11 / B4B08

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#	Description	Ref	Card
432	B4B08P TO B4B11A	32.20.64.1 / 32.20.61.1	B4B11 / B4B08
433	B3E23Q TO B4B11C / OR / B3E27E TO B4B11R	32.20.64.1 / 32.20.32.1 / 32.20.64.1 / 32.20.34.1	B4B11 / B3E23 / B4B11 / B3E27
434	**RESERVED**		
435	CAN NOT GET READ XLATE 1 VIA MINUS Y DATA REG 9 AND 8 AND 2 ZONES AND NOT 1	32.20.64.1	B4B11
436	B3E27L TO B4B11G	32.20.64.1 / 32.20.34.1	B4B11 / B3E27
437	**RESERVED**		
438	B4B08P TO B4B11L	32.20.64.1 / 32.20.61.1	B4B11 / B4B08
439	**RESERVED**		
440	**RESERVED**		
441	CAN NOT GET READ XLATE 1 VIA MINUS Y DATA REG 9 AND 1 AND 2 ZONES AND NOT 8	32.20.64.1	B4B11
442	B3E22E TO B4B12A	32.20.65.1 / 32.20.31.1	B4B12 / B3E22
443	B3E23A TO B4B12R / OR / B4B22A TO B4B07P	32.20.65.1 / 32.20.31.1 / 32.20.65.1 / 32.20.62.1	B4B12 / B3E23 / B4B07 / B4B22
444	B4C23Q TO B4B12B	32.20.65.1 / 32.20.62.1	B4B12 / B4C23
445	NEVER GET READ XLATE 3	32.20.65.1 / 32.11.13.1	B4B12,B4B07 / B1E10
446	CAN NOT BLOCK READ XLATE 3 VIA MINUS Y DATA REG NOT T AND 0 AND 1&2&3&4&5&6&7&8&9	32.20.65.1	B4B12
447	B4C23Q TO B4B12B / OR / B3E22L TO B4B12F	32.20.65.1 / 32.20.62.1 / 32.20.65.1 / 32.20.31.1	B4B12 / B4C23 / B4B12 / B3E22
448	B3E22A TO B4B12G	32.20.65.1 / 32.20.31.1	B4B12 / B3E22
449	B3E22Q TO B4B12H	32.20.65.1 / 32.20.31.1	B4B12 / B3E22
450	**RESERVED**		
451	CAN NOT BLOCK READ XLATE 3 VIA MINUS Y DATA REG 1&2&3& 4&5&6&7&8&9 AND T AND NOT E	32.20.65.1	B4B12
452	B3E22Q TO B4B12D	32.20.65.1 / 32.20.31.1	B4B12 / B3E22

No.	Description	Ref	Loc
453	B4A08C TO B4B12Q	32.20.65.1 / 32.20.61.1	B4B12 / B4A08
454	**RESERVED**		
455	CAN NOT BLOCK READ XLATE 3 VIA MINUS Y DATA REG NOT E AND T AND O	32.20.65.1	B4B12
456	B3E27A TO B4B19R	32.20.65.1 / 32.20.34.1	B4B19 / B3E27
457	**RESERVED**		
458	B4B19P STUCK AT MINUS Y	32.20.65.1	B4B19
459	**RESERVED**		
460	**RESERVED**		
461	**RESERVED**		
462	B3E27A TO B4C10D	32.20.63.1 / 32.20.34.1	B4C10 / B3E27
463	B3E27Q TO B4C10P	32.20.63.1 / 32.20.34.1	B4C10 / B3E27
464	**RESERVED**		
465	**RESERVED**		
466	CAN NOT GET READ XLATE O VIA MINUS Y DATA REG 8 AND NOT 9 AND T AND E	32.20.63.1	B4C10
467	B3E23L TO B4C10L OR B3E22E TO B4C11F OR B3E22Q TO B4C11R	32.20.63.1 / 32.20.32.1 / 32.20.63.1 / 32.20.32.1	B4C10 / B3E23 / B4C11 / B3E22
468	B4A08C TO B4C10E	32.20.63.1 / 32.20.61.1	B4C10 / B4A08
469	B3E27Q TO B4C10F	32.20.63.1 / 32.20.34.1	B4C10 / B3E27
470	**RESERVED**		
471	CAN NOT GET READ XLATE O VIA MINUS Y DATA REG 1 AND T AND O AND NOT 9	32.20.63.1	B4C10
472	B3E27Q TO B4C11D	32.20.63.1 / 32.20.34.1	B4C11 / B3E27
473	**RESERVED**		
474	B4A08F TO B4C11E	32.20.63.1 / 32.20.61.1	B4C11 / B4A08
475	**RESERVED**		
476	CAN NOT GET READ XLATE O VIA MINUS Y DATA REG NOT 9 AND NOT T AND E AND O	32.20.63.1	B4C11

No.	Description	Ref	Loc
477	B3E23L TO B4C11C	32.20.63.1 / 32.20.32.1	B4C11 / B3E23
478	B3E27E TO B4C11B	32.20.63.1 / 32.20.34.1	B4C11 / B3E27
479	B4A08F TO B4C11E	32.20.63.1 / 32.20.61.1	B4C11 / B4A08
480	B3E22E TO B4C11A	32.20.63.1 / 32.20.31.1	B4C11 / B3E22
481	**RESERVED**		
482	CAN NOT GET READ XLATE O VIA MINUS Y DATA REG 1 AND NOT 8 AND E AND O AND NOT T	32.20.63.1	B4C11
483	B4B23C TO B4C11G	32.20.63.1 / 32.20.61.1	B4C11 / B4B23
484	B3E23A TO B4C11Q	32.20.63.1 / 32.20.31.1	B4C11 / B3E23
485	**RESERVED**		
486	**RESERVED**		
487	**RESERVED**		
488	CAN NOT GET READ XLATE O VIA MINUS Y DATA REG NOT 8 AND NOT 9 AND O AND NOT 1 AND NOT E	32.20.63.1	B4C11
489	B3E22L TO B4C12E OR B4B22A TO B4C12B	32.20.64.1 / 32.20.31.1 / 32.20.62.1	B4C12 / B3E22 / B4B22
490	B4C23Q TO B4C12F	32.20.64.1 / 32.20.62.1	B4C12 / B4C23
491	B3E23E TO B4C12L	32.20.64.1 / 32.20.31.1	B4C12 / B3E23
492	**RESERVED**		
493	CAN NOT BLOCK READ XLATE 2 VIA MINUS Y DATA REG E AND 1&2&3&4&5&6&7 AND NOT O	32.20.64.1	B4C12
494	B4A08A TO B4C13E	32.20.66.1 / 32.20.61.1	B4C13 / B4A08
495	B4B23C TO B4C13F	32.20.66.1 / 32.20.61.1	B4C13 / B4B23
496	B3E25Q TO B4C13H	32.20.66.1 / 32.20.33.1	B4C13 / B3E25
497	B3E25E TO B4C13L	32.20.66.1 / 32.20.33.1	B4C13 / B3E25
498	B3E23E TO B4C13Q	32.20.66.1 / 32.20.31.1	B4C13 / B3E23
499	B3E23Q TO B4C13R	32.20.66.1	B4C13

I	I	I 32.20.32.1	B3E23	I
I 500 I	B4C13P STUCK AT MINUS Y	I 32.20.66.1	B4C13	I
I 501 I	**RESERVED**	I		I
I 502 I	B3E23L TO B1G29D	I 32.31.10.1 I 32.20.32.1	B1G29 B3E23	I
I 503 I	B4C23E TO B1G29F	I 32.31.10.1 I 32.20.62.1	B1G29 B4C23	I
I 504 I	**RESERVED**	I		I
I 505 I	CAN NOT GET INVALID CARD CODE VIA MINUS Y DATA REG 1 AND 2&3&4&5&6&7	32.31.10.1	B1G29	I
I 506 I	**RESERVED**	I		I
I 507 I	**RESERVED**	I		I
I 508 I	**RESERVED**	I		I
I 509 I	B1G30P STUCK AT MINUS Y	I 32.31.10.1	B1G30	I
I 510 I	**RESERVED**	I		I
I 511 I	**RESERVED**	I		I
I 512 I	B4A08B TO B4B07Q	I 32.20.65.1 I 32.20.61.1	B4B07 B4A08	I
I 513 I	B4B07R STUCK AT MINUS Y	I 32.20.65.1	B4B07	I
I 514 I	**RESERVED**	I		I
I 515 I	**RESERVED**	I		I
I 516 I	**RESERVED**	I		I
I 517 I	**RESERVED**	I		I
I 518 I	**RESERVED**	I		I
I 519 I	B4B10C STUCK AT MINUS Y	I 32.20.63.1	B4B10	I
I 520 I	**RESERVED**	I		I
I 521 I	**RESERVED**	I		I
I 522 I	**RESERVED**	I		I
I 523 I	**RESERVED**	I		I
I 524 I	B4B11P STUCK AT MINUS Y	I 32.20.64.1	B4B11	I
I 525 I	**RESERVED**	I		I
I 526 I	B4B22A TO B4B12E	I 32.20.65.1 I 32.20.62.1	B4B12 B4B22	I
I 527 I	**RESERVED**	I		I
I 528 I	B3E23E TO B4B12L	I 32.20.65.1 I 32.20.31.1	B4B12 B3E23	I
I 529 I	**RESERVED**	I		I

I 530 I	CAN NOT BLOCK READ XLATE 3 VIA MINUS Y DATA REG NOT NUMERIC AND E AND NOT O	I 32.20.65.1	B4B12	I
I 531 I	**RESERVED**	I		I
I 532 I	B4C08C STUCK AT MINUS Y	I 32.20.64.1	B4C08	I
I 533 I	**RESERVED**	I		I
I 534 I	**RESERVED**	I		I
I 535 I	**RESERVED**	I		I
I 536 I	B4C11P STUCK AT MINUS Y	I 32.20.63.1	B4C11	I
I 537 I	**RESERVED**	I		I
I 538 I	B4B22A TO B4C12B	I 32.20.64.1 I 32.20.62.1	B4C12 B4B22	I
I 539 I	B3E22E TO B4C12A	I 32.20.64.1 I 32.20.31.1	B4C12 B3E22	I
I 540 I	B4A08F TO B4C12R	I 32.20.64.1 I 32.20.61.1	B4C12 B4A08	I
I 541 I	**RESERVED**	I		I
I 542 I	CAN NOT BLOCK READ XLATE 2 VIA MINUS Y DATA REG NOT NUMERIC AND NOT T AND E AND O	I 32.20.64.1	B4C12	I
I 543 I	B4A08D TO B4C12G	I 32.20.64.1 I 32.20.61.1	B4C12 B4A08	I
I 544 I	**RESERVED**	I		I
I 545 I	**RESERVED**	I		I
I 546 I	CAN NOT BLOCK READ XLATE 2 VIA MINUS Y DATA REG NOT E AND NOT O AND NOT NUMERIC	I 32.20.64.1	B4C12	I
I 547 I	B4C08A AND B4C14C TO B4C23H	I 32.20.62.1	B4C23,B4C08,B4C14	I
I 548 I	**RESERVED**	I		I
I 549 I	**RESERVED**	I		I
I 550 I	**RESERVED**	I		I
I 551 I	**RESERVED**	I		I
I 552 I	B1G29P STUCK AT MINUS Y	I 32.31.10.1	B1G29	I
I 553 I	**RESERVED**	I		I
I 554 I	B3E27E TO B4A11B	I 32.20.64.1 I 32.20.34.1	B4A11 B3E27	I
I 555 I	B4C23L TO B4A11C	I 32.20.64.1 I 32.20.62.1	B4A11 B4C23	I
I 556 I	**RESERVED**	I		I

2821 - 2540 READER PUNCH SCAN

I		I	I	I
557	**RESERVED**			
558	CAN NOT GET READ XLATE 1 VIA MINUS Y DATA REG NOT 8 AND NOT1 AND NOT 2&3&5&6&7 AND NOT 2 ZONES	32.20.64.1	B4A11	
559	B3E23E TO B4A12D	32.20.65.1 / 32.20.31.1	B4A12 / B3E23	
560	B4A08A TO B4A12Q	32.20.65.1 / 32.20.61.1	B4A12 / B4A08	
561	B4C23L TO B4A12P	32.20.65.1 / 32.20.62.1	B4A12 / B4C23	
562	**RESERVED**			
563	CAN NOT GET READ XLATE 4 VIA MINUS Y DATA REG NOT 0 AND T AND E AND NOT 1 AND NOT 2&3&4&5&6&7	32.20.65.1	B4A12	
564	**RESERVED**			
565	**RESERVED**			
566	**RESERVED**			
567	**RESERVED**			
568	B4B12C STUCK AT MINUS Y	32.20.65.1	B4B12	
569	**RESERVED**			
570	ALWAYS GET READ XLATE 6	32.20.66.1 / 32.11.15.1	B4B13,B4C13,B4A14 / B1G11	
571	**RESERVED**			
572	ALWAYS GET READ XLATE 7	32.20.66.1 / 32.11.15.1	B4B13,B4A14,B4C08, B4A10,B4B14 / B1G11	
573	**RESERVED**			
574	B3E27A TO B4C10A OR B3E27L TO B4C10H	32.20.63.1 / 32.20.34.1 / 32.20.63.1 / 32.20.34.1	B4C10 / B3E27 / B4C10 / B3E27	
575	B3E27Q TO B4C10R OR B3E27E TO B4C10G	32.20.63.1 / 32.20.34.1	B4C10 / B3E27	
576	**RESERVED**			
577	**RESERVED**			
578	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG 8 AND NOT 9 AND NOT 1 AND NOT 2&3&4&5&6&7	32.20.63.1	B4C10	
579	B4C23L TO B4C10B	32.20.63.1 / 32.20.62.1	B4C10 / B4C23	
580	**RESERVED**			

2821 - 2540 READER PUNCH SCAN

I		I	I	I
581	**RESERVED**			
582	**RESERVED**			
583	CAN NOT GET READ XLATE 0 VIA MINUS Y DATA REG NOT 1 AND NOT 2&3&4&5&6&7 AND 9 AND NOT 8	32.20.63.1	B4C10	
584	**RESERVED**			
585	**RESERVED**			
586	**RESERVED**			
587	**RESERVED**			
588	ALWAYS GET READ XLATE 2	32.20.64.1 / 32.11.13.1	B4C12 / B1E10	
589	**RESERVED**			
590	B3E27L TO B4C16Q	32.20.65.1 / 32.20.34.1	B4C16 / B3E27	
591	B4C23L TO B4C16P	32.20.65.1 / 32.20.62.1	B4C16 / B4C23	
592	B4C16R STUCK AT MINUS Y	32.20.65.1	B4C16	
593	**RESERVED**			
594	**RESERVED**			
595	**RESERVED**			
596	B4A11R STUCK AT MINUS Y	32.20.64.1	B4A11	
597	**RESERVED**			
598	**RESERVED**			
599	**RESERVED**			
600	**RESERVED**			
601	**RESERVED**			
602	B4A12C STUCK AT MINUS Y	32.20.65.1	B4A12	
603	**RESERVED**			
604	**RESERVED**			
605	**RESERVED**			
606	**RESERVED**			
607	**RESERVED**			
608	B4C10C STUCK AT MINUS Y	32.20.63.1	B4C10	
609	**RESERVED**			
610	**RESERVED**			
611	**RESERVED**			

612	**RESERVED**		
613	**RESERVED**		
614	**RESERVED**		
615	**RESERVED**		
616	NEVER GET INVALID CARD CODE	32.31.10.1 32.12.34.1	B1H31 B1C27
617	**RESERVED**		
618	**RESERVED**		
619	**RESERVED**		
620	B4B12C AND B4B07R TO B1E1OF	32.11.13.1 32.20.65.1	B1E10 B4B07,B4B12
621	**RESERVED**		
622	ALWAYS GET READ XLATE 4	32.11.14.1 32.20.65.1	B1F10 B4B13,B4A12,B4A13, B4C16,B4B19
623	**RESERVED**		
624	ALWAYS GET READ XLATE 0	32.11.12.1 32.20.63.1	B1D09 B4C14,B4B10,B4C10, B4C11
625	**RESERVED**		
626	ALWAYS GET READ XLATE 1	32.11.12.1 32.20.64.1	B1D09 B4C14,B4C08,B4A11, B4B11
627 THRU 649	**RESERVED**		

4.3.6 ERROR MESSAGES COMMON ONLY TO ROUTINE 05 --PUNCH
TRANSLATOR FLT--

ERROR NO.	DESCRIPTION	ALD PAGE	CIRCUITS
650	DATA RECORDS ARE MISSING OR ARE OUT OF SEQUENCE. THERE IS A TOTAL OF 135 DATA RECORDS SEQUENCE NUMBERED 031 THRU 165.		
651	CAN NOT ISOLATE PUNCH TRANSLATOR FAILURE. SET SECTION SENSE SWITCH 2 TO 1 TO OBTAIN PROGRAM LOG OUT.		
652	NEVER GET CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D09,B1D10,B1D11, B1A11
653	ALWAYS GET CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D09,B1D10,B1D11, B1A11

654	NEVER GET CHAN REG 1 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D09,B1D10,B1D11, B1A11
655	ALWAYS GET CHAN REG 1 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D09,B1D10,B1D11, B1A11
656	NEVER GET CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E10,B1E12,B1H10, B1F09,B1D12
657	ALWAYS GET CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E10,B1E12,B1H10, B1F09,B1D12
658	NEVER GET CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E10,B1E12,B1H10, B1F09,B1D12
659	ALWAYS GET CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E10,B1E12,B1H10, B1F09,B1D12
660	NEVER GET CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F10,B1E12,B1F09, B1H10,B1D12
661	ALWAYS GET CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F10,B1E12,B1F09, B1H10,B1D12
662	NEVER GET CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F10,B1G10,B1F09, B1H10,B1F11
663	ALWAYS GET CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F10,B1G10,B1F09, B1H10,B1F11
664	NEVER GET CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10,B1E08, B1H10,B1F11
665	ALWAYS GET CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10,B1E08, B1H10,B1F11
666	NEVER GET CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10,B1H10, B1F11
667	ALWAYS GET CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10,B1H10, B1F11
668	NEVER GET MINUS Y BUFFER ENTRY	32.20.80.1	B4B22,B4A21,B4D22
669	**RESERVED**		
670	NEVER GET PLUS Y CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D10,B1D09
671	ALWAYS GET PLUS Y CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	
672	NEVER GET MINUS Y CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D11,B1D09
673	ALWAYS GET MINUS Y CHAN REG 0 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D11,B1D09
674	NEVER GET PLUS Y CHAN REG 1 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D10,B1D09
675	ALWAYS GET PLUS Y CHAN REG 1 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D10,B1D09
676	NEVER GET MINUS Y CHAN REG 1 AT PUNCH TRANSLATOR CIRCUITS	32.11.12.1	B1D11,B1D09
677	ALWAYS GET MINUS Y CHAN REG 1	32.11.12.1	B1D11,B1D09

	AT PUNCH TRANSLATOR CIRCUITS		
678	NEVER GET PLUS Y CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E12,B1E10
679	ALWAYS GET PLUS Y CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E12,B1E10
680	NEVER GET MINUS Y CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1F09,B1H10,B1E10
681	ALWAYS GET MINUS Y CHAN REG 2 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1F09,B1H10,B1E10
682	NEVER GET PLUS Y CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E12,B1E10
683	ALWAYS GET PLUS Y CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1E12,B1E10
684	NEVER GET MINUS Y CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1F09,B1H10,B1E10
685	ALWAYS GET MINUS Y CHAN REG 3 AT PUNCH TRANSLATOR CIRCUITS	32.11.13.1	B1F09,B1H10,B1E10
686	NEVER GET PLUS Y CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1E12,B1F10
687	ALWAYS GET PLUS Y CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1E12,B1F10
688	NEVER GET MINUS Y CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F09,B1H10,B1F10
689	ALWAYS GET MINUS Y CHAN REG 4 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F09,B1H10,B1F10
690	NEVER GET PLUS Y CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1G10,B1F10
691	ALWAYS GET PLUS Y CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1G10,B1F10
692	NEVER GET MINUS Y CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F09,B1H10,B1F10
693	ALWAYS GET MINUS Y CHAN REG 5 AT PUNCH TRANSLATOR CIRCUITS	32.11.14.1	B1F09,B1H10,B1F10
694	NEVER GET PLUS Y CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10
695	ALWAYS GET PLUS Y CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G11,B1G10
696	NEVER GET MINUS Y CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1E08,B1H10,B1G11
697	ALWAYS GET MINUS Y CHAN REG 6 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1E08,B1H10,B1G11
698	NEVER GET PLUS Y CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G10,B1G11
699	ALWAYS GET PLUS Y CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G10,B1G11

700	NEVER GET MINUS Y CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G10,B1H10,B1G11
701	ALWAYS GET MINUS Y CHAN REG 7 AT PUNCH TRANSLATOR CIRCUITS	32.11.15.1	B1G10,B1H10,B1G11
702	**RESERVED**		
703	**RESERVED**		
704	**RESERVED**		
705	**RESERVED**		
706	**RESERVED**		
707	**RESERVED**		
708	**RESERVED**		
709	**RESERVED**		
710	**RESERVED**		
711	**RESERVED**		
712	**RESERVED**		
713	**RESERVED**		
714	B1E12Q TO B4A17F	32.20.70.1 / 32.11.14.1	B4A17 / B1E12
715	B1G10L TO B4A17H	32.20.70.1 / 32.11.15.1	B4A17 / B1G10
716	B1G10A TO B4A17L	32.20.70.1 / 32.11.14.1	B4A17 / B1G10
717	B1G10E TO B4A17Q	32.20.70.1 / 32.11.15.1	B4A17 / B1G10
718	B4A17P STUCK AT MINUS Y	32.20.70.1	B4A17
719	B4A17P STUCK AT PLUS Y	32.20.70.1	B4A17
720	B1G10E TO B4B14F	32.20.70.1 / 32.11.15.1	B4B14 / B1G10
721	B1G10A TO B4B14E	32.20.70.1 / 32.11.14.1	B4B14 / B1G10
722	B1G10L TO B4B14G	32.20.70.1 / 32.11.15.1	B4B14 / B1G10
723	B4B14L STUCK AT MINUS Y	32.20.70.1	B4B14
724	B4B14L STUCK AT PLUS Y	32.20.70.1	B4B14
725	B1D10A TO B4A13H	32.20.70.1 / 32.11.12.1	B4A13 / B1D10
726	B1D11P TO B4A13L	32.20.70.1 / 32.11.12.1	B4A13 / B1D11
727	B4A13F STUCK AT MINUS Y	32.20.70.1	B4A13
728	B4A13F STUCK AT PLUS Y	32.20.70.1	B4A13

#	Description	Ref 1	Ref 2
729	B1D11P TO B4A13P	32.20.70.1 / 32.11.12.1	B4A13 / B1D11
730	B1D11A TO B4A13Q	32.20.70.1 / 32.11.12.1	B4A13 / B1D11
731	B4A13R STUCK AT MINUS Y	32.20.70.1	B4A13
732	B4A13R STUCK AT PLUS Y	32.20.70.1	B4A13
733	B1E12E TO B4C08Q OR B4A13R TO B4B15R	32.20.70.1 / 32.11.13.1	B4C08,B4A13,B4B15 / B1E12
734	B4C08B STUCK AT MINUS Y	32.20.70.1	B4C08
735	B1G10L TO B4B16L	32.20.71.1 / 32.11.15.1	B4B16 / B1G10
736	B1G10A TO B4B16H	32.20.71.1 / 32.11.14.1	B4B16 / B1G10
737	B4B16F STUCK AT MINUS Y	32.20.71.1	B4B16
738	B4B16F STUCK AT PLUS Y	32.20.71.1	B4B16
739	B1G10A TO B4B16P	32.20.71.1 / 32.11.14.1	B4B16 / B1G10
740	B1G10E TO B4B16Q	32.20.71.1 / 32.11.15.1	B4B16 / B1G10
741	B4B16R STUCK AT MINUS Y	32.20.71.1	B4B16
742	B4B16R STUCK AT PLUS Y	32.20.71.1	B4B16
743	B1E12A TO B4A11G	32.20.73.1 / 32.11.13.1	A4A11 / B1E12
744	B1E12E TO B4A11H	32.20.73.1 / 32.11.13.1	B4A11 / B1E12
745	NEVER GET PUNCH TRANSLATE 11	32.20.31.1 / 32.20.73.1	B3E18 / B4A18,B4C17,B4B17, B4A11
746	CAN NOT BLOCK PUNCH TRANSLATE 11 VIA PLUS Y CHAN REG 2 AND 3	32.20.73.1	B4A11
747	B1D10A TO B4C22D	32.20.77.1 / 32.11.12.1	B4C22 / B1D10
748	B1D10E TO B4C22P	32.20.77.1 / 32.11.12.1	B4C22 / B1D10
749	ALWAYS GET PUNCH TRANSLATE 9	32.20.34.1 / 32.20.77.1	B3E20 / B4C22,B4C21,B4A21
750	CAN NOT GET PUNCH TRANSLATE 9 VIA MINUS Y NOT CHAN REG 0 AND 1	32.20.77.1	B4C22
751	B4A17P TO B4C15R	32.20.70.1	B4C15,B4A17
752	B4C15A STUCK AT MINUS Y	32.20.70.1	B4C15
753	B4B14L TO B4C15P	32.20.70.1	B4C15,B4B14

#	Description	Ref 1	Ref 2
754	B4C15C STUCK AT MINUS Y	32.20.70.1	B4C15
755	B1G10A TO B4B14H	32.20.70.1 / 32.11.14.1	B4B14 / B1G10
756	B1E08Q TO B4B14Q	32.20.70.1 / 32.11.15.1	B4B14 / B1E08
757	B1G10L TO B4B14R	32.20.70.1 / 32.11.15.1	B4B14 / B1G10
758	B4B14P STUCK AT MINUS Y	32.20.70.1	B4B14
759	B4B14P STUCK AT PLUS Y	32.20.70.1	B4B14
760	B1F09A TO B4A13D	32.20.70.1 / 32.11.13.1	B4A13 / B1F09
761	B1E12E TO B4A13E	32.20.70.1 / 32.11.13.1	B4A13 / B1E12
762	B4A13C STUCK AT MINUS Y	32.20.70.1	B4A13
763	B4A13C STUCK AT PLUS Y	32.20.70.1	B4A13
764	B4A13F TO B4A23Q	32.20.70.1	B4A23,B4A13
765	B4A23P STUCK AT MINUS Y	32.20.70.1	B4A23
766	B4A13R TO B4A23R	32.20.70.1	B4A23,B4A13
767	B4A23D STUCK AT MINUS Y	32.20.70.1	B4A23
768	**RESERVED**		
769	B4B15A STUCK AT MINUS Y	32.20.70.1	B4B15
770	B1F09A TO B4B16A	32.20.71.1 / 32.11.13.1	B4B16 / B1F09
771	B1D10A TO B4B16B	32.20.71.1 / 32.11.12.1	B4B16 / B1D10
772	B4B16G STUCK AT MINUS Y OR B4B16G TO B4B15P	32.20.71.1	B4B16,B4B15
773	B4B16G STUCK AT PLUS Y OR B4B15C STUCK AT MINUS Y	32.20.71.1	B4B16,B4B15
774	B1D10A TO B4B16D	32.20.71.1 / 32.11.12.1	B4B16 / B1D10
775	B1F09L TO B4B16E	32.20.71.1 / 32.11.14.1	B4B16 / B1F09
776	B4B16C STUCK AT MINUS Y OR B4B16C TO B4B23R	32.20.71.1	B4B16,B4B23
777	B4B16C STUCK AT PLUS Y OR B4B23A STUCK AT MINUS Y	32.20.71.1	B4B16,B4B23
778	B4B16R TO B4C08E OR	32.20.71.1	B4B22,B4C08,B4B16

I	B4B22Q STUCK AT PLUS Y		
779	B4C08D STUCK AT MINUS Y OR B4C08D TO B4B22P	32.20.71.1	B4C08,B4B22
780	B4B16R TO B4C23C	32.20.71.1	B4C23,B4B16
781	B4C23A STUCK AT PLUS Y	32.20.71.1	B4C23
782	B1F09E TO B4A17D	32.20.72.1 / 32.11.13.1	B4A17 / B1F09
783	B1D10E TO B4A17B	32.20.72.1 / 32.11.12.1	B4A17 / B1D10
784	B1D10A TO B4A17A	32.20.72.1 / 32.11.12.1	B4A17 / B1D10
785	B4A17P TO B4A17C	32.20.72.1 / 32.20.70.1	B4A17
786	B4A17G STUCK AT MINUS Y	32.20.72.1	B4A17
787	NEVER GET PUNCH TRANSLATE 12	32.20.31.1 / 32.20.72.1	B3E18 / B4A16,B4C16
788	B1F09E TO B4B18G	32.20.74.1 / 32.11.13.1	B4B18 / B1F09
789	B1E12A TO B4B18B	32.20.74.1 / 32.11.13.1	B4B18 / B1E12
790	B4A13R TO B4B18H OR B4C23A TO B4B18R	32.20.74.1 / 32.20.70.1 / 32.20.71.1	B4B18 / B4A13 / B4C23
791	NEVER GET PUNCH TRANSLATE 0	32.20.31.1 / 32.20.74.1	B3E18 / B4B18,B4C18,B4A19
792	CAN NOT BLOCK PUNCH TRANSLATE 0 VIA MINUS Y CHAN REG 3 AND NOT 2 AND NOT 0.1	32.20.74.1	B4B18
793	B1F09L TO B4C19E OR B4A13R TO B4C19H OR B4B22L TO B4C19A	32.20.75.1 / 32.11.14.1 / 32.20.70.1	B4C19 / B1F09 / B4A13,B4B22
794	B1G10E TO B4C19F	32.20.75.1 / 32.11.15.1	B4C19 / B1G10
795	NEVER GET PUNCH TRANSLATE 2	32.20.32.1 / 32.20.75.1	B3E19 / B4C19,B4A20
796	CAN NOT BLOCK PUNCH TRANSLATE 2 VIA MINUS Y CHAN REG 4 AND NOT 6	32.20.75.1	B4C19
797	B1G10E TO B4C19G	32.20.75.1 / 32.11.15.1	B4C19 / B1G10
798	**RESERVED**		
799	**RESERVED**		
800	CAN NOT BLOCK PUNCH TRANSLATE	32.20.75.1	B4C19

I	2 VIA MINUS Y CHAN REG NOT 6 AND NOT 0.1		
801	**RESERVED**		
802	B4A20C STUCK AT MINUS Y	32.20.75.1	B4A20
803	B1G10A TO B4B20A OR B1G10E TO B4B20R OR B1G10L TO B4C20D	32.20.76.1 / 32.11.14.1 / 32.11.15.1	B4B20,B4C20 / B1G10
804	B1E08Q TO B4B20D	32.20.76.1 / 32.11.15.1	B4B20 / B1E08
805	B1G10Q TO B4B20B	32.20.76.1 / 32.11.15.1	B4B20 / B1G10
806	NEVER GET PUNCH TRANSLATE 3	32.20.32.1 / 32.20.76.1	B3E19 / B4A20,B4B20
807	ALWAYS GET PUNCH TRANSLATE 3	32.20.32.1 / 32.20.76.1	B3E19 / B4A20,B4B20
808	B1F09Q TO B4B20E	32.20.76.1 / 32.11.14.1	B4B20 / B1F09
809	B1G10L TO B4B20G	32.20.76.1 / 32.11.15.1	B4B20 / B1G10
810	B1G10E TO B4B20F	32.20.76.1 / 32.11.15.1	B4B20 / B1G10
811	NEVER GET PUNCH TRANSLATE 4	32.20.33.1 / 32.20.76.1	B3E19 / B4A20,B4B20
812	ALWAYS GET PUNCH TRANSLATE 4	32.20.33.1 / 32.20.76.1	B3E19 / B4A20,B4B20
813	**RESERVED**		
814	B1F09Q TO B4B20H	32.20.76.1 / 32.11.14.1	B4B20 / B1F09
815	B1G10Q TO B4B20Q	32.20.76.1 / 32.11.15.1	B4B20 / B1G10
816	NEVER GET PUNCH TRANSLATE 5	32.20.33.1 / 32.20.76.1	B3E19 / B4A20,B4B20
817	ALWAYS GET PUNCH TRANSLATE 5	32.20.33.1 / 32.20.76.1	B3E19 / B4A20,B4B20
818	**RESERVED**		
819	B1E08Q TO B4C20B	32.20.76.1 / 32.11.15.1	B4C20 / B1E08
820	B1F09Q TO B4C20A	32.20.76.1 / 32.11.14.1	B4C20 / B1F09
821	NEVER GET PUNCH TRANSLATE 6	32.20.33.1 / 32.20.76.1	B3E20 / B4A21,B4C20
822	ALWAYS GET PUNCH TRANSLATE 6	32.20.33.1 / 32.20.76.1	B3E20 / B4A21,B4C20

I 823 I B1F09Q TO B4C20G	I 32.20.76.1 I B4C20	I
I I	I 32.11.14.1 I B1F09	I
I 824 I B1G10Q TO B4C20F	I 32.20.76.1 I B4C20	I
I I	I 32.11.15.1 I B1G10	I
I 825 I B1E08Q TO B4C20E	I 32.20.76.1 I B4C20	I
I I	I 32.11.15.1 I B1E08	I
I 826 I NEVER GET PUNCH TRANSLATE 7	I 32.20.34.1 I B3E20	I
I I	I 32.20.76.1 I B4A21,B4C20	I
I 827 I ALWAYS GET PUNCH TRANSLATE 7	I 32.20.34.1 I B3E20	I
I I	I 32.20.76.1 I B4A21,B4C20	I
I 828 I B1E12Q TO B4A19R	I 32.20.76.1 I B4A19	I
I I	I 32.11.14.1 I B1E12	I
I 829 I B4B14L TO B4A19H	I 32.20.76.1 I B4A19,B4B21	I
I I OR	I 32.20.70.1 I B4B14,B4A23	I
I I B4A23P TO B4B21R	I I	I
I 830 I B4A19P STUCK AT MINUS Y	I 32.20.76.1 I B4A19	I
I 831 I NEVER GET PUNCH TRANSLATE 8	I 32.20.34.1 I B3E20	I
I I	I 32.20.76.1 I B4B21,B4A19	I
I 832 I B4B14P TO B4C15G	I 32.20.70.1 I B4C15,B4B14	I
I 833 I B4C15F STUCK AT MINUS Y	I 32.20.70.1 I B4C15	I
I 834 I B4A13C TO B4B22H	I 32.20.70.1 I B4B22,B4A13	I
I 835 I B4B22L STUCK AT PLUS Y	I 32.20.70.1 I B4B22	I
I 836 I B4A13C TO B4A23B	I 32.20.70.1 I B4A23,B4A13	I
I 837 I B4A23A STUCK AT MINUS Y	I 32.20.70.1 I B4A23	I
I 838 I **RESERVED**	I I	I
I 839 I **RESERVED**	I I	I
I 840 I **RESERVED**	I I	I
I 841 I **RESERVED**	I I	I
I 842 I **RESERVED**	I I	I
I 843 I **RESERVED**	I I	I
I 844 I B4C15A TO B4A16E	I 32.20.72.1 I B4A16	I
I I	I 32.20.70.1 I B4C15	I
I 845 I B4A23P TO B4A16F	I 32.20.72.1 I B4A16	I
I I	I 32.20.70.1 I B4A23	I
I 846 I B1E12E TO B4A16L	I 32.20.72.1 I B4A16	I
I I	I 32.11.13.1 I B1E12	I
I 847 I **RESERVED**	I I	I
I 848 I CAN NOT GET PUNCH TRANSLATE 12I 32.20.72.1 I B4A16	I
I I VIA MINUS Y CHAN REG 1 NOT 0 I	I
I I AND NOT 4OR5OR6OR7 AND NOT 3 I	I
I 849 I B4A23P TO B4A18Q	I 32.20.73.1 I B4A18	I
I I	I 32.20.70.1 I B4A23	I

I 850 I B4C15A TO B4A18P	I 32.20.73.1 I B4A18	I
I I	I 32.20.70.1 I B4C15	I
I 851 I B1E12A TO B4A18D	I 32.20.73.1 I B4A18	I
I I	I 32.11.13.1 I B1E12	I
I 852 I **RESERVED**	I I	I
I 853 I CAN NOT BLOCK PUNCH TRANSLATE I 32.20.73.1 I B4A18	I
I I 11 VIA MINUS Y CHAN REG 1 NOT I	I
I I 0 AND NOT 4OR5OR6OR7 AND NOT 2I	I
I 854 I B4C15C TO B4A18E	I 32.20.73.1 I B4A18	I
I I	I 32.20.70.1 I B4C15	I
I 855 I B1E12E TO B4A18F	I 32.20.73.1 I B4A18,B4A11	I
I I OR	I 32.11.13.1 I B1E12,B1F09	I
I I B1F09A TO B4A11F	I I	I
I 856 I B4A23D TO B4A18L	I 32.20.73.1 I B4A18,B4B17	I
I I OR	I 32.20.70.1 I B4A23	I
I I B1G10Q TO B4B17H	I 32.11.15.1 I B1G10	I
I 857 I **RESERVED**	I I	I
I 858 I CAN NOT BLOCK PUNCH TRANSLATE I 32.20.73.1 I B4A18	I
I I 11 VIA MINUS Y CHAN REG NOT 5 I	I
I I OR6 OR7 AND NOT 3 AND 0.1	I I	I
I 859 I B4A23D TO B4C17A	I 32.20.73.1 I B4C17	I
I I	I 32.20.70.1 I B4A23	I
I 860 I B4C23A TO B4C17B	I 32.20.73.1 I B4C17	I
I I OR	I 32.20.71.1 I B4C23	I
I I B1F09L TO B4C17R	I 32.11.14.1 I B1F09	I
I 861 I B1E12Q TO B4C17D	I 32.20.73.1 I B4C17	I
I I	I 32.11.14.1 I B1E12	I
I 862 I B1F09A TO B4C17C	I 32.20.73.1 I B4C17	I
I I	I 32.11.13.1 I B1F09	I
I 863 I B4C17G STUCK AT MINUS Y	I 32.20.73.1 I B4C17	I
I 864 I **RESERVED**	I I	I
I 865 I **RESERVED**	I I	I
I 866 I B1E12A TO B4B18B	I 32.20.74.1 I B4B18	I
I I	I 32.11.13.1 I B1E12	I
I 867 I B1F09E TO B4B18A	I 32.20.74.1 I B4B18	I
I I	I 32.11.13.1 I B1F09	I
I 868 I **RESERVED**	I I	I
I 869 I CAN NOT BLOCK PUNCH TRANSLATE I 32.20.74.1 I B4B18	I
I I 0 VIA MINUS Y CHAN REG 5OR6	I I	I
I I AND NOT 2 AND 3	I I	I
I 870 I B4A23P TO B4B18P	I 32.20.74.1 I B4B18	I
I I	I 32.20.70.1 I B4A23	I
I 871 I B4C15A TO B4B18D	I 32.20.74.1 I B4B18	I
I I	I 32.20.70.1 I B4C15	I
I 872 I B1E12E TO B4B18Q	I 32.20.74.1 I B4B18	I

#	Description	Ref	Location
		32.11.13.1	B1E12
873	**RESERVED**		
874	CAN NOT BLOCK PUNCH TRANSLATE 0 VIA MINUS Y CHAN REG 1 NOT 0 AND NOT 40R50R60R7 AND NOT 3	32.20.74.1	B4B18
875	**RESERVED**		
876	**RESERVED**		
877	B4C19Q STUCK AT MINUS Y	32.20.75.1	B4C19
878	**RESERVED**		
879	**RESERVED**		
880	**RESERVED**		
881	**RESERVED**		
882	**RESERVED**		
883	**RESERVED**		
884	**RESERVED**		
885	**RESERVED**		
886	**RESERVED**		
887	**RESERVED**		
888	**RESERVED**		
889	**RESERVED**		
890	B1E12Q TO B4B21B	32.20.76.1 / 32.11.14.1	B4B21 / B1E12
891	**RESERVED**		
892	CAN NOT BLOCK PUNCH TRANSLATE 8 VIA MINUS Y CHAN REG NOT 4 AND 1 NOT 0	32.20.76.1	B4B21
893	B1E12Q TO B4C22R	32.20.77.1 / 32.11.14.1	B4C22 / B1E12
894	B1D10A TO B4C22A	32.20.77.1 / 32.11.12.1	B4C22 / B1D10
895	B4C23A TO B4C22B	32.20.77.1 / 32.20.71.1	B4C22 / B4C23
896	**RESERVED**		
897	CAN NOT GET PUNCH TRANSLATE 9 VIA MINUS Y CHAN REG NOT 4 AND NOT 0 AND 5 OR 6	32.20.77.1	B4C22
898	B1F09L TO B4C22G	32.20.77.1 / 32.11.14.1	B4C22 / B1F09
899	B4C23A TO B4C22B	32.20.77.1 / 32.20.71.1	B4C22 / B4C23

#	Description	Ref	Location
900	B4A23D TO B4C22H	32.20.77.1 / 32.20.70.1	B4C22 / B4A23
901	**RESERVED**		
902	CAN NOT GET PUNCH TRANSLATE 9 VIA MINUS Y CHAN REG 4 AND 50R6 AND 0.1	32.20.77.1	B4C22
903	B4B14L TO B4A16Q	32.20.72.1 / 32.20.70.1	B4A16 / B4B14
904	B4B23A TO B4A16P	32.20.72.1 / 32.20.71.1	B4A16 / B4B23
905	B1F09E TO B4A16D	32.20.72.1 / 32.11.13.1	B4A16 / B1F09
906	**RESERVED**		
907	CAN NOT BLOCK PUNCH TRANSLATE 12 VIA MINUS Y CHAN REG 50R6 OR7 AND 4NOTO AND 3	32.20.72.1	B4A16
908	B4A13F TO B4A16R OR B1E12Q TO B4A16H OR B4B14P TO B4C16E	32.20.72.1 / 32.20.70.1 / 32.11.14.1	B4A16,B4C16 / B4A13,B4B14 / B1E12
909	B4A23A TO B4A16B	32.20.72.1 / 32.20.70.1	B4A16 / B4A23
910	**RESERVED**		
911	CAN NOT BLOCK PUNCH TRANSLATE 12 VIA MINUS Y CHAN REG NOT 1 AND 0 AND 2 NOT 3	32.20.72.1	B4A16
912	**RESERVED**		
913	B4A23A TO B4A16B OR B4B15A AND B4C08B TO B4C16B	32.20.72.1 / 32.20.70.1	B4A16,B4C16 / B4A23,B4B15,B4C08
914	**RESERVED**		
915	CAN NOT BLOCK PUNCH TRANSLATE 12 VIA MINUS Y CHAN REG NOT 4 AND 2 NOT 3	32.20.72.1	B4A16
916	B1E12Q TO B4C16A OR B4B22Q TO B4C16L	32.20.72.1 / 32.11.14.1 / 32.20.71.1	B4C16 / B1E12 / B4B22
917	**RESERVED**		
918	B4C16G STUCK AT MINUS Y	32.20.72.1	B4C16
919	**RESERVED**		
920	B4A23A TO B4C16D	32.20.72.1 / 32.20.70.1	B4C16 / B4A23
921	**RESERVED**		
922	B4C16C STUCK AT MINUS Y	32.20.72.1	B4C16

923	**RESERVED**		
924	B4B15A AND B4C08B TO B4C16H	32.20.72.1 / 32.20.70.1	B4C16 / B4B15,B4C08
925	**RESERVED**		
926	B4C16F STUCK AT MINUS Y	32.20.72.1	B4C16
927	**RESERVED**		
928	B4B16F TO B4A18A	32.20.73.1 / 32.20.71.1	B4A18 / B4B16
929	B1F09L TO B4A18R OR B4B22Q TO B4B17R	32.20.73.1 / 32.11.14.1 / 32.20.71.1	B4A18,B4B17 / B1F09 / B4B22
930	B4B15C TO B4A18B	32.20.73.1 / 32.20.71.1	B4A18 / B4B15
931	**RESERVED**		
932	CAN NOT BLOCK PUNCH TRANSLATE 11 VIA MINUS Y CHAN REG 5OR7 AND 4 AND 2 NOT 0	32.20.73.1	B4A18
933	B4B15C TO B4A18B	32.20.73.1 / 32.20.71.1	B4A18 / B4B15
934	B1D10E TO B4A18H	32.20.73.1 / 32.11.12.1	B4A18 / B1D10
935	B4A17P TO B4A18G	32.20.73.1 / 32.20.70.1	B4A18 / B4A17
936	**RESERVED**		
937	CAN NOT BLOCK PUNCH TRANSLATE 11 VIA MINUS Y CHAN REG 2 NOT 0 AND NOT 1 AND 4OR5OR6OR7	32.20.73.1	B4A18
938	B4B15C TO B4B17B	32.20.73.1 / 32.20.71.1	B4B17 / B4B15
939	B1F09L TO B4B17A	32.20.73.1 / 32.11.14.1	B4B17 / B1F09
940	B1F09E TO B4B17C	32.20.73.1 / 32.11.13.1	B4B17 / B1F09
941	B1E08Q TO B4B17D	32.20.73.1 / 32.11.15.1	B4B17 / B1E08
942	B4B17G STUCK AT MINUS Y	32.20.73.1	B4B17
943	**RESERVED**		
944	B1D10A TO B4B17F	32.20.73.1 / 32.11.12.1	B4B17 / B1D10
945	**RESERVED**		
946	B1E12E TO B4B17L	32.20.73.1 / 32.11.13.1	B4B17 / B1E12
947	**RESERVED**		

948	B4B17P STUCK AT MINUS Y	32.20.73.1	B4B17
949	**RESERVED**		
950	**RESERVED**		
951	B1D11P TO B4C17F	32.20.73.1 / 32.11.12.1	B4C17 / B1D11
952	B1G10Q TO B4C17H	32.20.73.1 / 32.11.15.1	B4C17 / B1G10
953	B4B22Q TO B4C17Q	32.20.73.1 / 32.20.71.1	B4C17 / B4B22
954	B1E12E TO B4C17L	32.20.73.1 / 32.11.13.1	B4C17 / B1E12
955	B4C17P STUCK AT MINUS Y	32.20.73.1	B4C17
956	**RESERVED**		
957	B4B22Q TO B4A11E	32.20.73.1 / 32.20.71.1	B4A11 / B4B22
958	**RESERVED**		
959	B4B15A AND B4C08B TO B4A11P	32.20.73.1 / 32.20.70.1	B4A11 / B4B15,B4C08
960	**RESERVED**		
961	CAN NOT BLOCK PUNCH TRANSLATE 11 VIA MINUS Y CHAN REG NOT 5OR6 AND 2 AND 0.1.3	32.20.73.1	B4A11
962	B1D10E TO B4C18D	32.20.74.1 / 32.11.12.1	B4C18 / B1D10
963	B4B22L TO B4C18E	32.20.74.1 / 32.20.70.1	B4C18 / B4B22
964	B4A17P TO B4C18F	32.20.74.1 / 32.20.70.1	B4C18 / B4A17
965	B1D10A TO B4C18H	32.20.74.1 / 32.11.12.1	B4C18 / B1D10
966	**RESERVED**		
967	CAN NOT BLOCK PUNCH TRANSLATE 0 VIA MINUS Y CHAN REG NOT 1 AND NOT--2NOT3-- AND 4OR5OR6 OR7 AND NOT 0	32.20.74.1	B4C18
968	B1E12Q TO B4C18B OR B4B22Q TO B4C18L	32.20.74.1 / 32.11.14.1 / 32.20.71.1	B4C18 / B1E12 / B4B22
969	B4B22L TO B4C18E	32.20.74.1 / 32.20.70.1	B4C18 / B4B22
970	B4B14L TO B4C18C OR B1F09L TO B4C18Q	32.20.74.1 / 32.20.70.1 / 32.11.14.1	B4C18 / B4B14 / B1F09
971	B4A23D TO B4C18A	32.20.74.1 / 32.20.70.1	B4C18 / B4A23

ID	Description		
972	**RESERVED**		
973	CAN NOT BLOCK PUNCH TRANSLATE O VIA MINUS Y CHAN REG NOT 4 AND NOT--2NOT3-- AND 5OR6OR7 AND 0.1	32.20.74.1	B4C18
974	B4A23D TO B4C18G	32.20.74.1 / 32.20.70.1	B4C18 / B4A23
975	**RESERVED**		
976	**RESERVED**		
977	B4B22L TO B4C18R	32.20.74.1 / 32.20.70.1	B4C18 / B4B22
978	**RESERVED**		
979	CAN NOT BLOCK PUNCH TRANSLATE O VIA MINUS Y CHAN REG 0.1 AND NOT 5OR6 AND 4 AND NOT--2NOT3--	32.20.74.1	B4C18
980	B4B22L TO B4B18E	32.20.74.1 / 32.20.70.1	B4B18 / B4B22
981	B4B16F TO B4B18F	32.20.74.1 / 32.20.71.1	B4B18 / B4B16
982	B4B23A TO B4B18L	32.20.74.1 / 32.20.71.1	B4B18 / B4B23
983	**RESERVED**		
984	CAN NOT BLOCK PUNCH TRANSLATE O VIA MINUS Y CHAN REG NOT--2NOT3-- AND 5OR7 AND 4NOTO	32.20.74.1	B4B18
985	B4B23A TO B4A19A	32.20.74.1 / 32.20.71.1	B4A19 / B4B23
986	B1D11P TO B4A19D	32.20.74.1 / 32.11.12.1	B4A19 / B1D11
987	B4C15F TO B4A19B	32.20.74.1 / 32.20.70.1	B4A19 / B4C15
988	B4A19C STUCK AT MINUS Y	32.20.74.1	B4A19
989	**RESERVED**		
990	B1E12Q TO B4A19E OR B1D10A TO B4B19B	32.20.75.1 / 32.11.14.1 / 32.11.12.1	B4A19,B4B19 / B1E12 / B1D10
991	B4B22Q TO B4A19G	32.20.75.1 / 32.20.71.1	B4A19 / B4B22
992	B1G10Q TO B4A19F OR B1D10E TO B4B19F	32.20.75.1 / 32.11.15.1 / 32.11.12.1	B4A19,B4B19 / B1G10 / B1D10
993	B4A19L STUCK AT MINUS Y	32.20.75.1	B4A19
994	ALWAYS GET PUNCH TRANSLATE 1	32.20.32.1	B3E18

ID	Description		
		32.20.75.1	B4A20,B4B19,B4A19
995	B1G10Q TO B4B19A	32.20.75.1 / 32.11.15.1	B4B19 / B1G10
996	B4B22Q TO B4B19D	32.20.75.1 / 32.20.71.1	B4B19 / B4B22
997	**RESERVED**		
998	B4B19C STUCK AT MINUS Y	32.20.75.1	B4B19
999	**RESERVED**		
1000	B4B22Q TO B4B19G	32.20.75.1 / 32.20.71.1	B4B19 / B4B22
1001	B1E12Q TO B4B19E	32.20.75.1 / 32.11.14.1	B4B19 / B1E12
1002	**RESERVED**		
1003	B4B19L STUCK AT MINUS Y	32.20.75.1	B4B19
1004	**RESERVED**		
1005	B4A23P TO B4C19C	32.20.75.1 / 32.20.70.1	B4C19 / B4A23
1006	B4A23A TO B4C19L	32.20.75.1 / 32.20.70.1	B4C19 / B4A23
1007	B1F09L TO B4C19B	32.20.75.1 / 32.11.14.1	B4C19 / B1F09
1008	**RESERVED**		
1009	CAN NOT BLOCK PUNCH TRANSLATE 2 VIA MINUS Y CHAN REG 1NOTO AND 2NOT3 AND 4	32.20.75.1	B4C19
1010	**RESERVED**		
1011	B1G10E TO B4C19D	32.20.75.1 / 32.11.15.1	B4C19 / B1G10
1012	**RESERVED**		
1013	CAN NOT BLOCK PUNCH TRANSLATE 2 VIA MINUS Y CHAN REG NOT--2NOT3-- AND NOT 6	32.20.75.1	B4C19
1014	**RESERVED**		
1015	**RESERVED**		
1016	**RESERVED**		
1017	**RESERVED**		
1018	**RESERVED**		
1019	**RESERVED**		
1020	**RESERVED**		
1021	**RESERVED**		

2821 - 2540 READER PUNCH SCAN

```
I1022 I **RESERVED**                     I            I              I
I1023 I **RESERVED**                     I            I              I
I1024 I **RESERVED**                     I            I              I
I1025 I **RESERVED**                     I            I              I
I1026 I **RESERVED**                     I            I              I
I1027 I **RESERVED**                     I            I              I
I1028 I **RESERVED**                     I            I              I
I1029 I **RESERVED**                     I            I              I
I1030 I **RESERVED**                     I            I              I
I1031 I **RESERVED**                     I            I              I
I1032 I **RESERVED**                     I            I              I
I1033 I **RESERVED**                     I            I              I
I1034 I B1E12Q TO B4B21B                 I 32.20.76.1 I B4B21        I
      I                                  I 32.11.14.1 I B1E12        I
I1035 I B1D11P TO B4B21G                 I 32.20.76.1 I B4B21        I
      I                                  I 32.11.12.1 I B1D11        I
I1036 I B4B22L TO B4B21H                 I 32.20.76.1 I B4B21        I
      I                                  I 32.20.70.1 I B4B22        I
I1037 I **RESERVED**                     I            I              I
I1038 I CAN NOT BLOCK PUNCH TRANSLATE    I 32.20.76.1 I B4B21        I
      I 8 VIA MINUS Y CHAN REG NOT 4     I            I              I
      I AND 1 AND NOT--2NOT3--           I            I              I
I1039 I B1G10Q TO B4B21Q                 I 32.20.76.1 I B4B21        I
      I                                  I 32.11.15.1 I B1G10        I
I1040 I B1D11A TO B4B21D                 I 32.20.76.1 I B4B21        I
      I                                  I 32.11.12.1 I B1D11        I
I1041 I B4B22Q TO B4B21P                 I 32.20.76.1 I B4B21        I
      I                                  I 32.20.71.1 I B4B22        I
I1042 I **RESERVED**                     I            I              I
I1043 I CAN NOT BLOCK PUNCH TRANSLATE    I 32.20.76.1 I B4B21        I
      I 8 VIA MINUS Y CHAN REG 7 AND     I            I              I
      I 0 AND NOT--5OR6--                I            I              I
I1044 I B4A23P TO B4B21F                 I 32.20.76.1 I B4B21        I
      I                                  I 32.20.70.1 I B4A23        I
I1045 I B4A23A TO B4B21E                 I 32.20.76.1 I B4B21        I
      I                                  I 32.20.70.1 I B4A23        I
I1046 I B4C15F TO B4B21L                 I 32.20.76.1 I B4B21        I
      I                                  I 32.20.70.1 I B4C15        I
I1047 I **RESERVED**                     I            I              I
I1048 I CAN NOT BLOCK PUNCH TRANSLATE    I 32.20.76.1 I B4B21        I
      I 8 VIA MINUS Y CHAN REG 1NOT0     I            I              I
      I AND 2NOT3 AND NOT--5OR7OR NOT    I            I              I
```

2821 - 2540 READER PUNCH SCAN

```
      I  6--                             I            I              I
I1049 I B1F09L TO B4C21F                 I 32.20.77.1 I B4C21        I
      I                                  I 32.11.14.1 I B1F09        I
I1050 I B1G10Q TO B4C21E                 I 32.20.77.1 I B4C21        I
      I                                  I 32.11.15.1 I B1G10        I
I1051 I B1D11A TO B4C21H                 I 32.20.77.1 I B4C21        I
      I OR                               I 32.11.12.1 I B1D11        I
      I B1E12Q TO B4C21G                 I 32.11.14.1 I B1E12        I
I1052 I B4B22Q TO B4C21D                 I 32.20.77.1 I B4C21        I
      I                                  I 32.20.71.1 I B4B22        I
I1053 I **RESERVED**                     I            I              I
I1054 I CAN NOT GET PUNCH TRANSLATE 9    I 32.20.77.1 I B4C21        I
      I VIA MINUS Y CHAN REG 4 AND 7     I            I              I
      I AND 0 AND NOT 5OR6               I            I              I
I1055 I B4B22Q TO B4C21C                 I 32.20.77.1 I B4C21        I
      I                                  I 32.20.71.1 I B4B22        I
I1056 I B4A23D TO B4C21A                 I 32.20.77.1 I B4C21        I
      I                                  I 32.20.70.1 I B4A23        I
I1057 I B4A23A TO B4C21B                 I 32.20.77.1 I B4C21        I
      I                                  I 32.20.70.1 I B4A23        I
I1058 I B1G10Q TO B4C21E                 I 32.20.77.1 I B4C21        I
      I                                  I 32.11.15.1 I B1G10        I
I1059 I **RESERVED**                     I            I              I
I1060 I CAN NOT GET PUNCH TRANSLATE 9    I 32.20.77.1 I B4C21        I
      I VIA MINUS Y CHAN REG NOT 5OR6    I            I              I
      I AND 0-1 AND 2NOT3 AND 7          I            I              I
I1061 I B1G10Q TO B4C21R                 I 32.20.77.1 I B4C21        I
      I                                  I 32.11.15.1 I B1G10        I
I1062 I B4B22L TO B4C21L                 I 32.20.77.1 I B4C21        I
      I                                  I 32.20.70.1 I B4B22        I
I1063 I B1D10A TO B4C21Q                 I 32.20.77.1 I B4C21        I
      I                                  I 32.11.12.1 I B1D10        I
I1064 I **RESERVED**                     I            I              I
I1065 I **RESERVED**                     I            I              I
I1066 I CAN NOT GET PUNCH TRANSLATE 9    I 32.20.77.1 I B4C21        I
      I VIA MINUS Y CHAN REG 7 AND       I            I              I
      I NOT--2NOT3-- AND NOT 0 AND       I            I              I
      I NOT 4                            I            I              I
I1067 I B4B23A TO B4C22E                 I 32.20.77.1 I B4C22        I
      I                                  I 32.20.71.1 I B4B23        I
I1068 I B4C15C TO B4C22F                 I 32.20.77.1 I B4C22        I
      I                                  I 32.20.70.1 I B4C15        I
I1069 I **RESERVED**                     I            I              I
I1070 I CAN NOT GET PUNCH TRANSLATE 9    I 32.20.77.1 I B4C22        I
      I VIA MINUS Y CHAN REG 4NOT0       I            I              I
      I AND NOT--5OR6OR7--               I            I              I
```

2821 - 2540 READER PUNCH SCAN

I1071	**RESERVED**		
I1072	**RESERVED**		
I1073	**RESERVED**		
I1074	**RESERVED**		
I1075	B4A16C STUCK AT MINUS Y	32.20.72.1	B4A16
I1076	**RESERVED**		
I1077	**RESERVED**		
I1078	**RESERVED**		
I1079	**RESERVED**		
I1080	**RESERVED**		
I1081	B4A18C STUCK AT MINUS Y	32.20.73.1	B4A18
I1082	**RESERVED**		
I1083	**RESERVED**		
I1084	**RESERVED**		
I1085	B4A11Q STUCK AT MINUS Y	32.20.73.1	B4A11
I1086	**RESERVED**		
I1087	**RESERVED**		
I1088	**RESERVED**		
I1089	**RESERVED**		
I1090	B4C18P STUCK AT MINUS Y	32.20.74.1	B4C18
I1091	**RESERVED**		
I1092	**RESERVED**		
I1093	**RESERVED**		
I1094	**RESERVED**		
I1095	**RESERVED**		
I1096	B4B18C STUCK AT MINUS Y	32.20.74.1	B4B18
I1097	**RESERVED**		
I1098	**RESERVED**		
I1099	**RESERVED**		
I1100	**RESERVED**		
I1101	NEVER GET PUNCH TRANSLATE 1	32.20.32.1	B3E18
		32.20.75.1	B4A20
I1102	**RESERVED**		
I1103	**RESERVED**		

2821 - 2540 READER PUNCH SCAN

I1104	**RESERVED**		
I1105	B4C19R STUCK AT MINUS Y	32.20.75.1	B4C19
I1106	**RESERVED**		
I1107	**RESERVED**		
I1108	**RESERVED**		
I1109	**RESERVED**		
I1110	**RESERVED**		
I1111	B4B21C STUCK AT MINUS Y	32.20.76.1	B4B21
I1112	**RESERVED**		
I1113	**RESERVED**		
I1114	**RESERVED**		
I1115	**RESERVED**		
I1116	B4C21P STUCK AT MINUS Y	32.20.77.1	B4C21
I1117	**RESERVED**		
I1118	**RESERVED**		
I1119	**RESERVED**		
I1120	**RESERVED**		
I1121	**RESERVED**		
I1122	B4C22C STUCK AT MINUS Y	32.20.77.1	B4C22
I1123	**RESERVED**		
I1124	**RESERVED**		
I1125	**RESERVED**		
I1126	**RESERVED**		
I1127	ALWAYS GET PUNCH TRANSLATE 0	32.20.31.1	B3E18
		32.20.74.1	B4C18,B4B18,B4A19
I1128	**RESERVED**		
I1129	**RESERVED**		
I1130	**RESERVED**		
I1131	**RESERVED**		
I1132	**RESERVED**		
I1133	**RESERVED**		
I1134	ALWAYS GET PUNCH TRANSLATE 2	32.20.32.1	B3E19
		32.20.75.1	B4C19,B4A20
I1135	**RESERVED**		
I1136	**RESERVED**		

```
I1137 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1138 I ALWAYS GET PUNCH TRANSLATE 8  I 32.20.34.1 I B3E20             I
I     I                             I 32.20.76.1 I B4A19,B4B21         I
I-----I-----------------------------I--------I--------------------------I
I1139 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1140 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1141 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1142 I NEVER GET PUNCH TRANSLATE 9  I 32.20.34.1 I B3E20              I
I     I                             I 32.20.77.1 I B4A21,B4C21,B4C22   I
I-----I-----------------------------I--------I--------------------------I
I1143 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1144 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1145 I ALWAYS GET PUNCH TRANSLATE 12 I 32.20.31.1 I B3E18            I
I     I                             I 32.20.72.1 I B4A16,B4A17,B4C16   I
I-----I-----------------------------I--------I--------------------------I
I1146 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1147 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1148 I **RESERVED**              I        I                          I
I-----I-----------------------------I--------I--------------------------I
I1149 I ALWAYS GET PUNCH TRANSLATE 11 I 32.20.31.1 I B3E18            I
I     I                             I 32.20.73.1 I B4A11,B4A18,B4B17,I
I     I                             I        I B4C17                    I
```

4.4 LOG OUT OF ACCUMULATED DATA BY ROUTINE

    4.4.1 ROUTINE 01 --CHANNEL REG FLT--

        LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THE
        DATA IS PRESENTED IN HEX FORM, 4 BITS PER CHARACTER. THIS
        SAMPLE REPRESENTS THE DATA ACCUMULATED WITH NO ERRORS.

        COL   1 2 3 4 5 6 7 8 9 10

              80 08 14 00 00 80 0C 00 00 00
              40 08 14 00 00 40 0C 00 00 00
              20 08 14 00 00 20 0C 00 00 00
              10 08 14 00 00 10 0C 00 00 00
              08 08 14 00 00 08 0C 00 00 00
              04 08 14 00 00 04 0C 00 00 00
              02 08 14 00 00 02 0C 00 00 00
              01 08 14 00 00 01 0C 00 00 00
              00 08 14 00 00 00 0C 00 00 00
              00 08 14 00 00 00 0C 00 00 00

        EACH COLUMN IN THE ABOVE TABLE IS DEFINED BELOW.

        COLUMN 1 - DATA WRITTEN TO PUNCH BUFFER
        COLUMN 2 - PUNCH WRITE CHANNEL END STATUS
        COLUMN 3 - PUNCH WRITE DEVICE END STATUS
        COLUMN 4 - PUNCH WRITE SENSE DATA
        COLUMN 5 - PUNCH WRITE CHECK READ DATA
        COLUMN 6 - PUNCH READ DATA
        COLUMN 7 - PUNCH READ STATUS
        COLUMN 8 - PUNCH READ SENSE DATA
        COLUMN 9 - PUNCH READ CHECK READ DATA
        COLUMN 10 - DATA GROUP ERROR SWITCHES
                    BIT 6 -ON- MEANS BIT DOES NOT TURN ON
                    BIT 7 -ON- MEANS BIT DOES NOT TURN OFF

    4.4.2 ROUTINE 02 --CONTROL PROGRAM--

        LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THE
        DATA IS PRESENTED IN HEX FORM, 4 BITS PER CHARACTER. THIS
        SAMPLE REPRESENTS THE DATA ACCUMULATED WITH NO ERRORS. IF
        AN ERROR IS DETECTED, THE FIRST LINE IN THE TABLE BELOW
        WILL CONTAIN THE ERROR DATA.

        COL   1 2 3 4 5 6 7 8 9 1011 12 13 14 15 16 17 18

              31 08 14 00 00 31 0C 00 00 0401 0C 00 00 31 0C 00 00
              50 08 14 00 00 50 0C 00 00 2000 0C 00 00 50 0C 00 00
              60 08 14 00 00 60 0C 00 00 1000 0C 00 00 60 0C 00 00
              F0 08 14 00 00 F0 0C 00 00 0800 0C 00 00 F0 0C 00 00
              F1 08 14 00 00 F1 0C 00 00 0400 0C 00 00 F1 0C 00 00
              F2 08 14 00 00 F2 0C 00 00 0200 0C 00 00 F2 0C 00 00
              F3 08 14 00 00 F3 0C 00 00 0100 0C 00 00 F3 0C 00 00
              F4 08 14 00 00 F4 0C 00 00 0020 0C 00 00 F4 0C 00 00
              F5 08 14 00 00 F5 0C 00 00 0010 0C 00 00 F5 0C 00 00
              F6 08 14 00 00 F6 0C 00 00 0008 0C 00 00 F6 0C 00 00
              F7 08 14 00 00 F7 0C 00 00 0004 0C 00 00 F7 0C 00 00
              F8 08 14 00 00 F8 0C 00 00 0002 0C 00 00 F8 0C 00 00
              F9 08 14 00 00 F9 0C 00 00 0001 0C 00 00 F9 0C 00 00
              40 08 14 00 00 40 0C 00 00 0000 0C 00 00 40 0C 00 00
              31 08 14 00 00 31 0C 00 00 0401 0C 00 00 31 0C 00 00

        EACH COLUMN IN THE ABOVE TABLE IS DEFINED BELOW.

        COLUMN 1 - DATA WRITTEN TO PUNCH BUFFER
        COLUMN 2 - PUNCH WRITE CHANNEL END STATUS
        COLUMN 3 - PUNCH WRITE DEVICE END STATUS
        COLUMN 4 - PUNCH WRITE SENSE DATA
        COLUMN 5 - PUNCH WRITE CHECK READ DATA
        COLUMN 6 - PUNCH READ DATA
        COLUMN 7 - PUNCH READ STATUS
        COLUMN 8 - PUNCH READ SENSE DATA
        COLUMN 9 - PUNCH READ CHECK READ DATA
        COLUMN 10 - READER WRITE DATA -1ST BYTE OF COL BINARY
        COLUMN 11 - READER WRITE DATA -2ND BYTE OF COL BINARY
        COLUMN 12 - READER WRITE STATUS
        COLUMN 13 - READER WRITE SENSE DATA
        COLUMN 14 - READER WRITE CHECK READ DATA
        COLUMN 15 - READER READ DATA
        COLUMN 16 - READER READ STATUS
        COLUMN 17 - READER READ SENSE DATA
        COLUMN 18 - READER READ CHECK READ DATA

    4.4.3 ROUTINE 03 --BUFFER ADDR FLT--

        LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THE
        DATA IS PRESENTED IN HEX FORM, 4 BITS PER CHARACTER. THIS
        SAMPLE REPRESENTS A SOLID FAILURE FOR BUFFER ADDRESS
        REGISTER UNITS -A-.

        DEVICE XXX DIAG CK RD DATA - RESIDUAL COUNT IS 0020 SHLD BE 0020
        0000010000010101010100000100001010101010000001000001010101
        0000010000010101010100000100001010101010000001000001010101
        0000010000010101010100000100001010101010000000000000000000

        DEVICE YYY DIAG CK RD DATA - RESIDUAL COUNT IS 0020 SHLD BE 0020
        0000010000010101010100000100001010101010000001000001010101
        0000010000010101010100000100001010101010000001000001010101
        0000010000010101010100000100001010101010000000000000000000

        IN THE ABOVE PRINTOUTS OF DIAGNOSTIC CHECK DATA, XXX
        REPRESENTS THE READER ADDRESS AND YYY REPRESENTS THE
        PUNCH ADDRESS.

EACH DIAGNOSTIC CHECK READ IS PERFORMED WITH A CCW COUNT
OF 100 -DECIMAL. IF THE READER/PUNCH CIRCUITS ARE
FUNCTIONING PROPERLY, THE RESIDUAL COUNT SHOULD BE 020 -
ONLY 80 COLUMNS SHOULD BE READ. IN THE ABOVE PRINTOUT, 90
BYTES OF DIAGNOSTIC CHECK READ DATA ARE DISPLAYED FOR
EACH DEVICE. IT IS TO BE NOTED THAT ONLY ADDRESS CHECKS
WILL BE INDICATED - ALL OTHER DIAGNOSTIC CHECK READ BITS
ARE ELIMINATED BY THE PROGRAM.

4.4.4 ROUTINE 04 --READER TRANSLATOR FLT--

LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THIS
SAMPLE REPRESENTS THE DATA ACCUMULATED WITH NO ERRORS. A
BRIEF DESCRIPTION OF EACH COLUMN IS INDICATED BELOW.

  1. DIAG WRITE DATA

    HEX - SINCE A DIAGNOSTIC WRITE TO THE READER BUFFER
    IS A COLUMN BINARY WRITE, TWO BYTES, AS INDICATED, ARE
    REQUIRED TO LOAD ONE READER BUFFER POSITION. THESE
    TWO BYTES ARE REPEATED THROUGHOUT A 160 BYTE WRITE
    FIELD IN AN ATTEMPT TO WRITE ALL 80 READER BUFFER
    POSITIONS WITH IDENTICAL DATA. A TOTAL OF 81 SEPARATE
    WRITES ARE PERFORMED WITH EACH WRITE USING DIFFERENT
    DATA AS INDICATED IN EACH ROW.

    HOLLERITH - THIS INDICATES THE READER BUFFER DATA
    REGISTER LATCHES WHICH WOULD BE SET BY TWO HEX BYTES
    INDICATED IN THE SAME ROW.

  2. READ DATA

    ACT - THIS IS THE ACTUAL DATA READ FROM THE READER
    BUFFER AFTER THE CORRESPONDING WRITE.

    EXPD - THIS IS THE EXPECTED READER READ DATA

  3. SENSE DATA

    ACT - THIS IS THE READER SENSE BYTE OBTAINED AFTER
    THE CORRESPONDING READ. REFER TO THE APPENDIX FOR
    SENSE BYTE INFORMATION.

    EXPD - THIS IS THE EXPECTED READER SENSE BYTE.

  4. CHECK READ DATA

    ACT - THIS IS THE READER DIAGNOSTIC CHECK READ DATA
    OBTAINED AFTER THE CORRESPONDING READ. REFER TO THE
    APPENDIX FOR DIAGNOSTIC CHECK READ INFORMATION.

    EXPD - THIS IS THE EXPECTED READER DIAGNOSTIC CHECK
    READ DATA.

  NOTE AN ASTERISK WILL PRECEDE EACH ROW WHERE AN
          ERROR IS DETECTED. AN ERROR IS DETECTED
          WHEN THE ACTUAL AND EXPECTED RESULTS ARE
          NOT EQUAL.

DIAG WRITE DATA		READ DATA		SENSE DATA		CHECK READ DATA	
		ACT	EXPD	ACT	EXPD	ACT	EXPD
-HEX-	-HOLLERITH-	-HEX-	-HEX-	-HEX-	-HEX-	-HEX-	-HEX-
1E00	E012	A3	A3	08	08	00	00
0F00	0123	E3	E3	08	08	00	00

0720	1234		F7	F7	08	08	00	00
0330	2345		F7	F7	08	08	00	00
0138	3456		F7	F7	08	08	00	00
003C	4567		F7	F7	08	08	00	00
001E	5678		7F	7F	08	08	00	00
000F	6789		3F	3F	08	08	00	00
3800	TE0		70	70	00	00	00	00
1C00	E01		A1	A1	00	00	00	00
0E00	012		E3	E3	08	08	00	00
0320	234		F7	F7	08	08	00	00
0130	345		F7	F7	08	08	00	00
0038	456		F7	F7	08	08	00	00
2C03	T 01	89	00	00	00	00	00	00
2401	T 1	9	01	01	00	00	00	00
2201	T 2	9	02	02	00	00	00	00
2101	T 3	9	03	03	00	00	00	00
2021	T 4	9	04	04	00	00	00	00
2011	T 5	9	05	05	00	00	00	00
2009	T 6	9	06	06	00	00	00	00
2005	T 7	9	07	07	00	00	00	00
2003	T	89	08	08	00	00	00	00
2403	T 1	89	09	09	00	00	00	00
3403	TE 1	89	10	10	00	00	00	00
1401	E 1	9	11	11	00	00	00	00
1403	E 1	89	19	19	00	00	00	00
1C03	E01	89	20	20	00	00	00	00
0C01	01	9	21	21	00	00	00	00
0A01	0 2	9	22	22	00	00	00	00
0C03	01	89	29	29	00	00	00	00
0A03	0 2	89	2A	2A	00	00	00	00
3C03	TE01	89	30	30	00	00	00	00
0000			40	40	00	00	00	00
2C01	T 01	9	41	41	00	00	00	00
2A01	T 0 2	9	42	42	00	00	00	00
2803	T 0	89	48	48	00	00	00	00
2402	T 1	8	49	49	00	00	00	00
2202	T 2	8	4A	4A	00	00	00	00
2000	T		50	50	00	00	00	00
3401	TE 1	9	51	51	00	00	00	00
3003	TE	89	58	58	00	00	00	00
1000	E		60	60	00	00	00	00
0C00	01		61	61	00	00	00	00
1A01	E0 2	9	62	62	00	00	00	00
3000	TE		6A	6A	00	00	00	00
3C01	TE01	9	71	71	00	00	00	00
0202	2	8	7A	7A	00	00	00	00
2C02	T 01	8	80	80	00	00	00	00
2A00	T 0 2		82	82	00	00	00	00
2900	T 0 3		83	83	00	00	00	00
2820	T 0 4		84	84	00	00	00	00
2810	T 0 5		85	85	00	00	00	00
2808	T 0 6		86	86	00	00	00	00
2804	T 0 7		87	87	00	00	00	00
2802	T 0 8		88	88	00	00	00	00
2801	T 0 9		89	89	00	00	00	00
2A02	T 0 2	8	8A	8A	00	00	00	00
2902	T 0 3	8	8B	8B	00	00	00	00
3402	TE 1	8	90	90	00	00	00	00
3400	TE 1		91	91	00	00	00	00
3020	TE 4		94	94	00	00	00	00
3010	TE 5		95	95	00	00	00	00
1C02	E01	8	A0	A0	00	00	00	00
1A02	E0 2	8	AA	AA	00	00	00	00
2800	T 0		C0	C0	00	00	00	00
2001	T	9	C9	C9	00	00	00	00
1800	E0		D0	D0	00	00	00	00
0A02	0 2	8	E0	E0	00	00	00	00
1C01	E01	9	E1	E1	00	00	00	00

0014	5 7	F7	F7	08	08	00	00
0018	56	F7	F7	08	08	00	00
0024	4 7	F7	F7	08	08	00	00
0030	45	F5	F5	08	08	00	00
0028	4 6	F6	F6	08	08	00	00
0204	2 7	F7	F7	08	08	00	00
0208	2 6	F6	F6	08	08	00	00
0210	2 5	F7	F7	08	08	00	00
0220	2 4	F6	F6	08	08	00	00
0300	23	F3	F3	08	08	00	00
0108	3 6	F7	F7	08	08	00	00

4.4.5   ROUTINE 05 --PUNCH TRANSLATOR FLT--

LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THE
DATA IS PRESENTED IN HEX FORM, 4 BITS PER CHARACTER. THIS
SAMPLE REPRESENTS THE DATA ACCUMULATED WITH NO ERRORS.

COL	1	2	3	4	5	6
	00	00	00	00	00	00
	01	00	00	01	00	00
	02	00	00	02	00	00
	03	00	00	03	00	00
	04	00	00	04	00	00
	05	00	00	05	00	00
	06	00	00	06	00	00
	07	00	00	07	00	00
	08	00	00	08	00	00
	09	00	00	09	00	00
	0A	00	00	0A	00	00
	10	00	00	10	00	00
	11	00	00	11	00	00
	19	00	00	19	00	00
	1A	00	00	1A	00	00
	20	00	00	20	00	00
	21	00	00	21	00	00
	22	00	00	22	00	00
	29	00	00	29	00	00
	2A	00	00	2A	00	00
	30	00	00	30	00	00
	40	00	00	40	00	00
	41	00	00	41	00	00
	42	00	00	42	00	00
	48	00	00	48	00	00
	49	00	00	49	00	00
	4A	00	00	4A	00	00
	50	00	00	50	00	00
	51	00	00	51	00	00
	58	00	00	58	00	00
	59	00	00	59	00	00
	60	00	00	60	00	00
	61	00	00	61	00	00
	62	00	00	62	00	00
	63	00	00	63	00	00
	68	00	00	68	00	00
	6A	00	00	6A	00	00
	6B	00	00	6B	00	00
	6E	00	00	6E	00	00
	70	00	00	70	00	00
	72	00	00	72	00	00
	78	00	00	78	00	00
	7A	00	00	7A	00	00
	80	00	00	80	00	00
	81	00	00	81	00	00
	82	00	00	82	00	00
	88	00	00	88	00	00
	89	00	00	89	00	00
	88	00	00	88	00	00
	91	00	00	91	00	00
	A1	00	00	A1	00	00
	A9	00	00	A9	00	00
	C0	00	00	C0	00	00
	C1	00	00	C1	00	00
	C2	00	00	C2	00	00
	C8	00	00	C8	00	00
	CA	00	00	CA	00	00
	D0	00	00	D0	00	00
	D2	00	00	D2	00	00
	D8	00	00	D8	00	00
	DA	00	00	DA	00	00
	E0	00	00	E0	00	00
	E1	00	00	E1	00	00
	E2	00	00	E2	00	00
	E3	00	00	E3	00	00
	E8	00	00	E8	00	00
	E9	00	00	E9	00	00
	EA	00	00	EA	00	00
	EB	00	00	EB	00	00
	F0	00	00	F0	00	00
	FA	00	00	FA	00	00

EACH COLUMN IN THE ABOVE TABLE IS DEFINED BELOW.

COLUMN 1 - DATA WRITTEN TO PUNCH BUFFER
COLUMN 2 - PUNCH WRITE SENSE DATA
COLUMN 3 - PUNCH WRITE CHECK READ DATA
COLUMN 4 - PUNCH READ DATA
COLUMN 5 - PUNCH READ SENSE DATA
COLUMN 6 - PUNCH READ CHECK READ DATA

NOTE   EACH ROW IN THE ABOVE TABLE THAT IS IN ERROR
           WILL BE PRECEEDED BY AN ASTERISK. AN ERROR
           IS DETECTED WHEN THE PUNCH WRITE AND READ DATA
           ARE NOT EQUAL AND/OR WHEN THE SENSE OR CHECK
           READ DATA IS NOT ZERO.

5. COMMENTS

5.1   PROGRAM PHILOSOPHY AND ASSOCIATED COMMENTS

THE BASIC PHILOSOPHY EMPLOYED BY THIS PROGRAM IS TO --FIRST--
AREA ISOLATE A SOLID DATA PATH FAILURE WITHIN THE 2821/2540
ATTACHMENT, AND --SECOND-- FURTHER ISOLATE THE FAILURE TO
PARTICULAR CIRCUIT-S-. IN ORDER TO UTILIZE THIS PHILOSOPHY
WITH THE EXISTING MAIN STORAGE SIZE LIMITATIONS, IT WAS
NECESSARY TO EMPLOY THE PROGRAM OVERLAY CONCEPT. EACH OVERLAY
--ROUTINE-- IS DESCRIBED IN DETAIL BELOW.

5.2   DESCRIPTION --ROUTINE 01, CHANNEL REG FLT--

THE PRIMARY OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A
SOLID FAILURE IN THE CHANNEL REGISTER CIRCUITS WITHIN THE READER/
PUNCH ATTACHMENT OF THE 2821.

THIS ROUTINE ACCOMPLISHES ITS OBJECTIVE BY INVESTIGATING THE
EIGHT CHANNEL REGISTER BITS - 0, 1, 2, 3, 4, 5, 6, 7. WITH EACH
OF THESE LINES MADE ACTIVE, ONE AT A TIME, THE FOLLOWING SEQUENCE
OF OPERATIONS ARE PERFORMED-

1. WRITE PUNCH BUFFER
    A. SENSE I/O --IF UNIT CHECK STATUS--
    B. DIAGNOSTIC CHECK READ

2. READ PUNCH BUFFER
    A. SENSE I/O --IF UNIT CHECK STATUS--

B. DIAGNOSTIC CHECK READ

THE INFORMATION OBTAINED BY EACH OF THE ABOVE OPERATIONS IS
SAVED IN MAIN STORAGE, AND IS SHOWN IN DETAIL IN THE SECTION
ON PRINTOUTS.

AFTER ALL DATA HAS BEEN ACCUMULATED, IT IS INTERROGATED BY AN
ANALYSIS ROUTINE. AN OUTPUT MESSAGE WILL INDICATE THE RESULTS
OF THIS ANALYSIS AS AN ERROR NUMBER OR --CHANNEL REG OK--. IF
AN ERROR NUMBER IS INDICATED, THE OPERATOR MUST REFER TO SECTION
4.3.2 OF THIS DESCRIPTION FOR DETAILED INFORMATION CONCERNING
THE ERROR. IF A CHANNEL REGISTER ERROR IS DETECTED, ALL REMAINING
ROUTINES WILL BE BYPASSED. IF NO ERRORS ARE DETECTED, ROUTINE
02 WILL BE RUN.

THE LOG OUT OF DATA ACCUMULATED BY THIS ROUTINE IS DESCRIBED IN
SECTION 4.4.1 OF THIS DESCRIPTION. SECTION SENSE SWITCH 2 MUST
BE SET TO 1 TO OBTAIN THIS LOG OUT.

5.3 DESCRIPTION --ROUTINE 02, CONTROL PROGRAM--

THE PRIMARY OBJECTIVE OF THIS ROUTINE IS TO AREA ISOLATE A SOLID
FAILURE WITHIN THE 2540 ATTACHMENT OF THE 2821. THESE AREAS ARE
DEFINED BELOW--

1. READ/PUNCH BUFFER DATA REGISTER
2. BUFFER ADDRESS REGISTER
3. READ/PUNCH BUFFER, INHIBIT LINE, AND SENSE AMPS
4. READ TRANSLATOR
5. READ TRANSLATE CHECK CIRCUITRY
6. PUNCH TRANSLATOR
7. PUNCH TRANSLATE CHECK CIRCUITRY

NOTE -- THE READ AND PUNCH TRANSLATORS ARE NOT COMPLETELY
        TESTED BY THIS ROUTINE -- ONLY COMMON LINES TO AND FROM
        EACH TRANSLATOR ARE INVESTIGATED.

THIS ROUTINE ACCOMPLISHES ITS OBJECTIVE BY INVESTIGATING THE
THIRTEEN COMMON DATA LINES --P, 12, 11, 0, 1, AND 2 THRU 9--
WITHIN THE 2540 ATTACHMENT. WITH EACH OF THESE DATA LINES MADE
ACTIVE, ONE AT A TIME, THE FOLLOWING SEQUENCE OF OPERATIONS ARE
PERFORMED WITH A CCW COUNT EQUAL TO ONE.

1. WRITE PUNCH BUFFER
   A. SENSE I/O --IF UNIT CHECK STATUS--
   B. DIAGNOSTIC CHECK READ
2. READ PUNCH BUFFER
   A. SENSE I/O --IF UNIT CHECK STATUS--
   B. DIAGNOSTIC CHECK READ
3. WRITE READER BUFFER
   A. SENSE I/O --IF UNIT CHECK STATUS--
   B. DIAGNOSTIC CHECK READ
4. READ READER BUFFER
   A. SENSE I/O
   B. DIAGNOSTIC CHECK READ

THE INFORMATION OBTAINED BY EACH OF THE ABOVE OPERATIONS IS
SAVED IN MAIN STORAGE, AND IS SHOWN IN DETAIL IN SECTION 4.4.2
OF THIS DESCRIPTION.

AFTER ALL DATA HAS BEEN ACCUMULATED, IT IS INTERROGATED BY AN
ANALYSIS ROUTINE. THE RESULTS OF THIS ANALYSIS WILL BE INDICATED
AS AN ERROR NUMBER OR NO-ERRORS-DETECTED. IF AN ERROR NUMBER IS
INDICATED, THE C.E. MUST REFER TO SECTION 4.3.2 FOR DETAILED
INFORMATION.

IF AN ERROR IS DETECTED BY THIS ROUTINE, AN AUTOMATIC SEARCH
FOR A ROUTINE TO CIRCUIT ISOLATE THE FAULT WILL OCCUR. IF NO

ERRORS ARE DETECTED, ROUTINE 03 WILL BE BYPASSED.

THE LOG OUT OF DATA ACCUMULATED BY THIS ROUTINE IS DESCRIBED IN
SECTION 4.4.2 OF THIS DESCRIPTION. SECTION SENSE SWITCH 2 MUST
BE SET TO 1 TO OBTAIN THIS LOG OUT.

5.4 DESCRIPTION --ROUTINE 03, BUFFER ADDR FLT--

THE PRIMARY OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A
SOLID FAILURE WITHIN THE 2821 READ, PUNCH, AND BUFFER ADDRESS
REGISTERS. THIS OBJECTIVE IS ACCOMPLISHED IN THE FOLLOWING
MANNER.

1. PERFORM TWO DIAGNOSTIC CHECK READS TO THE READER, AND
   SAVE THE CCW COUNT AND DATA OF THE SECOND READ.
2. PERFORM TWO DIAGNOSTIC CHECK READS TO THE PUNCH, AND
   SAVE THE CCW COUNT AND DATA OF THE SECOND READ.
3. FILTER OUT ALL BUT ADDRESS CHECKS FROM THE READ DATA.
4. DETERMINE IF READ, PUNCH, OR BUFFER ADDRESS REGISTER PROBLEM
   BY ANALYZING THE SAVED DATA.
5. CIRCUIT ISOLATE PROBLEM IN FAULTY ADDRESS REGISTER BY
   COMPARING DIAGNOSTIC CHECK READ DATA TO PRE-DETERMINED
   ERROR PATTERNS.
6. PRINT APPROPRIATE ERROR NUMBER

THE C.E. CAN THEN REFER TO SECTION 4.3.3 OF THIS DESCRIPTION
FOR DETAILED INFORMATION OF THE PROGRAM ANALYSIS.

THE LOG OUT OF DATA ACCUMULATED BY THIS ROUTINE IS DESCRIBED IN
SECTION 4.4.3 OF THIS DESCRIPTION. SECTION SENSE SWITCH 2 MUST
BE SET TO 1 TO OBTAIN THIS LOG OUT.

5.5 DESCRIPTION --ROUTINE 04, READER TRANSLATOR FLT--

NOTE THIS ROUTINE WILL BE RUN ONLY WHEN ROUTINE 02
           INDICATES ERROR 005, 007, 011, 018, 022, OR
           NO ERROR INDICATION.

THE OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A SOLID FAILURE
WITHIN THE FOLLOWING AREAS--

1. BUFFER DATA REGISTER
2. INVALID CARD CODE CHECKING CIRCUITS
3. READER TRANSLATOR

THIS OBJECTIVE IS ACCOMPLISHED BY PROVIDING TO THE ABOVE AREAS
THE REQUIRED INPUTS TO EXERCISE ALL CIRCUITS. THE OUTPUTS ARE
THEN INTERROGATED FOR A UNIQUE PATTERN WHICH DESCRIBES A
PARTICULAR CIRCUIT FAILURE. TO PROVIDE THE INPUTS AND OBTAIN THE
OUTPUTS, THE FOLLOWING SEQUENCE OF OPERATIONS ARE PERFORMED--

1. DIAGNOSTIC WRITE TO READ BUFFER
   THIS WRITE USES A CCW COUNT OF 160, DECIMAL, WHERE EIGHTY
   IDENTICAL COLUMN BINARY CHARACTERS WILL BE WRITTEN.
2. READ READER BUFFER
3. SENSE I/O
4. DIAGNOSTIC CHECK READ

THE ABOVE SEQUENCE OF OPERATIONS IS REPEATED EIGHTY-ONE TIMES.
FOR EACH REPEAT, THE DIAGNOSTIC WRITE USES DIFFERENT DATA. THIS
DATA IS INDICATED IN SECTION 4.4.4 OF THIS DESCRIPTION.

THIS ROUTINE PROVIDES OUTPUT MESSAGES IN THE FORM OF AN ERROR
NUMBER. THE C.E. IS REQUIRED TO REFERENCE THIS ERROR NUMBER TO
SECTION 4.3.5 OF THIS DESCRIPTION FOR DETAILS CONCERNING THE
FAILURE. ADDITIONAL OUTPUT IS PROVIDED IN THE FORM OF A LOG OUT
--SEE SECTION 4.4.4--. THIS LOG OUT IS PROVIDED ONLY IF SECTION
SENSE SWITCH 02 IS SET TO 1 PRIOR TO RUNNING THE ROUTINE.

5.6 DESCRIPTION --ROUTINE 05, PUNCH TRANSLATOR FLT--

NOTE THIS ROUTINE WILL BE RUN ONLY WHEN ROUTINE 02
INDICATES ERR 019, ERR 024, ERR 025, OR NO
ERROR INDICATION.

THE OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A SOLID
FAILURE WITHIN THE PUNCH TRANSLATOR. THIS IS ACCOMPLISHED BY
PROVIDING TO THE PUNCH TRANSLATOR THE REQUIRED INPUTS TO
EXERCISE ALL CIRCUITS. THE OUTPUTS ARE THEN INTERROGATED FOR
A UNIQUE PATTERN WHICH DESCRIBES A PARTICULAR CIRCUIT FAILURE.
TO PROVIDE THE INPUTS AND OBTAIN THE OUTPUTS, THE FOLLOWING
SEQUENCE OF OPERATIONS ARE PERFORMED--

1. WRITE PUNCH BUFFER
   THIS WRITE USES A CCW COUNT OF 80, DECIMAL, WHERE EIGHTY
   IDENTICAL CHARACTERS WILL BE WRITTEN.
2. SENSE I/O TO PUNCH
3. DIAGNOSTIC CHECK READ TO PUNCH
4. READ PUNCH BUFFER
5. SENSE I/O TO PUNCH
6. DIAGNOSTIC CHECK READ TO PUNCH

THE ABOVE SEQUENCE OF OPERATIONS IS REPEATED SEVENTY-ONE TIMES.
FOR EACH REPEAT, THE PUNCH WRITE USES DIFFERENT DATA. THIS DATA
IS INDICATED IN SECTION 4.4.5 OF THIS DESCRIPTION.

THIS ROUTINE PROVIDES OUTPUT MESSAGES IN THE FORM OF AN ERROR
NUMBER. THE C.E. IS REQUIRED TO REFERENCE THIS ERROR NUMBER TO
SECTION 4.3.6 OF THIS DESCRIPTION FOR DETAILS CONCERNING THE
FAILURE. ADDITIONAL OUTPUT IS PROVIDED IN THE FORM OF A LOG OUT
--SEE SECTION 4.4.5--. THIS LOG OUT IS PROVIDED ONLY IF SECTION
SENSE SWITCH 02 IS SET TO 1 PRIOR TO RUNNING THE ROUTINE.

6. APPENDIX

6.1 READER/PUNCH COMMAND CODES

```
************************************************************
*
* VALID COMMANDS TO THE READER/PUNCH. NOT SHOWING STACKER
* SELECT OR OTHER VARIOUS OPTIONS THAT ARE AVAILABLE.
*
* FUNCTION          COMMAND CODE BITS          HEX CODE
*                   0 1 2 3  4 5 6 7
*
* TEST I/O . . . . . . 0 0 0 0  0 0 0 0 . . . . . . . 00 WHERE ALL
* SENSE  . . . . . . X X X X  0 1 0 0 . . . . . . . 04 X CHARS.
* NO OP  . . . . . . 0 0 0 0  0 0 1 1 . . . . . . . 03 ARE IN THE
* READ . . . . . . . - - 0 X  X X 1 0 . . . . . . . 02 ZERO STATE
* WRIT . . . . . . . - 0 - -  X 0 1 . . . . . . . 01
* DIAGNOSTIC WRITE . . - - 1 0  0 1 0 1 . . . . . . . 25
* DIAGNOSTIC READ  . . 1 1 0 0  0 1 0 1 . . . . . . . C5
* DIAGNOSTIC CHECK RD 1 1 0 0  0 1 1 0 . . . . . . . C6
*
* WHERE X FORMS VARIATIONS ON OPTIONS AND - REPRESENTS
* MODIFIERS WHICH MAY BE COMBINED.
*
************************************************************
```

6.2 SENSE BYTE INFORMATION

```
************************************************************
* ONE SENSE BYTE
*
* BIT  MEANING
```

```
*
* 0    COMMAND REJECT
* 1    INTERVENTION REQUIRED
* 2    BUS OUT CHECK
* 3    EQUIPMENT CHECK
* 4    DATA CHECK
* 5    NOT USED
* 6    UNUSUAL COMMAND SEQUENCE
* 7    NOT USED
*
************************************************************
```

6.3 DIAGNOSTIC CHECK READ INFORMATION

```
************************************************************
* THIS COMMAND PROVIDES FURTHER LOCALIZATION OF READER AND PUNCH
* CHECK PROBLEMS. DIAGNOSTIC CHECK READ WILL PERFORM A TRANSFER OF
* CHECK INFORMATION TO THE CPU. THE SIGNALS RETURNED ARE AS FOLLOWS--
*
* BIT    READER                    PUNCH
*
* 0    NOT USED                  NOT USED
* 1    NOT USED                  NOT USED
* 2    NOT USED                  NOT USED
* 3    XU CHECK PLANE            XU CHECK PLANE
* 4    XL CHECK PLANE            XL CHECK PLANE
* 5    BUFFER PARITY CHECK       BUFFER PARITY CHECK
* 6    READ TRANSLATE CHECK      PUNCH TRANSLATE CHECK
* 7    READER BUFFER ADDRESS     PUNCH BUFFER ADDRESS
*      CHECK                     CHECK
*
* BITS 0,1, AND 2 SHOULD ALWAYS BE ZERO. BITS 3,4, AND 5 CAN APPEAR
* IN ANY BYTE TO INDICATE THE POSITION IN ERROR. BIT 6 WILL APPEAR
* ONLY IN THE FIRST BYTE OF THE CHECK READ TRANSFER AND INDICATE A
* TRANSLATE CHECK IN THE PREVIOUS DATA TRANSFER. BIT 7 WILL APPEAR
* IN THE FIRST BYTE OF THE TRANSFER IF THE ERROR OCCURRED ON A
* PREVIOUS CYCLE OR IF THE ERROR OCCURRED ON THE FIRST BYTE OF
* TRANSFER. IT WILL APPEAR IN SUCCEEDING BYTES IF ERRORS RE-OCCUR
* DURING THE TRANSFERS.
************************************************************
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
                        8041   TITLE F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-
                        ************************************************************
                        *                                                          *
                        *   MODIFICATIONS                                          *
                        *      1. CHANNEL REG FLT -ROUTINE OVERLAY 01-             *
                        *         MODIFIED THE SUB-ROUTINE WHICH DETECTS THAT A CHANNEL *
                        *         REGISTER LATCH IS ALWAYS IN THE -ON- STATE.      *
                        *      2. CONTROL PROGRAM -ROUTINE OVERLAY 02-             *
                        *         MODIFIED TO SELECT ROUTINE OVERLAY 04 -READER    *
                        *         TRANSLATOR FLT- AND ROUTINE OVERLAY 05 -PUNCH    *
                        *         TRANSLATOR FLT. THESE TWO ROUTINES ARE NEW ADDITIONS *
                        *         TO THIS PROGRAM PACKAGE.                         *
                        *                                                          *
                        *   ENGINEERING CHANGE PREREQUISITES                       *
                        *      1. HARDWARE                                         *
                        *         2821 CONTROL UNIT WITH 2540 ATTACHMENT AT MINIMUM *
                        *         E.C. LEVEL 124265                                *
                        *      2. PROGRAM                                          *
                        *         NONE                                            *
                        *                                                          *
                        ************************************************************
                        XF8041 START 4096
          001000               USING *,15
                        ************************************************************
                        *                                                          *
                        *                    RESIDENT ROUTINES                     *
                        *                                                          *
                        ************************************************************
                        *                                                          *
                        *              SECTION SENSE SWITCH USAGE                  *
                        *                                                          *
                        *         SSW  0, LOC X004, BIT 0 - LOOP ON START I/O      *
                        *         SSW  1, LOC X004, BIT 1 - USE UTILITY SCOPE ROUTINE *
                        *         SSW  2, LOC X004, BIT 2 - LOG OUT DATA TABLE     *
                        *         SSW  6, LOC X004, BIT 6 - PRINT TITLE            *
                        ************************************************************
                        *                    SECTION PREFACE                       *
001000  F80410          SECST DC    XL3'F80410'       PROGRAM & SECTION NUMBER
001003  00                    DC    XL1'0'            THIS FIELD MUST CONTAIN ZEROS
001004  00000000        SNSW  DC    XL4'0'            SENSE SWITCHES
001008  0000                  DC    XL2'0'            RESERVED
00100A  0000            ICM   DC    XL2'0'            INTERRUPTION CONDITION MASK
00100C  00                    DC    XL1'0'            RESERVED
00100D  02              NIOU  DC    XL1'02'           NUMBER OF I/O UNITS THAT CAN BE TEST
00100E  80              FLAGS1 DC   XL1'80'           SECTION FLAGS, EXCLU. CPU
00100F  00              FLAGS2 DC   XL1'0'            INTERRUPT HANDLING FLAG.
001010  010400000F      INPSW DC    X'010400000F'
001015  00186C                DC    AL3(RTN01)        INITIAL PSW STARTING ADDRESS FOR
                        *                             ROUTINE 01 - THIS ADDRESS IS
                        *                             CHANGED FOR EACH OVERLAY
001018  0000000000000000      DC    5XL8'0'           OLD PROGRAM STATUS WORDS
001020  0000000000000000
001028  0000000000000000
001030  0000000000000000
001038  0000000000000000
001040  0000000000000000 CSW  DC    XL8'0'            CHANNEL STATUS WORD
001048  00000000        CAW   DC    XL4'0'            COMMAND ADDRESS WORD
00104C  000000000000000000000 DC   XL12'0'            RESERVED
001058  0000000000000000 EXTR  DC    XL8'0'           EXTERNAL RETURN PSW
001060  010400000F      SVRPSW DC   X'010400000F'
001065  00171C                DC    AL3(EXIT2)        RETURN ADDRESS
001068  0000000000000000 PIRPSW DC  XL8'0'            PROGRAM INTERRUPT RETURN PSW
001070  0000000000000000 MCRPSW DC  XL8'0'            MACHINE CHECK RETURN PSW
001078  010400000F      IORPSW DC   X'010400000F'
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
00107D  001570          IORADR DC   AL3(SIOINT)       I/O RETURN PSW INSTRUCTION ADDRESS
                        ************************************************************
                        *                  REGISTER DUMP AREA                      *
                        ************************************************************
001080                        DS    96C               SUPERVISOR REGISTER DUMP AREA
                        ************************************************************
                        *              SECTION PREFACE UNIT TABLE                  *
                        ************************************************************
0010E0  81              UNIT1 DC    XL1'81'           UNIT TYPE - UNIT 1 -READER
0010E1  00                    DC    XL1'00'           I/O OPTIONS
0010E2  8000            UN1ADR DC   XL2'8000'         FLAGS AND ACTUAL UNIT ADDRESS
0010E4  82              UNIT2 DC    XL1'82'           UNIT TYPE - UNIT 1 -PUNCH
0010E5  00                    DC    XL1'00'           I/O OPTIONS
0010E6  8000            UN2ADR DC   XL2'8000'         FLAGS AND ACTUAL UNIT ADDRESS
                        ************************************************************
                        *                   VARIABLE FIELDS                        *
                        ************************************************************
                        *    VARIABLES FOR SCOPING ROUTINE - DOUBLE WORD BOUNDARY  *
                        ************************************************************
0010E8  00 001234 0000 0000 SCPCCW CCW X'00',SCPDAT,X'00',00 SCOPE ROUTINE CCW
                        ************************************************************
                        *    VARIABLES FOR SCOPING ROUTINE - WORD BOUNDARY         *
                        ************************************************************
0010F0  00000000        SCPRK1 DC   4F'00'            GR9 THRU GR12 SAVED HERE
0010F4  00000000
0010F8  00000000
0010FC  00000000
001100  00000000        SCPRK4 DC   F'00'             WORK AREA
                        ************************************************************
                        *    VARIABLES FOR SIO ROUTINE - WORD BOUNDARY             *
                        ************************************************************
001104  00000000        SIOVR1 DC   9F'00'            GR1 THRU GR9 SAVED HERE BY SIO
001108  00000000
00110C  00000000
001110  00000000
001114  00000000
001118  00000000
00111C  00000000
001120  00000000
001124  00000000
001128  00000000        SIOVR2 DC   F'00'             SEC PREF CAW SAVED HERE BY SIO
00112C  00000000        SIOVR3 DC   2F'00'            CSW SAVE AREA FOR ORIG SIO
001130  00000000
001134  00000000        SIOVR4 DC   F'00'             CC SAVED HERE FOR ORIG SIO
001138  00000000        SIOVR7 DC   F'00'             CC SAVED HERE FOR SENSE I/O
00113C  00000000        SIOVR8 DC   2F'00'            CSW SAVE AREA FOR SENSE I/O
001140  00000000
001144  00000000        SIOVR9 DC   2F'00'
001148  00000000
                        ************************************************************
                        *    VARIABLES FOR SIO ROUTINE - NO BOUNDARY               *
                        ************************************************************
00114C  00              CAWKEY DC   X'00'             CAW KEY STORED HERE
00114D  00              SIOSWS DC   X'00'             SIO SWITCHES
00114E  C961D640C1C4C4D940 SIOMS1 DC C'I/O ADDR XXX CAW' CCO BUT NO INTERRUPT
001157  E7E7E740C3C1E6
00115E  40E7E7E7E7E7E7E7E7     DC   C' XXXXXXXX GOT CC'
001167  40C7D6E340C3C3
00116E  F040C2E4E340D5D640     DC   C'O BUT NO INTERRU'
001177  C9D5E3C5D9D9E4
00117E  D7E3                   DC   C'PT'
001180  000000          SIOVR5 DC   XL3'00'           BCD ADDR OF UNIT ADDRESSED BY SIO
001183  00              SIOVR6 DC   X'00'
001184  C961D640C1C4C4D940 SIOMS2 DC C'I/O ADDR XXX CAW' CC1 MESSAGE
00118D  E7E7E740C3C1E6
001194  40E7E7E7E7E7E7E7E7     DC   C' XXXXXXXX GOT CC'
00119D  40C7D6E340C3C3
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT –ROUTINE OVERLAY 01–

```
0011A4   F140C3E2E640E2E3C1         DC    C'1 CSW STATUS XXX'
0011AD   E3E4E240E7E7E7
0011B4   E740E2D5E240E7E7E740       DC    C'X SNS XX    '
0011BD   40404040
0011C1   C961D640C1C4C4D940   SIOMS3 DC   C'I/O ADDR XXX CAW'   SENSE ERROR MESSAGE
0011CA   E7E7E740C3C1E6
0011D1   40E7E7E7E7E7E7E7E7         DC    C' XXXXXXXX GOT CC'
0011DA   40C7D6E340C3C3
0011E1   F140C3E2E640E7E7E7E7       DC    C'1 CSW XXXXXXXXXX'
0011EA   E7E7E7E7E7E7
0011F1   E7E7E7E7E7E7               DC    C'XXXXXX'
0011F7   00                  SENSE  DC    X'00'
0011F8   0000                STATSV DC    XL2'00'              2ND STATUS SAVED HERE
0011FA   0000000000000000    CSWAG  DC    XL8'00'              AGGREGATE CSW SAVED HERE
001202   C4C9C1C740C3D240D9  MESS1  DC    C'DIAG CK RD UNIT '
00120B   C440E4D5C9E340
001212   F0F0F040D5D6E340D6         DC    C'000 NOT OK,'
00121B   D26B
00121D   40E6C9D3D340E3D9E8         DC    C' WILL TRY AGAIN'
001226   40C1C7C1C9D5
*
00122C   00                         DC    X'00'                AREA TO SAVE PRINTABLE READER ADDR
00122D   000000              UARD   DC    XL3'0'               ''
001230   00                         DC    X'00'                AREA TO SAVE PRINTABLE PUNCH ADDR
001231   000000              UAPU   DC    XL3'0'               ''
***********************************************************************
*               VARIABLES FOR SCOPING ROUTINE – NO BOUNDARY          *
***********************************************************************
001234   000000000000000000  SCPDAT DC    XL180'0'             SCOPE ROUTINE DATA FIELD
00123D   000000000000000000
001246   000000000000000000
00124F   000000000000000000
001258   000000000000000000
001261   000000000000000000
00126A   000000000000000000
001273   000000000000000000
00127C   000000000000000000
001285   000000000000000000
00128E   000000000000000000
001297   000000000000000000
0012A0   000000000000000000
0012A9   000000000000000000
0012B2   000000000000000000
0012BB   000000000000000000
0012C4   000000000000000000
0012CD   000000000000000000
0012D6   000000000000000000
0012DF   000000000000000000
***********************************************************************
*               START I/O ROUTINE                                    *
***********************************************************************
                             CNOP   0,4
0012E8   D2 02 F 180 F 22D   SIO    MVC    SIOVR5(3),UARD       SET UP CONSTANT FOR READER
0012EE   91 02 F 14D                TM     SIOSWS,X'02'         SEE IF READER WILL BE ADDRESSED
0012F2   47 10 F 2FC                BC     ALLON,*&10           BR IF YES
0012F6   D2 02 F 180 F 231          MVC    SIOVR5(3),UAPU       SET UP CONSTANT FOR PUNCH
0012FC   D2 02 F 07D F 738          MVC    IORPSW&5(3),SIOCN1   LOAD RETURN ADDR IN IORPSW
001302   90 19 F 104                STM    GR1,GR9,SIOVR1       SAVE GR1 THRU GR9
001306   D2 03 F 128 F 048          MVC    SIOVR2(4),CAW        SAVE CAW
00130C   D7 07 F 12C F 12C   SIOA00 XC     SIOVR3(8),SIOVR3     CLEAR CSW SAVE AREA
001312   D7 00 F 1F7 F 1F7          XC     SENSE(1),SENSE       CLEAR SENSE BYTE
001318   54 C0 F 780                N      GRC,CLRC             AND OUT BITS 0 THRU 20 /F GR 12
00131C   D2 00 F 048 F 14C          MVC    CAW(1),CAWKEY        LOAD STORAGE KEY IN SEC PREF CAW
001322   D2 03 D 048 F 048          MVC    HCAW(4,GRD),CAW      LOAD CAW
001328   9C 00 C 000                SIO    0(GRC)               START I/O
00132C   45 10 F 330                BAL    GR1,*&4              SAVE CONDITION CODE
001330   50 10 F 134                ST     GR1,SIOVR4           ''
001334   91 80 F 14D                TM     SIOSWS,X'80'         SEE IF RET TO PROG SW1 ON
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001338   47 10 F 5DE                BC     ALLON,SIOI04         BR IF YES
00133C   91 30 F 134                TM     SIOVR4,X'30'         SEE IF SIO CC WAS ZERO
001340   47 50 F 36A                BC     ANYON,SIOB00         BR IF NO
001344   0A D8                      SVC    X'D8'                WAIT FOR I/O INTERRUPT
001346   91 80 F 004                TM     SNSW,X'80'           BR IF SEC SS 00 IS 1 – LOOP SIO
00134A   47 10 F 3BE                BC     ALLON,SIOC0A         ''
00134E   0A DD                      SVC    X'DD'                CONVERT CAW TO EBCDIC
001350   0004                       DC     AL2(4)               NO. OF HEX BYTES IN CAW
001352   0048                       DC     AL2(CAW-SECST)       HEX DATA ADDR
001354   015F                       DC     AL2(SIOMS1&17-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
001356   D2 02 F 157 F 180          MVC    SIOMS1&9(3),SIOVR5   SET I/O ADDR IN OUTPUT MESSAGE
00135C   92 F0 F 16E                MVI    SIOMS1&32,X'F0'      SET CC0 IN OUTPUT MESSAGE
001360   0A D0                      SVC    X'D0'                PRINT GOT CC0 BUT NO INTERRUPT
001362   40                         DC     X'40'                PRINT PROG NO. PRIOR TO MSG
                              *                                 TREAT AS ERROR
                              *                                 DO NOT CHAIN
                              *                                 DO NOT RESTORE
                              *                                 PRINT ON NORMAL OUTPUT DEVICE
001363   32                         DC     X'32'                NO. OF CHAR IN MSG (50)
001364   F14E                       DC     AL2(SIOMS1-BASE&REG) MESSAGE ADDRESS
001366   47 F0 F 3BE                BC     ALWAYS,SIOC0A        GO TRY SIO AGAIN
00136A   91 30 F 134         SIOB00 TM     SIOVR4,X'30'         SEE IF SIO CC WAS 3
00136E   47 40 F 396                BC     MIXED,SIOC00         BR IF NO
001372   91 80 F 004                TM     SNSW,X'80'           BR IF SEC SS 00 IS 1 – LOOP SIO
001376   47 10 F 30C                BC     ALLON,SIOA00         ''
00137A   0A DD                      SVC    X'DD'                CONVERT CAW TO EBCDIC
00137C   0004                       DC     AL2(4)               NO. OF HEX BYTES IN CAW
00137E   0048                       DC     AL2(CAW-SECST)       HEX DATA ADDR
001380   015F                       DC     AL2(SIOMS1&17-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
001382   D2 02 F 157 F 180          MVC    SIOMS1&9(3),SIOVR5   SET I/O ADDR IN OUTPUT MESSAGE
001388   92 F3 F 16E                MVI    SIOMS1&32,X'F3'      SET CC 3 IN OUTPUT MESSAGE
00138C   0A D0                      SVC    X'D0'                GOT CC3 ON SIO
00138E   40                         DC     X'40'                PRINT PROG NO. PRIOR TO MSG
                              *                                 TREAT AS ERROR
                              *                                 DO NOT CHAIN
                              *                                 DO NOT RESTORE
                              *                                 PRINT ON NORMAL OUTPUT DEVICE
00138F   21                         DC     X'21'                NO OF CHAR IN MSG (33)
001390   F14E                       DC     AL2(SIOMS1-BASE&REG) MESSAGE ADDRESS
001392   47 F0 F 30C                BC     ALWAYS,SIOA00        GO TRY SIO AGAIN
001396   91 10 F 134         SIOC00 TM     SIOVR4,X'10'         SEE IF SIO CC WAS 2
00139A   47 10 F 3EE                BC     ALLON,SIOD00         BR IF NO
00139E   91 80 F 004                TM     SNSW,X'80'           BR IF SEC SS 00 IS 1 – LOOP SIO
0013A2   47 10 F 3BE                BC     ALLON,SIOC0A         ''
0013A6   0A DD                      SVC    X'DD'                CONVERT CAW TO EBCDIC
0013A8   0004                       DC     AL2(4)               NO. OF HEX BYTES IN CAW
0013AA   0048                       DC     AL2(CAW-SECST)       HEX DATA ADDR
0013AC   015F                       DC     AL2(SIOMS1&17-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
0013AE   D2 02 F 157 F 180          MVC    SIOMS1&9(3),SIOVR5   SET I/O ADDR IN OUTPUT MESSAGE
0013B4   92 F2 F 16E                MVI    SIOMS1&32,X'F2'      SET CC 2 IN OUTPUT MESSAGE
0013B8   0A D0                      SVC    X'D0'                GOT CC2 ON SIO
0013BA   40                         DC     X'40'                PRINT PROG NO. PRIOR TO MSG
                              *                                 TREAT AS ERROR
                              *                                 DO NOT CHAIN
                              *                                 DO NOT RESTORE
                              *                                 PRINT ON NORMAL OUTPUT DEVICE
0013BB   21                         DC     X'21'                NO. OF CHAR IN MSG (33)
0013BC   F14E                       DC     AL2(SIOMS1-BASE&REG) MESSAGE ADDRESS
0013BE   9D 00 C 000         SIOC0A TIO    0(GRC)               TEST I/O THIS DEVICE
0013C2   47 80 F 30C                BC     ZERO,SIOA00          REPEAT SIO IF CC0
0013C6   47 50 F 3BE                BC     ANYON,*-8            LOOP PREV TIO UNTIL GET CC0
0013CA   18 2C                      LR     GR2,GRC              SAVE I/O ADDR STORED IN GR12
0013CC   91 02 F 14D                TM     SIOSWS,X'02'         SEE IF GR12 CONTAINS RDR ADDR
0013D0   47 10 F 3DC                BC     ALLON,SIOC01         BR IF YES
0013D4   48 C0 F 0E2                LH     GRC,UN1ADR           SET READER ADDR IN GR 12
0013D8   47 F0 F 3E0                BC     ALWAYS,*&8           BR AROUND NEXT OP
0013DC   48 C0 F 0E6         SIOC01 LH     GRC,UN2ADR           SET PUNCH ADDR IN GR 12
0013E0   9D 00 C 000                TIO    0(GRC)               TEST I/O
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0013E4   47 70 F 3E0              BC    NZERO,*-4            LOOP TIO UNTIL GET CCO
0013E8   18 C2                    LR    GRC,GR2              RESTORE ORIGINAL SIO ADDR
0013EA   47 F0 F 30C              BC    ALWAYS,SIOA00        GO TRY SID AGAIN
0013EE   91 80 F 004     SIOD00   TM    SNSW,X'80'           BR IF SEC SS 00 IS 1 - LOOP SIO
0013F2   47 10 F 3BE              BC    ALLON,SIOCOA         ''
0013F6   91 80 F 183              TM    SIOVR6,X'80'         BR IF INTERV REQ SW OFF
0013FA   47 80 F 41A              BC    ALLOFF,SIOD01        ''
0013FE   92 00 F 183              MVI   SIOVR6,X'00'         TURN OFF INTERV REQ SW
001402   91 FF D 045              TM    HCSW&5(GRD),X'FF'    BR IF ANY CHAN STATUS
001406   47 50 F 41A              BC    ANYON,SIOD01         ''
00140A   91 EB D 044              TM    HCSW&4(GRD),X'EB'    BR TO SIO ROUTINE IF BSY & DE ONLY
00140E   47 50 F 41A              BC    ANYON,SIOD01         ''
001412   91 14 D 044              TM    HCSW&4(GRD),X'14'    ''
001416   47 10 F 30C              BC    ALLON,SIOA00         ''
00141A   D2 02 F 18D F 180 SIOD01 MVC   SIOMS2&9(3),SIOVR5   SET I/O ADDR IN OUTPUT MESSAGE
001420   0A DD                    SVC   X'DD'                CONVERT CAW TO EBCDIC
001422   0004                     DC    AL2(4)               NO. OF HEX BYTES IN CAW
001424   0048                     DC    AL2(CAW-SECST)       HEX DATA ADDR
001426   0195                     DC    AL2(SIOMS2&17-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
001428   D2 07 F 12C D 040        MVC   SIOVR3(8),HCSW(GRD)  SAVE CSW
00142E   0A DD                    SVC   X'DD'                CONVERT CSW STATUS TO EBCDIC
001430   0002                     DC    AL2(2)               NO. OF STATUS BYTES
001432   0130                     DC    AL2(SIOVR3&4-SECST)  CSW STATUS ADDR
001434   01B1                     DC    AL2(SIOMS2&45-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
001436   92 F1 F 1A4              MVI   SIOMS2&32,X'F1'      SET CC1 IN OUTPUT MESSAGE
00143A   91 02 F 130              TM    SIOVR3&4,X'02'       BR IF GOT UNIT CHECK
00143E   47 10 F 454              BC    ALLON,SIOE00         $$
001442   0A D0                    SVC   X'D0'                GOT CC1 ON SIO - NO UC
001444   40                       DC    X'40'                PRINT PROG NO. PRIOR TO MESSAGE
         *                                                   TREAT AS ERROR
         *                                                   DO NOT CHAIN
         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
001445   31                       DC    X'31'                NO. OF CHAR IN MSG (49)
001446   F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
001448   91 FF F 131     SIOD02   TM    SIOVR3&5,X'FF'       BR TO TIO IF GOT ANY CHAN STATUS
00144C   47 50 F 3BE              BC    ANYON,SIOCOA         ''
001450   47 F0 F 30C              BC    ALWAYS,SIOA00        GO TRY SIO AGAIN
001454   45 30 F 494     SIOE00 BAL   GR3,SIOF00           GO DO SENSE OP
001458   0A DD                    SVC   X'DD'                CONVERT SENSE DATA TO EBCDIC
00145A   0001                     DC    AL2(1)               NO. OF SENSE BYTES
00145C   01F7                     DC    AL2(SENSE-SECST)     SENSE DATA ADDRESS
00145E   018A                     DC    AL2(SIOMS2&54-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
001460   91 40 F 1F7              TM    SENSE,X'40'          BR IF GOT INTERV REQ
001464   47 10 F 472              BC    ALLON,SIOE01         ''
001468   0A D0                    SVC   X'D0'                GOT CC1 ON SIO - WITH UC & NO INV RQ
00146A   40                       DC    X'40'                PRINT PROG. NO PRIOR TO MESSAGE
         *                                                   TREAT AS ERROR
         *                                                   DO NOT CHAIN
         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
00146B   38                       DC    X'38'                56 CHARACTERS
00146C   F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
00146E   47 F0 F 448              BC    ALWAYS,SIOD02        GO TRU SIO AGAIN
001472   92 80 F 183     SIOE01 MVI   SIOVR6,X'80'         TURN ON INTERV REQ SW
001476   0A D0                    SVC   X'D0'                GOT CC1 ON SIO - UC & INTERV REQ
001478   60                       DC    X'60'                PRINT PROG NO PRIOR TO MSG
         *                                                   TREAT AS ERROR
         *                                                   CHAIN
         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
001479   38                       DC    X'38'                NO. OF CHAR IN MSG (56)
00147A   F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
00147C   0A D0                    SVC   X'D0'                MAKE THIS UNIT RDY WITH BLANK CARDS
         *                                                   I/O ADDR IN GR 12
00147E   80                       DC    X'80'                PRINT MESSAGE ONLY
         *                                                   DO NOT TREAT AS ERROR
         *                                                   DO NOT CHAIN
```

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         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
         *
00147F   23                       DC    X'23'                NO. OF CHAR IN MSG (35)
001480   F73B                     DC    AL2(SIOMS4-BASE&REG) MESSAGE ADDRESS
001482   58 50 E 198     SIOE02 L    GR5,408(GR0,GRE)     GET DM 10 SEC CONSTANT
001486   1E 55                    ALR   GR5,GR5              SET UP 20 SEC CONSTANT
001488   46 50 F 488              BCT   GR5,*                20 SEC DELAY
00148C   96 01 F 14D              OI    SIOSWS,X'01'         TURN ON RESTART SECTION SW
001490   47 F0 F 30C              BC    ALWAYS,SIOA00        GO TRY SIO AGAIN
****************************************************************
* START I/O ROUTINE PERFORMS SENSE I/O HERE                   *
****************************************************************
001494   D2 02 F 1CA F 180 SIOF00 MVC   SIOMS3&9(3),SIOVR5   SET I/O ADDR IN OUTPUT MESSAGE
00149A   41 40 F 728              LA    GR4,SNSCCW           SET UP SENSE CAW
00149E   50 40 F 048              ST    GR4,CAW              ''
0014A2   D2 00 F 048 F 14C        MVC   CAW(1),CAWKEY        ''
0014A8   0A DD                    SVC   X'DD'                CONVERT CAW TO EBCDIC
0014AA   0004                     DC    AL2(4)               NO. OF HEX BYTES IN CAW
0014AC   0048                     DC    AL2(CAW-SECST)       HEX DATA ADDR
0014AE   01D2                     DC    AL2(SIOMS3&17-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
0014B0   D2 03 D 048 F 048 SIOF01 MVC   HCAW(4,GRD),CAW      LOAD SENSE CAW
0014B6   9C 00 C 000              SIO   O(GRC)               SENSE I/O
0014BA   45 40 F 4BE              BAL   GR4,*&4              SAVE CC
0014BE   91 80 F 004              TM    SNSW,X'80'           BR IF SEC SS 00 IS 1 - LOOP SIO
0014C2   47 10 F 564              BC    ALLON,SIOF08         ''
0014C6   50 40 F 138              ST    GR4,SIOVR7           SAVE CC
0014CA   92 F0 F 1E1              MVI   SIOMS3&32,X'F0'      SET CCO IN OUTPUT MESSAGE
0014CE   91 30 F 138              TM    SIOVR7,X'30'         BR IF GOT CCO
0014D2   47 80 F 516              BC    ALLOFF,SIOF03        ''
0014D6   92 F3 F 1E1              MVI   SIOMS3&32,X'F3'      SET CC3 IN OUTPUT MESSAGE
0014DA   47 10 F 50C              BC    ALLON,SIOF02         BR IF GOT CC3
0014DE   92 F2 F 1E1              MVI   SIOMS3&32,X'F2'      SET CC2 IN OUTPUT MESSAGE
0014E2   91 20 F 138              TM    SIOVR7,X'20'         BR IF GOT CC2
0014E6   47 10 F 50C              BC    ALLON,SIOF02         $$
0014EA   92 F1 F 1E1              MVI   SIOMS3&32,X'F1'      SET CC1 IN OUTPUT MESSAGE
0014EE   D2 06 F 1E7 F 75E        MVC   SIOMS3&38(7),SIOCN2  SET UP OUTPUT MESSAGE
0014F4   D2 07 F 13C D 040        MVC   SIOVR8(8),HCSW(GRD)  SAVE CSW
0014FA   0A DD                    SVC   X'DD'                CONVERT CSW STATUS TO EBCDIC
0014FC   0002                     DC    AL2(2)               NO. OF STATUS BYTES
0014FE   0140                     DC    AL2(SIOVR8&4-SECST)  CSW STATUS ADDRESS
001500   01EE                     DC    AL2(SIOMS3&45-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
001502   0A D0                    SVC   X'D0'                GOT CC1 FOR SENSE I/O
001504   40                       DC    X'40'                PRINT PROG NO. PRIOR TO MESSAGE
         *                                                   TREAT AS ERROR
         *                                                   DO NOT CHAIN
         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
001505   31                       DC    X'31'                NO. OF BYTES IN OUTPUT MESSAGE (49)
001506   F1C1                     DC    AL2(SIOMS3-BASE&REG) MESSAGE ADDRESS
001508   47 F0 F 564              BC    ALWAYS,SIOF08        GO TRY SENSE I/O AGAIN
00150C   0A D0           SIOF02 SVC   X'D0'                GOT CC2 OR CC3 ON SENSE I/O
00150E   40                       DC    X'40'                PRINT PROG NO. PRIOR TO MESSAGE
         *                                                   TREAT AS ERROR
         *                                                   DO NOT CHAIN
         *                                                   DO NOT RESTORE
         *                                                   PRINT ON NORMAL OUTPUT DEVICE
00150F   21                       DC    X'21'                NO. OF BYTES IN OUTPUT MESSAGE (33)
001510   F1C1                     DC    AL2(SIOMS3-BASE&REG) MESSAGE ADDRESS
001512   47 F0 F 564              BC    ALWAYS,SIOF08        GO TRY SENSE I/O AGAIN
001516   D7 07 F 13C F 13C SIOF03 XC    SIOVR8(8),SIOVR8     CLEAR SENSE I/O CSW SAVE AREA
00151C   9D 00 C 000              TIO   O(GRC)               TEST I/O
001520   47 40 F 52C              BC    CSWST,SIOF04         BR IF CSW STORED
001524   47 70 F 51C              BC    NZERO,SIOF03&6       REPEAT TIO IF NOT CCO
001528   47 F0 F 532              BC    ALWAYS,SIOF05        CONTINUE
00152C   D6 07 F 13C D 040 SIOF04 OC    SIOVR8(8),HCSW(GRD)  SAVE CSW
001532   91 FF F 141     SIOF05 TM    SIOVR8&5,X'FF'       BR IF ANY CHANNEL STATUS
001536   47 50 F 54A              BC    ANYON,SIOF06         $$
00153A   91 0C F 140              TM    SIOVR8&4,X'0C'       BR IF DID NOT GET CE & DE
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00153E  47 CO F 54A              BC    MIXNON,SIOF06        $$
001542  91 F3 F 140              TM    SIOVR8&4,X'F3'       RETURN IF DID NOT GET ANY OTHER
001546  47 80 F 55C              BC    ALLOFF,SIOF07        UNIT STATUS
00154A  0A DD           SIOF06   SVC   X'DD'                CONVERT CSW TO EBCDIC
00154C  0008                     DC    AL2(8)               NO. OF CSW BYTES
00154E  013C                     DC    AL2(SIOVR8-SECST)    SENSE CSW ADDRESS
001550  01E7                     DC    AL2(SIOMS3&38-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
001552  0A D0                    SVC   X'D0'                GOT CCO FOR SENSE I/O BUT GOT
                                 *                          UNEXPECTED STATUS
001554  40                       DC    X'40'                PRINT PROG NO. PRIOR TO MESSAGE
                                 *                          TREAT AS ERROR
                                 *                          DO NOT CHAIN
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
001555  36                       DC    X'36'                NO. OF BYTES IN OUTPUT MESSAGE (54)
001556  F1C1                     DC    AL2(SIOMS3-BASE&REG)  MESSAGE ADDRESS
001558  47 FO F 564              BC    ALWAYS,SIOF08        GO TRY SENSE I/O AGAIN
00155C  D2 03 F 048 F 128  SIOF07  MVC  CAW(4),SIOVR2       RESTORE ORIGINAL CAW
001562  07 F3                    BCR   ALWAYS,GR3           RETURN
001564  9D 00 C 000    SIOF08    TIO   0(GRC)               TEST I/O
001568  47 70 F 564              BC    NZERO,SIOF08         REPEAT TIO IF NOT CC O
00156C  47 FO F 4B0              BC    ALWAYS,SIOF01        REPEAT SENSE I/O
**************************************************************************
*            START I/O INTERRUPT ROUTINE                                *
**************************************************************************
001570  91 80 F 004    SIOINT    TM    SNSW,X'80'           BR IF SS 00 IS 1 - LOOP SIO
001574  47 10 F 3BE              BC    ALLON,SIOCOA         ,,
001578  D2 07 F 12C D 040        MVC   SIOVR3(8),HCSW(GRD)  SAVE CSW
00157E  91 20 F 14D              TM    SIOSWS,X'20'         BR IF RET TO PROG SW3 ON
001582  47 10 F 5DE              BC    ALLON,SIOI04         ,,
001586  D7 01 F 1F8 F 1F8        XC    STATSV(2),STATSV     CLEAR 2ND STATUS SAVE AREA
00158C  9D 00 C 000    SIOI00    TIO   0(GRC)               TEST I/O
001590  47 40 F 59C              BC    CSWST,SIOI01         BR IF CC1
001594  47 70 F 58C              BC    NZERO,SIOI00         REPEAT TIO IF NOT CCO
001598  47 FO F 5A6              BC    ALWAYS,SIOI02        CONTINUE
00159C  D6 01 F 1F8 D 044  SIOI01  OC   STATSV(2),HCSW&4(GRD) SAVE 2ND STATUS
0015A2  47 FO F 58C              BC    ALWAYS,SIOI00        REPEAT TIO
0015A6  D2 07 F 1FA F 12C  SIOI02  MVC  CSWSAV(8),CSWSAV    SET UP AGGRAVATE CSW
0015AC  D6 01 F 1FE F 1F8        OC    CSWAG&4(2),STATSV    ,,
0015B2  91 02 F 1FE              TM    CSWAG&4,X'02'        BR IF DID NOT GET UC
0015B6  47 80 F 5C6              BC    ALLOFF,SIOI03        ,,
0015BA  45 30 F 494              BAL   GR3,SIOF00           GO PERFORM SENSE I/O
0015BE  91 E5 F 1F7              TM    SENSE,X'E5'          BR IF GOT COM REJ, BO PAR, OR IN REQ
0015C2  47 50 F 5E4              BC    ANYON,SIOI05         ,,
0015C6  91 FF F 1FF    SIOI03    TM    CSWAG&5,X'FF'        BR IF GOT ANY CHAN STATUS
0015CA  47 50 F 5E4              BC    ANYON,SIOI05         ,,
0015CE  91 E0 F 1FE              TM    CSWAG&4,X'E0'        BR IF GOT ATT, SM, OR CUE
0015D2  47 50 F 5E4              BC    ANYON,SIOI05         ,,
0015D6  91 0C F 1FE              TM    CSWAG&4,X'0C'        BR IF DID NOT GET CE & DE
0015DA  47 CO F 5E4              BC    MIXNON,SIOI05        ,,
0015DE  98 19 F 104    SIOI04    LM    GR1,GR9,SIOVR1       RESTORE GR1 THRU GR9
0015E2  07 FB                    BCR   ALWAYS,GRB           RETURN TO PROG
0015E4  D2 02 F 18D F 180  SIOI05  MVC  SIOMS2&9(3),SIOVR5  SET UP OUTPUT MESSAGE
0015EA  0A DD                    SVC   X'DD'                CONVERT CAW TO EBCDIC
0015EC  0004                     DC    AL2(4)               NO OF HEX BYTES IN CAW
0015EE  0048                     DC    AL2(CAW-SECST)       HEX DATA ADDR
0015F0  0195                     DC    AL2(SIOMS2&17-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
0015F2  0A DD                    SVC   X'DD'                CONVERT AGGREGATE CSW TO EBCDIC
0015F4  0008                     DC    AL2(8)               NO OF HEX BYTES IN CAW
0015F6  01FA                     DC    AL2(CSWAG-SECST)     HEX DATA ADDR
0015F8  01AA                     DC    AL2(SIOMS2&38-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
0015FA  92 FO F 1A4              MVI   SIOMS2&32,X'FO'      SET CCO IN OUTPUT MESSAGE
0015FE  91 02 F 1FE              TM    CSWAG&4,X'02'        BR IF GOT UNIT CHECK
001602  47 10 F 60C              BC    ALLON,SIOI06         ,,
001606  0A D0                    SVC   X'D0'                ERROR W/O UC
001608  40                       DC    X'40'                PRINT PROG NO. PRIOR TO MESSAGE
                                 *                          TREAT AS ERROR
                                 *                          DO NOT CHAIN
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* F8041   2821 SCAN/2540 READER/PUNCH
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```
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
001609  36                       DC    X'36'                NO OF CHAR IN MSG (54)
00160A  F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
00160C  D2 06 F 18A F 769  SIOI06  MVC  SIOMS2&54(7),SIOCN2&11 SET UP OUTPUT MESSAGE
001612  0A DD                    SVC   X'DD'                CONVERT SENSE BYTE TO EBCDIC
001614  0001                     DC    AL2(1)               NO. OF SENSE BYTES
001616  01F7                     DC    AL2(SENSE-SECST)     SENSE DATA ADDR
001618  01BF                     DC    AL2(SIOMS2&59-SECST) EBCDIC ADDR IN OUTPUT MESSAGE
00161A  91 40 F 1F7              TM    SENSE,X'40'          BR IF GOT INTERV REQ
00161E  47 10 F 62C              BC    ALLON,SIOI07         ,,
001622  0A D0                    SVC   X'D0'                ERROR WITH UC & NO INTERV REQ
001624  40                       DC    X'40'                PRINT PROG NO PRIOR TO MESSAGE
                                 *                          TREAT AS ERROR
                                 *                          DO NOT CHAIN
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
001625  3D                       DC    X'3D'                NO. OF CHAR IN MSG (61)
001626  F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
001628  47 FO F 30C              BC    ALWAYS,SIOA00        GO TRY SIO AGAIN
00162C  0A D0          SIOI07    SVC   X'D0'                GOT CCO ON SIO - UC & INTERV REQ
00162E  60                       DC    X'60'                PRINT PROG NO PRIOR TO MESSAGE
                                 *                          TREAT AS ERROR
                                 *                          CHAIN
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
00162F  3D                       DC    X'3D'                NO. OF CHAR IN MSG (61)
001630  F184                     DC    AL2(SIOMS2-BASE&REG) MESSAGE ADDRESS
001632  0A D0                    SVC   X'D0'                MAKE THIS UNIT RDY WITH BLANK CARDS
                                 *                          I/O ADDR IN GR 12
001634  80                       DC    X'80'                PRINT MESSAGE ONLY
                                 *                          DO NOT TREAT AS ERROR
                                 *                          DO NOT CHAIN
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
001635  23                       DC    X'23'                NO. OF CHAR IN MSG (35)
001636  F73B                     DC    AL2(SIOMS4-BASE&REG) MESSAGE ADDRESS
001638  47 FO F 482              BC    ALWAYS,SIOE02        GO TIME OUT & TRY SIO AGAIN
**************************************************************************
*            UTILITY ROUTINE                                            *
**************************************************************************
                                 ORG   *&2
00163E          00163E  SCPR00   STM   GR9,GRC,SCPRK1       SAVE GR9 THRU GR12
00163E  90 9C F 0F0    SCPR10    SVC   X'D0'                PRESS CONSOLE STOP, ENTER SCOPE LOOP
001642  0A D0                                               1. ENTER OP IN GR 10 - BYTE 2
                                 *                          2. ENTER CCW FLAGS IN GR 10 -
                                 *                             BYTE 3-
                                 *                                BIT 0 - NOT USED
                                 *                                BIT 1 - NOT USED
                                 *                                BIT 2 - SILI
                                 *                                BIT 3 - SKIP
                                 *                                BIT 5 - NOT USED
                                 *                          3. ENTER DATA FIELD CONTENTS IN
                                 *                             GR 11 - BYTES 0 THRU 3
                                 *                          4. ENTER CCW COUNT IN GR 12 -
                                 *                             BYTES 0 AND 1
                                 *                          5. ENTER U/O ADDR IN GR 12 -
                                 *                             BYTE 2, BITS 5-6-7, AND BYTE 3
                                 *                          6. SET SEC SS 00 TO 1 TO LOOP
                                 *                             OR SET TO ZERO FOR 1 PASS
                                 *                          7. PRESS CONSOLE START
                                 *                          8. TO EXIT THIS RTN  PRESS CONSOLE
                                 *                             STOP,& SET SEC SS 00 & XX TO 0
001644  80                       DC    X'80'                DO NOT TREAT AS ERROR
                                 *                          DO NOT RESTORE
                                 *                          PRINT ON NORMAL OUTPUT DEVICE
001645  2A                       DC    X'2A'                NO. OF CHAR IN MSG (42)
001646  F770                     DC    AL2(SCPRK2-BASE&REG) MESSAGE ADDRESS
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
001648   58 CO F 730              L     GRC,SCPRK3          SET GR 12 TO ALL ONES
00164C   55 CO F 730     SCPR20   CL    GRC,SCPRK3          SEE IF GR 12 WAS ALTERED
001650   47 80 F 668              BC    EQUAL,SCPR40        BR IF NO
001654   91 40 F 004              TM    SNSW,X'40'          BR IF SEC SS 01 IS 1 - USE SCOPE RTN
001658   47 10 F 674              BC    ALLON,SCPR50        ,,
00165C   98 9C F OFO     SCPR30   LM    GR9,GRC,SCPRK1      RESTORE GR9 THRU GRC
001660   D2 03 F 048 F 128        MVC   CAW(4),SIOVR2       RESTORE ORIG CAW
001666   07 F8                    BCR   ALWAYS,GR8          RETURN TO PROGRAM
001668   91 40 F 004     SCPR40   TM    SNSW,X'40'          BR IF SEC SS 01 IS 1 - USE SCOPE RTN
00166C   47 10 F 64C              BC    ALLON,SCPR20        ,,
001670   47 FO F 65C              BC    ALWAYS,SCPR30       RETURN TO PROGRAM
001674   50 AO F 100     SCPR50   ST    GRA,SCPRK4          SET UP CCW
001678   D2 00 F OE8 F 102        MVC   SCPCCW(1),SCPRK4&2  ,,
00167E   92 30 F OEC              MVI   SCPCCW4,X'30'       ,,
001682   D4 00 F OEC F 103        NC    SCPCCW64(1),SCPRK4&3 ,,
001688   50 CO F 100              ST    GRC,SCPRK4          ,,
00168C   D2 01 F OEE F 100        MVC   SCPCCW6(2),SCPRK4   ,,
001692   D5 01 F 100 F 79A        CLC   SCPRK4(2),SCPRKA    CHECK IF CCW COUNT OVER 180
001698   47 DO F 6A2              BC    NHIGH,SCPR51        BRANCH IF NOT
00169C   D2 01 F OEE F 79A        MVC   SCPCCW6(2),SCPRKA   FORCE CCW COUNT TO 180
0016A2   50 BO F 100     SCPR51   ST    GRB,SCPRK4          SET UP DATA FIELD
0016A6   D2 03 F 234 F 100        MVC   SCPDAT(4),SCPRK4    ,,
0016AC   D2 AF F 238 F 234        MVC   SCPDAT64(176),SCPDAT ,,
```

```
***********************************************************************
*            START I/O FOR UTILITY ROUTINE                            *
***********************************************************************
0016B2   41 90 F OE8     SCPR70   LA    GR9,SCPCCW          ,,
0016B6   50 90 F 048              ST    GR9,CAW             ,,
                                                            DO NOT CHAIN
0016BA   D2 00 F 048 F 14C        MVC   CAW(1),CAWKEY       ,,
0016CO   D2 03 D 048 F 048  SCPR80  MVC  HCAW(4,GRD),CAW    LOAD CAW
0016C6   9C 00 C 000              SIO   0(GRC)              START I/O
0016CA   9D 00 C 000     SCPR90   TIO   0(GRC)              TEST I/O
0016CE   47 70 F 6CA              BC    NZERO,SCPR90        REPEAT TIO IF NOT CCO
0016D2   91 80 F 004              TM    SNSW,X'80'          LOOP IF SEC SS 00 IS 1 - SIO LOOP
0016D6   47 10 F 6CO              BC    ALLON,SCPR80        ,,
0016DA   91 40 F 004              TM    SNSW,X'40'          BR IF SEC SS 01 IS 1 - USE SCOPE RTN
0016DE   47 10 F 642              BC    ALLON,SCPR10        ,,
0016E2   47 FO F 65C              BC    ALWAYS,SCPR30       RETURN TO PROGRAM
```

```
***********************************************************************
*       ALL OVERLAYS BRANCH HERE AFTER EACH COMPLETE PASS             *
***********************************************************************
0016E6   OA DO           EXITBY   SVC   X'DO'               PRINT THAT THIS ROUTINE WAS BYPASSED
0016E8   80                       DC    X'80'               ,, NORMAL OUTPUT
0016E9   10                       DC    X'10'               ,, 16 CHARACTERS
0016EA   F79D                     DC    AL2(EXMSG-BASE&REG) ,, ADDRESS OF MESSAGE
0016EC   91 40 F 004     EXIT     TM    SNSW,X'40'          SEE IF SEC SS 01 IS 1--USE SCOPE RTN
0016FO   47 80 F 6F8              BC    ALLOFF,*&8          BR IF NO
0016F4   45 80 F 63E              BAL   GR8,SCPROO          BR TO UTILITY RTN
0016F8   91 20 E 1A3              TM    419(GRE),X'20'      SEE IF DM SS 26 IS 1 - CYCLE SECTION
0016FC   47 10 F 71C              BC    ALLON,EXIT2         BR IF YES
001700   41 00 F 720              LA    GRO,RSCCW           LOAD ADDR OF DIAG CK RD CCW IN CAW
001704   50 00 F 048              ST    GRO,CAW             ,,
001708   48 CO F OE2              LH    GRC,UNIADR          SET READER ADDRESS IN GR 12
00170C   92 02 F 14D              MVI   SIOSWS,X'02'        RESET SIO SWS -USE READER-
001710   45 BO F 2E8              BAL   GRB,SIO             GO READ
001714   OA DB           EXIT1    SVC   X'DB'               BYPASS DATA CARDS
001716   0234                     DC    AL2(SCPDAT-SECST)   LOAD ADDRESS FOR DATA RECORDS
001718   47 FO F 714              BC    ALWAYS,EXIT1        CONTINUE READING DATA CARDS
00171C   OA D6           EXIT2    SVC   X'D6'               ROUTINE EXIT - READ IN NEXT RECORD
```

```
***********************************************************************
*             CCW-S USED BY RESIDENT ROUTINE                          *
***********************************************************************
001720   C6 001234 2000 0003  RSCCW  CCW  X'C6',SCPDAT,X'20',3  DIAG CK RD CCW - SLI ON
001728   04 0011F7 0000 0001  SNSCCW  CCW  X'04',SENSE,X'00',1     SENSE CCW
***********************************************************************
*          CONSTANTS FOR SCOPING ROUTINE - WORD BOUNDARY              *
***********************************************************************
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
001730   FFFFFFFF        SCPRK3   DC    X'FFFFFFFF'
001734   00000014        SCPRK5   DC    X'00000014'
***********************************************************************
*            CONSTANTS FOR SIO ROUTINE - NO BOUNDARY                  *
***********************************************************************
001738   001570          SIOCN1   DC    AL3(SIOINT)
00173B   D4C1D2C540E3C8C9E2  SIOMS4  DC   C'MAKE THIS UNIT R'
001744   40E4D5C9E340D9
00174B   C4E840E6C9E3C840C2       DC    C'DY WITH BLANK CA'
001754   D3C1D5D240C3C1
00175B   D9C4E2                   DC    C'RDS'
00175E   E2E3C1E3E4E240E7E7  SIOCN2  DC   C'STATUS XXXX SNS '
001767   E7E740E2D5E240
00176E   E7E7                     DC    C'XX'
***********************************************************************
*          CONSTANTS FOR SCOPING ROUTINE - NO BOUNDARY                *
***********************************************************************
001770   D7D9C5E2E240C3D6D5  SCPRK2  DC   C'PRESS CONSOLE ST'
001779   E2D6D3C540E2E3
001780   D6D7404E40C0D5E3C5       DC    C'OP & ENTER SCOPE'
001789   D940E2C3D6D7C5
001790   40D3D6D6D740C4C1E3       DC    C' LOOP DATA'
001799   C1
00179A   00B4            SCPRKA   DC    X'00B4'             FOR CCW COUNT OF 180
00179C   00              SCHNUM   DC    X'00'               SEARCH NUMBER
00179D   D9D6E4E3C9D5C540C2  EXMSG   DC   C'ROUTINE BYPASSED'
0017A6   E8D7C1E2E2C5C4
***********************************************************************
*          CONSTANTS FOR EXIT ROUTINE - WORD BOUNDARY                 *
***********************************************************************
0017AE                            CNOP  0,4                ALIGN ON WORD BOUNDARY
0017AE   07 00                    BCR   0,0
0017BO   000007FF        CLRC     DC    X'000007FF'
***********************************************************************
*                        EQUATES                                      *
***********************************************************************
*                 GENERAL REGISTER EQUATES                            *
***********************************************************************
000040          HCSW     EQU   64                  HARDWARE CSW LOCATION
000048          HCAW     EQU   72                  HARDWARE CAW LOCATION
00112C          CSWSAV   EQU   SIOVR3
***********************************************************************
*                 GENERAL EQUATES                                     *
***********************************************************************
000000          GRO      EQU   0
000001          GR1      EQU   1
000002          GR2      EQU   2
000003          GR3      EQU   3
000004          GR4      EQU   4
000005          GR5      EQU   5
000006          GR6      EQU   6
000007          GR7      EQU   7
000008          GR8      EQU   8
000009          GR9      EQU   9
00000A          GRA      EQU   10
00000B          GRB      EQU   11
00000C          GRC      EQU   12
00000D          GRD      EQU   13
00000E          GRE      EQU   14
00000F          GRF      EQU   15
***********************************************************************
*                 CONDITION CODE EQUATES                              *
***********************************************************************
000008          ALLOFF   EQU   8                   ALL OFF      0
000005          ANYON    EQU   5                   ANY ON         1   3
000001          ALLON    EQU   1                   ALL ON             3
000004          MIXED    EQU   4                   MIXED          1
000009          NMIXED   EQU   9                   NOT MIXED    0     3
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
            000008        EQUAL  EQU  8              EQUAL        0
            000006        NEQUAL EQU  6              NOT EQUAL      1 2
            000004        LOW    EQU  4              LOW            1
            000002        HIGH   EQU  2              HIGH             2
            000008        ZERO   EQU  8              ZERO         0
            000002        GZERO  EQU  2              GREATER ZERO     2
            000008        AVAIL  EQU  8              AVAILABLE    0
            000004        CSWST  EQU  4              CSW STORED     1
            000002        BUSY   EQU  2              BUSY             2
            00000F        ALWAYS EQU  15             UNCONDITIONL 0 1 2 3
            00000D        NOTBSY EQU  13             NOT BUSY     0 1   3
            000007        NZERO  EQU  7              NOT CC 0       1 2 3
            000004        NOTZRO EQU  4              NOT ZERO -AND-   1
            00000C        MIXNON EQU  12             MIXED OR NONE 0 1
            00000D        NHIGH  EQU  13             NOT HIGH     0 1   3
                          ***************************************************************
                          ***************************************************************
            0017D0        ORG    SECST&2000
                          ***************************************************************
                          *                                                             *
                          *                   OVERLAY ROUTINE                           *
                          *                                                             *
                          ***************************************************************
                          *           VARIABLE FIELDS FOR CHANNEL REGISTER TEST         *
                          *                                                             *
                          *           VARIABLES - NO BOUNDARY                            *
                          ***************************************************************
0017D0  000000           CKRDAR DC   XL3'0'              CHECK READ DATA BYTES
0017D3  000000000000000000  HOTBIT DC XL9'0'             AREA TO SAVE WHICH POSITIONS ARE HOT
0017DC  00               HOTRD  DC   X'00'               AREA TO STORE HOT BITS
0017DD  00               TSTCHR DC   X'00'               TEST CHAR POSITION -LOOK FOR HOT BIT
0017DE  00               EXPECT DC   X'00'               AREA TO TEST FOR EXPECTED BIT
0017DF  00               TRBLE  DC   X'00'               TROUBLE SWITCH-TURNED ON FOR ANY ERR
                         *
0017E0  800000000000000000  DATA0 DC X'800000000000000000'  DATA REG 0 BIT
0017E9  00
0017EA  400000000000000000  DATA1 DC X'400000000000000000'  DATA REG 1 BIT
0017F3  00
0017F4  200000000000000000  DATA2 DC X'200000000000000000'  DATA REG 2 BIT
0017FD  00
0017FE  100000000000000000  DATA3 DC X'100000000000000000'  DATA REG 3 BIT
001807  00
001808  080000000000000000  DATA4 DC X'080000000000000000'  DATA REG 4 BIT
001811  00
001812  040000000000000000  DATA5 DC X'040000000000000000'  DATA REG 5 BIT
00181B  00
00181C  020000000000000000  DATA6 DC X'020000000000000000'  DATA REG 6 BIT
001825  00
001826  010000000000000000  DATA7 DC X'010000000000000000'  DATA REG 7 BIT
00182F  00
001830  000000000000000000  DATAB DC X'000000000000000000'  DATA REG NO BITS
001839  00
00183A  000000000000000000  DATAX DC X'000000000000000000'  DATA REG EXTRA -FOR PUNCH CKS
001843  00
                         *
                         *                           AREA FOR WORKING ON DATA
                         *
001844  00               WRITE  DC   X'00'               WRITE AREA
001845  00               STAT1A DC   X'00'               1ST STATUS AREA A
001846  00               STAT1B DC   X'00'               1ST STATUS AREA B
001847  00               SENSE1 DC   X'00'               1ST SENSE AREA
001848  00               CKRD1  DC   X'00'               1ST CHECK READ AREA
001849  00               READ   DC   X'00'               READ AREA
00184A  00               STAT2  DC   X'00'               2ND STATUS AREA
00184B  00               SENSE2 DC   X'00'               2ND SENSE AREA
00184C  00               CKRD2  DC   X'00'               2ND CHECK READ AREA
00184D  00               ERRSW  DC   X'00'               ERROR SWITCHES
                         *                                   BIT 6 -ON- BIT NOT TURN ON
```

```
                         *                                   BIT 7 -ON- BIT ALWAYS ON
                         *
00184E  00               HCK    DC   X'00'
00184F  000000000000000000  LGAREA DC XL29'00'           LOG OUT DATA TABLE AREA
001858  000000000000000000
001861  000000000000000000
00186A  0000
                         ***************************************************************
                         *                                                             *
                         *                   ROUTINE PREFIX                            *
                         *                                                             *
                         *                   ROUTINE 01                                *
00186C                   CNOP   0,4                 FULL WORD ALIGNMENT
00186C  01               RTN01  DC   XL1'01'             ROUTINE NUMBER
00186D  00                      DC   XL1'0'              FLAGS
00186E  FFFE                    DC   X'FFFE'             ADDRESS OF NEXT ROUTINE
001870  1B DD            INIT00 SR   GRD,GRD             CLEAR REGISTER 13
001872  91 40 E 196             TM   406(14),X'40'       LOAD REG 13 WITH THE CONTENTS
001876  47 80 F 87C             BC   ALLOFF,*&6          ,, OF REG 15 IF RUNNING
00187A  18 DF                   LR   GRD,GRF             ,, IN PROBLEM STATE
                         *
00187C  91 02 F 004             TM   SNSW,X'02'          IS TITLE PRINTOUT DESIRED
001880  47 80 F 88A             BC   ALLOFF,INIT10       BRANCH TO SKIP TITLE PRINT
001884  0A D0                   SVC  X'D0'               PRINT TITLE
001886  80                      DC   X'80'               ,, NORMAL OUTPUT
001887  1F                      DC   X'1F'               ,, 31 CHARACTERS
001888  FD1C                    DC   AL2(TITLE1-BASE&REG)  ADDRESS OF TITLE
00188A  1B 00            INIT10 SR   GR0,GR0             CLEAR REGISTER 0
00188C  91 10 E 180             TM   384(14),X'10'       IS STORAGE PROTECT ON SYSTEM
001890  47 80 F 89A             BC   ALLOFF,INIT20       BRANCH IF NOT
001894  09 0F                   ISK  GR0,GRF             PUT STOR KEY IN REG 0
001896  42 00 F 14C             STC  GR0,CAWKEY          SAVE STOR KEY FOR PROGRAM USE
00189A  0A DD            INIT20 SVC  X'DD'               CONVERT READER ADDRESS TO PRINT CHAR
00189C  0002                    DC   AL2(2)              ,, 2 BYTES
00189E  00E2                    DC   AL2(UN1ADR-SECST)   ,, ADDRESS OF READER ADDRESS
0018A0  022C                    DC   AL2(UARD-1-SECST)   ,, ADDRESS OF PLACEMENT
0018A2  0A DD                   SVC  X'DD'               CONVERT PUNCH ADDRESS TO PRINT CHARS
0018A4  0002                    DC   AL2(2)              ,, 2 BYTES
0018A6  00E6                    DC   AL2(UN2ADR-SECST)   ,, ADDRESS OF PUNCH ADDRESS
0018A8  0230                    DC   AL2(UAPU-1-SECST)   ,, ADDRESS OF PLACEMENT
                         *
                         *
0018AA  92 00 F 79C             MVI  SCHNUM,X'00'        SET UP SEARCH NUMBER TO ZEROS
0018AE  91 40 F 004             TM   SNSW,X'40'          SEE IF SEC SS 01 IS 1--USE SCP RTN
0018B2  47 80 F 8BA             BC   ALLOFF,DATA00       BR IF NO
0018B6  45 80 F 63E             BAL  GR8,SCPR00          BR TO UTILITY ROUTINE
0018BA  1B CC            DATA00 SR   GRC,GRC             CLEAR REGISTER 12
0018BC  48 C0 F 0E6             LH   GRC,UN2ADR          LOAD PUNCH ADDR IN REG 12
0018C0  41 00 F D10      DATA05 LA   GR0,ADRCCW          LOAD ADDR OF ADDRESS CHECK CCW
0018C4  50 00 F 048             ST   GR0,CAW             STORE ADDR CK CCW ADDR IN CAW
0018C8  92 00 F 14D             MVI  SIOSWS,X'00'        RESET SIO SWITCHES - SIO PUNCH
0018CC  45 B0 F 2E8             BAL  GRB,SIO             GO TO START I/O ROUTINE
                         *
0018D0  95 14 F 133             CLI  CSWSAV&7,X'14'      IS CSW COUNT OK
0018D4  47 60 F C92             BC   NEQUAL,ADRCHK       BRCH FOR ADDR CK IF CSW COUNT BAD
                         *
0018D8  41 00 F D10      DATA08 LA   GR0,ADRCCW          LOAD ADDR OF ADDR CHECK CCW
0018DC  50 00 F 048             ST   GR0,CAW             STORE ADDR CK CCW ADDR IN CAW
0018E0  48 C0 F 0E2             LH   GRC,UN1ADR          LOAD READER ADDRESS IN REG 12
0018E4  92 02 F 14D             MVI  SIOSWS,X'02'        RESET SIO SWITCHES - SIO READER
0018E8  45 B0 F 2E8             BAL  GRB,SIO             GO TO START I/O ROUTINE
                         *
0018EC  95 14 F 133             CLI  CSWSAV&7,X'14'      IS CSW COUNT OK
0018F0  47 60 F C92             BC   NEQUAL,ADRCHK       BRANCH FOR ADDR CK IF CSW COUNT BAD
                         *
0018F4  48 C0 F 0E6             LH   GRC,UN2ADR          LOAD PUNCH ADDR IN REG 12
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT —ROUTINE OVERLAY 01—

```
0018F8    41 90 F 7E0           LA    GR9,DATA0         LOAD 1ST DATA GROUP ADDR IN REG 9
0018FC    D2 09 F 844 9 000   DATA10 MVC  WRITE(10),0(9)   SET A DATA GROUP IN WORK AREA
001902    41 00 F CF8           LA    GR0,PWRCCW        LOAD ADDRESS OF PUNCH WRITE CCW
001906    D7 08 F 845 F 845     XC    STAT1A(9),STAT1A  CLEAR WORK AREA EXCEPT WRITE DATA
00190C    D2 00 F 845 F 844     MVC   WRITE&1(1),WRITE  GENERATE 2 BYTES OF WRITE DATA
001912    50 00 F 048           ST    GR0,CAW           STORE PUNCH CCW ADDR IN CAW
001916    92 00 F 14D           MVI   SIOSWS,X'00'      RESET SIO SWITCHES —SIO PUNCH
00191A    45 B0 F 2E8           BAL   GRB,SIO           GO TO START I/O ROUTINE
00191E    91 01 F 14D           TM    SIOSWS,X'01'      IS INTERVENTION REQ SWITCH SET
001922    47 10 F 870           BC    ALLON,INITOO      RESTART PROGRAM IF ON
001926    D2 00 F 845 F 130     MVC   STAT1A(1),CSWSAV&4 SAVE 1ST STATUS AT CHAN-END
00192C    D2 00 F 846 F 1F8     MVC   STAT1B(1),STATSV  SAVE 1ST STATUS AT DEVICE-END
001932    D2 00 F 847 F 1F7   DATA20 MVC  SENSE1(1),SENSE  SAVE SENSE DATA AFTER PUNCH - WRITE
001938    45 A0 F 988           BAL   GRA,DGCKRD        GO DO DIAG CK READ TO PUNCH
00193C    D2 00 F 848 F 7D0     MVC   CKRD1(1),CKRDAR   SAVE CK RD DATA FROM PUNCH WRITE

001942    41 00 F D00         DATA30 LA  GR0,RDCCW        LOAD ADDRESS OF PUNCH READ CCW
001946    50 00 F 048           ST    GR0,CAW           SET CCW ADDRESS IN CAW
00194A    92 00 F 14D           MVI   SIOSWS,X'00'      RESET SIO SWITCHES —USE PUNCH-
00194E    45 B0 F 2E8           BAL   GRB,SIO           GO TO START I/O ROUTINE
001952    91 01 F 14D           TM    SIOSWS,X'01'      IS INTERVENTION REQ SWITCH ON
001956    47 10 F 870           BC    ALLON,INITOO      RESTART PROGRAM IF ON
00195A    D2 00 F 84A F 130     MVC   STAT2(1),CSWSAV&4 SAVE STATUS FROM PUNCH BUFFER READ
001960    D2 00 F 84B F 1F7     MVC   SENSE2(1),SENSE   SAVE SENSE DATA AFTER PUNCH READ
001966    45 A0 F 988           BAL   GRA,DGCKRD        GO DO DIAG CK READ TO PUNCH
00196A    D2 00 F 84C F 7D0     MVC   CKRD2(1),CKRDAR   SAVE CK RD DATA AFTER PUNCH-READ

001970    D2 09 9 000 F 844   DATA40 MVC  0(10,9),WRITE    MOVE DATA FROM WORK AREA TO GROUP
001976    41 99 0 00A           LA    GR9,10(9,0)       UPDATE REG 9 BY 10
00197A    41 00 F 844           LA    GR0,DATAX&10      SET REG 0 TO MAX COUNT
00197E    15 90                 CLR   GR9,GR0           ALL DATA ACCUMULATED
001980    47 60 F 8FC           BC    NEQUAL,DATA10     GO GET NEXT DATA GROUP
001984    47 F0 F 9EA           BC    ALWAYS,CRCK00     GO ANALIZE DATA FOR CHANNEL CHECK
                                *
                                *     ROUTINE TO DO DIAG CK READ
                                *
001988    41 00 F D08         DGCKRD LA  GR0,CRDCCW       LOAD ADDR OF DIAG CK RD CCW
00198C    50 00 F 048           ST    GR0,CAW           STORE ADDR OF CCW IN CAW
001990    91 02 F 14D           TM    SIOSWS,X'02'      IS READER CK RD WANTED
001994    48 C0 F 0E6           LH    GRC,UN2ADR        SET UP ADDRESS OF PUNCH
001998    47 80 F 9A0           BC    ALLOFF,*&8        BRANCH IF NOT READER
00199C    48 C0 F 0E2           LH    GRC,UN1ADR        SET UP ADDRESS OF READER
0019A0    D2 02 F 7D0 F D54     MVC   CKRDAR(3),CLEAR   RESET DIAG CHECK READ AREA
0019A6    94 FD F 14D           NI    SIOSWS,X'FD'      RESET SIO SWITCHES EXCEPT READ-PUNCH
0019AA    45 B0 F 2E8           BAL   GRB,SIO           GO TO START I/O ROUTINE
                                *
0019AE    91 01 F 14D           TM    SIOSWS,X'01'      IS INTERVENTION REQ SW ON
0019B2    47 10 F 870           BC    ALLON,INITOO      RESTART PROG IF ON
0019B6    91 FF F 7D2           TM    CKRDAR&2,X'FF'    WAS DATA TRANSFERRED
0019BA    47 10 F 9C2           BC    ALLON,DGCK10      BRANCH IF NOT OK
0019BE    47 F0 F 9E8           BC    ALWAYS,RETNCR     BRANCH IF OK
0019C2    91 FF F 7D1         DGCK10 TM  CKRDAR&1,X'FF'   WAS DATA TRANSFERRED
0019C6    47 10 F 9E8           BC    ALLON,RETNCR      BRANCH IF OK
0019CA    D2 02 F 212 F 231     MVC   MESS1&16(3),UAPU  SET PUNCH ADDRESS IN MESSAGE
0019D0    91 02 F 14D           TM    SIOSWS,X'02'      IS READER BEING USED
0019D4    47 80 F 9DE           BC    ALLOFF,*&10       BRANCH IF NOT READER
0019D8    D2 02 F 212 F 22D     MVC   MESS1&16(3),UARD  SET READER ADDRESS IN MESSAGE
0019DE    0A D0                 SVC   X'D0'             PRINT DIAG CR RD MESSAGE
0019E0    44                    DC    X'44'             ,, ERROR MESSAGE
0019E1    2B                    DC    X'2B'             ,, 43 CHARACTERS
0019E2    F202                  DC    AL2(MESS1-BASE&REG) ,, ADDRESS OF MESSAGE
0019E4    47 F0 F 8FC           BC    ALWAYS,DATA10     GO RESTART DATA GROUP
0019E8    07 FA               RETNCR BCR  ALWAYS,GRA      RETURN TO OTHER ROUTINE
                                *
                                *
                                *     ROUTINE TO ANALYZE CHANNEL REGISTER
                                *
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0019EA    41 90 F 7E0         CRCK00 LA  GR9,DATA0        LOAD 1ST DATA GROUP ADDR IN REG 9
0019EE    92 00 F 7DF           MVI   TRBLE,X'00'       RESET TROUBLE SWITCH
0019F2    41 00 F 839           LA    GR0,DATA7&19      SET UP MAXIMUM COUNT
0019F6    41 10 F 7E9           LA    GR1,DATA0&9       INITIALIZE INDEX 1 TO START OF GROUP
0019FA    92 00 1 000         CRCK05 MVI  0(GR1),X'00'     RESET DATA GROUP ERROR SWITCHES
0019FE    41 11 0 00A           LA    GR1,10(GR1,0)     UPDATE INDEX BY 10
001A02    15 10                 CLR   GR1,GR0           CHECK IF ALL GROUPS RESET
001A04    47 60 F 9FA           BC    NEQUAL,CRCK05     GO RESET NEXT GROUPS SWITCHES
001A08    92 00 F 84E           MVI   HCK,X'00'         TURN OFF HOT CHECK SWITCH
                                *
001A0C    D2 09 F 844 9 000   CRCK10 MVC  WRITE(10),0(9)   GET A DATA GROUP FOR ANALYSIS
001A12    47 F0 F A3A           BC    ALWAYS,CRCK35     GO SEE IF CHECKED FOR HOT BITS
001A16    91 02 F 848        CRCK11 TM  CKRD1,X'02'      WAS XLATE CHECK ON WITH PCH WRITE
001A1A    47 10 F AEE           BC    ALLON,CRCK80      BRANCH IF ON
                                *
001A1E    91 02 F 84C        CRCK20 TM  CKRD2,X'02'      WAS XLATE CK ON WITH PUNCH READ
001A22    47 10 F AEE           BC    ALLON,CRCK80      BRANCH IF ON
                                *
001A26    D2 00 F 7DE F 844   CRCK30 MVC  EXPECT(1),WRITE  SET EXPECTED BIT IN TEST AREA
001A2C    D4 00 F 7DE F 849     NC    EXPECT(1),READ    TEST IF BIT READ AS EXPECTED
001A32    47 80 F AB2           BC    ZERO,CRCK50       BRANCH IF NOT OK
001A36    47 F0 F B0E           BC    ALWAYS,CRCK90     CONTINUE
                                *
001A3A    91 FF F 84E        CRCK35 TM  HCK,X'FF'        SEE IF CHECKED FOR HOT BITS YET
001A3E    47 10 F A16           BC    ALLON,CRCK11      ,, BRCH IF YES
001A42    92 FF F 84E           MVI   HCK,X'FF'         TURN ON HOT CHECK SWITCH
001A46    41 80 0 001           LA    GR8,1(0,0)        INITIALIZE HOT BIT CHECK ROUTINE
001A4A    41 70 0 080           LA    GR7,128(0,0)      ,,
001A4E    41 10 F 826           LA    GR1,DATA7         ,,
001A52    41 20 F 826        CRCK38 LA  GR2,DATA7        ,,
001A56    96 01 1 000           OI    9(GR1),X'01'      TURN ON HOT BIT SWITCH
001A5A    44 80 F A9E           EX    GR8,CRCK41        SEE IF HOT BIT
001A5E    47 80 F A72           BC    ALLOFF,CRCK39-4   ,, BRCH IF NO
001A62    44 80 F AAA           EX    GR8,CRCK43        SEE IF HOT BIT
001A66    47 80 F A72           BC    ALLOFF,CRCK39-4   ,, BRCH IF NO
001A6A    44 80 F AAE           EX    GR8,CRCK44        SEE IF HOT BIT
001A6E    47 10 F A88           BC    ALLON,CRCK40      ,, BRCH IF YES
001A72    94 FE 1 009           NI    9(GR1),X'FE'      TURN OFF HOT BIT SWITCH
001A76    15 87               CRCK39 CLR  GR8,GR7         SEE IF END
001A78    47 80 F A16           BC    EQUAL,CRCK11      ,, BRCH IF YES
001A7C    41 88 8 000           LA    GR8,0(GR8,GR8)    SET UP TO TEST FOR NEXT BIT
001A80    5B 10 F D18           S     GR1,TEN           ,,
001A84    47 F0 F A52           BC    ALWAYS,CRCK38     ,,
001A88    41 70 F 7E0         CRCK40 LA  GR7,DATA0        SEE IF END
001A8C    15 72                 CLR   GR7,GR2           ,,
001A8E    41 70 0 080           LA    GR7,128(0,0)      ,,
001A92    47 80 F AA2           BC    EQUAL,CRCK42      ,, BRCH IF YES
001A96    5B 20 F D18           S     GR2,TEN           SET UP FOR NEXT DATA GROUP
001A9A    47 F0 F A56           BC    ALWAYS,CRCK38&4   CONTINUE
001A9E    91 00 2 005        CRCK41 TM  5(GR2),X'00'
001AA2    96 01 F 7DF        CRCK42 OI  TRBLE,X'01'      TURN ON TROUBLE SWITCH
001AA6    47 F0 F A76           BC    ALWAYS,CRCK39
001AAA    91 00 2 004        CRCK43 TM  4(GR2),X'00'
001AAE    91 00 2 008        CRCK44 TM  8(GR2),X'00'
                                *
                                *
001AB2    41 70 0 008        CRCK50 LA  GR7,8(0,0)       SET REG 7 TO NO. OF GROUPS
001AB6    41 80 F 7E5           LA    GR8,DATA0&5       LOAD 1ST GROUP ADDR IN INDEX REG 8
001ABA    95 00 8 000        CRCK51 CLI  0(8),X'00'      WERE ANY BITS READ FOR THIS GROUP
001ABE    47 60 F ACE           BC    NEQUAL,CRCK55     BRANCH IF BITS READ
001AC2    41 88 0 00A           LA    GR8,10(8,0)       UPDATE INDEX REG 8 BY 10
001AC6    46 70 F ABA           BCT   GR7,CRCK51        BRANCH IF ALL GROUPS NOT CHECKED
001ACA    47 F0 F B50           BC    ALWAYS,ALZ015     BRANCH TO ERROR MESSAGE-ALL BITS OFF
                                *
                                *
001ACE    91 04 F 848        CRCK55 TM  CKRD1,X'04'      DID PARITY CHECK OCCUR WHILE WRITING
001AD2    47 10 F B0E           BC    ALLON,CRCK90      BRANCH IF ON TO GET NEXT DATA GROUP
001AD6    91 04 F 817           TM    DATA5&5,X'04'     WAS 5 BIT READ WHEN EXPECTED
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001ADA  47 10 F AE6              BC   ALLON,CRCK60     BRANCH IF YES
                            *
001ADE  91 04 F 844              TM   WRITE,X'04'      IS 5 BIT BEING CHECKED
001AE2  47 80 F B0E              BC   ALLOFF,CRCK90    BRANCH IF NO
001AE6  96 02 F 84D   CRCK60     OI   ERRSW,X'02'      TURN ON -NO BIT SET- SWITCH
001AEA  47 F0 F B0A              BC   ALWAYS,CRCK86    GO TURN ON TROUBLE FOUND SWITCH
                            *
                            *
001AEE  91 02 F 844   CRCK80     TM   WRITE,X'02'      WAS A 6 BIT EXPECTED AS DATA
001AF2  47 10 F AFE              BC   ALLON,CRCK81     BRANCH IF EXPECTED
001AF6  91 02 F 849              TM   READ,X'02'       WAS A 6 BIT READ BACK
001AFA  47 80 F B0E              BC   ALLOFF,CRCK90    BRANCH IF NOT READ
001AFE  91 01 F 825   CRCK81     TM   DATA6&9,X'01'    SEE IF HAVE HOT CHAN REG 6 BIT
001B02  47 80 F B0E              BC   ALLOFF,CRCK90    ,, BRCH IF NO
001B06  47 F0 F B0A              BC   ALWAYS,CRCK86    GO TURN ON TROUBLE SWITCH
001B0A  96 01 F 7DF   CRCK86     OI   TRBLE,X'01'      TURN ON TROUBLE SWITCH
001B0E  D2 00 9 009 F 84D  CRCK90 MVC  9(1,9),ERRSW    RESTORE ERROR SWITCHES TO GROUP
001B14  41 99 0 00A              LA   GR9,10(GR9,0)    UPDATE INDEX REG 9 BY 10
001B18  41 00 F 830              LA   GR0,DATA7&10     SET REG 0 TO MAX COUNT
001B1C  15 90                    CLR  GR9,GR0          HAVE ALL DATA GROUPS BEEN CHECKED
001B1E  47 60 F A0C              BC   NEQUAL,CRCK10    IF NOT, GO GET NEXT GROUP
001B22  47 F0 F B26              BC   ALWAYS,ALZ000    GO CHECK FOR ERRORS
                            *
001B26  91 01 F 7DF   ALZ000     TM   TRBLE,X'01'      IS TROUBLE SWITCH ON
001B2A  47 10 F B32              BC   ALLON,ALZ005     BRANCH IF ON
001B2E  47 F0 F CA0              BC   ALWAYS,EXIT01    GO TO NEXT ROUTINE
                            *
                            *        ROUTINE TO CHECK IF ALL BITS CANNOT TURN ON
                            *
001B32  41 00 F 839   ALZ005     LA   GR0,DATA7&19     SET UP MAXIMUM COUNT
001B36  92 FF F 79C              MVI  SCHNUM,X'FF'     SET UP TO BYPASS ALL REMAINING OVLYS
001B3A  41 10 F 7E9              LA   GR1,DATA0&9      INITIALIZE INDEX 1 TO START OF GROUP
001B3E  91 02 1 000   ALZ010     TM   0(GR1),X'02'     WAS BIT OFF SWITCH TURNED ON
001B42  47 80 F B5A              BC   ALLOFF,ALZ020    BRANCH IF OFF --NOT ALL BITS OFF--
001B46  41 11 0 00A              LA   GR1,10(GR1,0)    UPDATE INDEX BY 10
001B4A  15 10                    CLR  GR1,GR0          ALL GROUPS CHECKED
001B4C  47 60 F B3E              BC   NEQUAL,ALZ010    GO CHECK NEXT GROUP
                            *
001B50  0A D0         ALZ015     SVC  X'D0'            ERR 30 - ALL CHANNEL REGISTER BITS
001B52  44                       DC   X'44'            ,,     ARE ALWAYS OFF AND CANNOT
001B53  07                       DC   X'07'            ,,     BE TURNED ON
001B54  FD57                     DC   AL2(ERR030-BASE&REG)
001B56  47 F0 F CA0              BC   ALWAYS,EXIT01    GO TO NEXT ROUTINE
                            *
                            *        ROUTINE TO CHECK IF ALL BITS ALWAYS ON
                            *
001B5A  41 10 F 7E9   ALZ020     LA   GR1,DATA0&9      INITIAL INDEX 1 TO START OF GROUP
001B5E  91 01 1 000   ALZ021     TM   0(GR1),X'01'     WAS BIT HOT SWITCH TURNED ON
001B62  47 80 F B74              BC   ALLOFF,ALZ025    BRANCH IF OFF--NOT ALL BITS HOT--
001B66  41 11 0 00A              LA   GR1,10(GR1,0)    UPDATE INDEX BY 10
001B6A  15 10                    CLR  GR1,GR0          WERE ALL GROUPS CHECKED
001B6C  47 60 F B5E              BC   NEQUAL,ALZ021    GO CHECK NEXT GROUP
001B70  47 F0 F B84              BC   ALWAYS,ALZ028    GO TO ERROR MESSAGE 031-ALL BITS ON
                            *
001B74  91 FF F 835   ALZ025     TM   DATAB&5,X'FF'    WERE ALL BITS READ BACK FOR 00
001B78  47 C0 F B8E              BC   MIXNON,ALZ030    BRANCH IF ALL BITS NOT ON HOT
                            *
001B7C  91 10 F 83D              TM   DATAX&3,X'10'    WAS EQUIP CK ON FOR DATAB -00-
001B80  47 10 F B8E              BC   ALLON,ALZ030     BRANCH IF ON
                            *
001B84  0A D0         ALZ028     SVC  X'D0'            ERR 031 - ALL CHANNEL REG BITS ARE
001B86  44                       DC   X'44'            ,,     ALWAYS ON AND CANNOT BE
001B87  07                       DC   X'07'            ,,     TURNED OFF.
001B88  FD5E                     DC   AL2(ERR031-BASE&REG)  ,,
001B8A  47 F0 F CA0              BC   ALWAYS,EXIT01    GO TO NEXT ROUTINE
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                            *
001B8E  91 02 F 7E9   ALZ030     TM   DATA0&9,X'02'    DID BIT 0 TURN ON
001B92  47 80 F BA0              BC   ALLOFF,ALZ032    BRANCH IF TURNED ON OK
001B96  0A D0                    SVC  X'D0'            ERR 032 - CHANNEL REG 0 BIT DOES NOT
001B98  44                       DC   X'44'            ,,
001B99  07                       DC   X'07'            ,,     TURN ON
001B9A  FD65                     DC   AL2(ERR032-BASE&REG)  ,,
001B9C  47 F0 F BAE              BC   ALWAYS,ALZ034
001BA0  91 01 F 7E9   ALZ032     TM   DATA0&9,X'01'    WAS BIT 0 ALWAYS ON
001BA4  47 80 F BAE              BC   ALLOFF,ALZ034    BRANCH IF TURNED OFF OK
001BA8  0A D0                    SVC  X'D0'            ERR 033 - CHANNEL REG 0 BIT IS
001BAA  44                       DC   X'44'            ,,
001BAB  07                       DC   X'07'            ,,     ALWAYS ON
001BAC  FD6C                     DC   AL2(ERR033-BASE&REG)
001BAE  91 02 F 7F3   ALZ034     TM   DATA1&9,X'02'    DID BIT 1 TURN ON
001BB2  47 80 F BC0              BC   ALLOFF,ALZ036    BRANCH IF TURNED ON OK
001BB6  0A D0                    SVC  X'D0'            ERR 034 - CHANNEL REG 1 BIT DOES NOT
001BB8  44                       DC   X'44'            ,,     TURN ON
001BB9  07                       DC   X'07'            ,,
001BBA  FD73                     DC   AL2(ERR034-BASE&REG)  ,,
001BBC  47 F0 F BCE              BC   ALWAYS,ALZ040
001BC0  91 01 F 7F3   ALZ036     TM   DATA1&9,X'01'    WAS BIT 1 ALWAYS ON
001BC4  47 80 F BCE              BC   ALLOFF,ALZ040    BRANCH IF ABLE TO RESET BIT 1
001BC8  0A D0                    SVC  X'D0'            ERR 035 - CHANNEL REG 1 BIT IS
001BCA  44                       DC   X'44'            ,,     ALWAYS ON
001BCB  07                       DC   X'07'            ,,
001BCC  FD7A                     DC   AL2(ERR035-BASE&REG)
                            *
001BCE  91 02 F 7FD   ALZ040     TM   DATA2&9,X'02'    DID BIT 2 TURN ON
001BD2  47 80 F BE0              BC   ALLOFF,ALZ042    BRANCH IF TURNED ON OK
001BD6  0A D0                    SVC  X'D0'            ERR 036 - CHANNEL REG 2 BIT DOES NOT
001BD8  44                       DC   X'44'            ,,     TURN ON
001BD9  07                       DC   X'07'            ,,
001BDA  FD81                     DC   AL2(ERR036-BASE&REG)  ,,
001BDC  47 F0 F BEE              BC   ALWAYS,ALZ044
001BE0  91 01 F 7FD   ALZ042     TM   DATA2&9,X'01'    WAS BIT 2 ALWAYS ON
001BE4  47 80 F BEE              BC   ALLOFF,ALZ044    BRANCH IF ABLE TO RESET BIT 2
001BE8  0A D0                    SVC  X'D0'            ERR 037 - CHANNEL REG 2 BIT IS
001BEA  44                       DC   X'44'            ,,     ALWAYS ON
001BEB  07                       DC   X'07'            ,,
001BEC  FD88                     DC   AL2(ERR037-BASE&REG)
                            *
001BEE  91 02 F 807   ALZ044     TM   DATA3&9,X'02'    DID BIT 3 TURN ON
001BF2  47 80 F C00              BC   ALLOFF,ALZ046    BRANCH IF TURNED ON OK
001BF6  0A D0                    SVC  X'D0'            ERR 038 - CHANNEL REG 3 BIT DOES NOT
001BF8  44                       DC   X'44'            ,,     TURN ON
001BF9  07                       DC   X'07'            ,,
001BFA  FD8F                     DC   AL2(ERR038-BASE&REG)  ,,
001BFC  47 F0 F C0E              BC   ALWAYS,ALZ048
001C00  91 01 F 807   ALZ046     TM   DATA3&9,X'01'    WAS BIT 3 ALWAYS ON
001C04  47 80 F C0E              BC   ALLOFF,ALZ048    BRANCH IF ABLE TO RESET BIT 3
001C08  0A D0                    SVC  X'D0'            ERR 039 - CHANNEL REG 3 BIT IS
001C0A  44                       DC   X'44'            ,,     ALWAYS ON
001C0B  07                       DC   X'07'            ,,
001C0C  FD96                     DC   AL2(ERR039-BASE&REG)  ,,
                            *
001C0E  91 02 F 811   ALZ048     TM   DATA4&9,X'02'    DID BIT 4 TURN ON
001C12  47 80 F C20              BC   ALLOFF,ALZ050    BRANCH IF TURNED ON OK
001C16  0A D0                    SVC  X'D0'            ERR 040 - CHANNEL REG 4 BIT DOES NOT
001C18  44                       DC   X'44'            ,,     TURN ON
001C19  07                       DC   X'07'            ,,
001C1A  FD9D                     DC   AL2(ERR040-BASE&REG)  ,,
001C1C  47 F0 F C2E              BC   ALWAYS,ALZ052
001C20  91 01 F 811   ALZ050     TM   DATA4&9,X'01'    WAS BIT 4 ALWAYS ON
001C24  47 80 F C2E              BC   ALLOFF,ALZ052    BRANCH IF ABLE TO RESET BIT 4
001C28  0A D0                    SVC  X'D0'            ERR 041 - CHANNEL REG 4 BIT IS
001C2A  44                       DC   X'44'            ,,     ALWAYS ON
001C2B  07                       DC   X'07'            ,,
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001C2C  FDA4                  DC    AL2(ERRO41-BASE&REG)      ,,
                              *
001C2E  91 02 F 81B   ALZ052  TM    DATA5&9,X'02'             DID BIT 5 TURN ON
001C32  47 80 F C40           BC    ALLOFF,ALZO54            BRANCH IF TURNED ON
001C36  0A D0                 SVC   X'D0'                    ERR 042 - CHANNEL REG 5 BIT DOES NOT
001C38  44                    DC    X'44'                    ,,         TURN ON
001C39  07                    DC    X'07'                    ,,
001C3A  FDAB                  DC    AL2(ERRO42-BASE&REG)      ,,
001C3C  47 F0 F C4E           BC    ALWAYS,ALZO56
001C40  91 01 F 81B   ALZ054  TM    DATA5&9,X'01'            WAS BIT 5 ALWAYS ON
001C44  47 80 F C4E           BC    ALLOFF,ALZO56           BRANCH IF ABLE TO RESET BIT 5
001C48  0A D0                 SVC   X'D0'                   ERR 043 - CHANNEL REG 5 BIT IS
001C4A  44                    DC    X'44'                    ,,         ALWAYS ON
001C4B  07                    DC    X'07'
001C4C  FDB2                  DC    AL2(ERRO43-BASE&REG)      ,,
                              *
001C4E  91 02 F 825   ALZ056  TM    DATA6&9,X'02'            DID BIT 6 TURN ON
001C52  47 80 F C60           BC    ALLOFF,ALZO58           BRANCH IF TURNED ON
001C56  0A D0                 SVC   X'D0'                   ERR 044 - CHANNEL REG 6 BIT DOES NOT
001C58  44                    DC    X'44'                    ,,         TURN ON
001C59  07                    DC    X'07'                    ,,
001C5A  FDB9                  DC    AL2(ERRO44-BASE&REG)      ,,
001C5C  47 F0 F C6E           BC    ALWAYS,ALZO60
001C60  91 01 F 825   ALZ058  TM    DATA6&9,X'01'           WAS BIT 6 ALWAYS ON
001C64  47 80 F C6E           BC    ALLOFF,ALZO60          BRANCH IF ABLE TO RESET BIT 6
001C68  0A D0                 SVC   X'D0'                  ERR 045 - CHANNEL REG 6 BIT IS
001C6A  44                    DC    X'44'                   ,,         ALWAYS ON
001C6B  07                    DC    X'07'
001C6C  FDC0                  DC    AL2(ERRO45-BASE&REG)     ,,
                              *
001C6E  91 02 F 82F   ALZ060  TM    DATA7&9,X'02'           DID BIT 7 TURN ON
001C72  47 80 F C80           BC    ALLOFF,ALZO62          BRANCH IF BIT 7 TURNED ON OK
001C76  0A D0                 SVC   X'D0'                  ERR 046 - CHANNEL REG 7 BIT DOES NOT
001C78  44                    DC    X'44'                   ,,         TURN ON
001C79  07                    DC    X'07'
001C7A  FDC7                  DC    AL2(ERRO46-BASE&REG)     ,,
001C7C  47 F0 F C8E           BC    ALWAYS,ALZO64
001C80  91 01 F 82F   ALZ062  TM    DATA7&9,X'01'          WAS BIT 7 ALWAYS ON
001C84  47 80 F C8E           BC    ALLOFF,ALZO64         BRANCH IF ABLE TO RESET BIT 7
001C88  0A D0                 SVC   X'D0'                 ERR 046 - CHANNEL REG 7 BIT IS
001C8A  44                    DC    X'44'                  ,,         ALWAYS ON
001C8B  07                    DC    X'07'
001C8C  FDCE                  DC    AL2(ERRO47-BASE&REG)    ,,
                              *
001C8E  47 F0 F CA0   ALZ064  BC    ALWAYS,EXITO1           GO TO NEXT ROUTINE
                              *
                              *
001C92  0A D0         ADRCHK  SVC   X'D0'                   ERROR MESSAGE - PROGRAM DETECTED
001C94  44                    DC    X'44'                    ,,        ADDRESSING PROBLEM
001C95  19                    DC    X'19'
001C96  FD3B                  DC    AL2(MESS2-BASE&REG)
001C98  92 83 F 79C           MVI   SCHNUM,X'83'            SET UP TO SEARCH FOR TEN 03
001C9C  47 F0 F 6EC           BC    ALWAYS,EXIT             GO TO ROUTINE EXIT
                              *
001CA0  91 20 F 004   EXITO1  TM    SNSW,X'20'              IS LOGOUT OF DATA TABLE DESIRED
001CA4  47 80 F 6EC           BC    ALLOFF,EXIT            BRANCH IF NOT DESIRED
                              *
001CA8  41 00 F 844           LA    GR0,DATAX&10           LOAD MAX COUNT
001CAC  41 10 F 7E0           LA    GR1,DATA0              LOAD GR 1 WITH START OF DATA TABLE
001CB0  D2 09 F 844 1 000 LGOUT1 MVC  WRITE(10),0(GR1)     SET UP DATA FOR PRINTOUT
001CB6  0A DD                 SVC   X'DD'                  CONVERT TO PTINTABLE CHARS
001CB8  000A                  DC    AL2(10)                 ,, 10 HEX BYTES
001CBA  0844                  DC    AL2(WRITE-SEC&ST)       ,, ADDR OF DATA
001CBC  0858                  DC    AL2(LGAREA&9-SEC&ST)    ,, ADDR OF DATA
001CBE  41 20 F 86A           LA    GR2,LGAREA&27          SET UP MAX PACKED DATA ADDRESS
001CC2  41 30 F 858           LA    GR3,LGAREA&9           INIT INDEX 3 —USED TO ADDR PACK DATA
001CC6  41 40 F 84F           LA    GR4,LGAREA             INIT INDEX 4 —USED TO ADDR EXPANDED
001CCA  D2 01 4 000 3 000 LGOUT2 MVC  0(2,GR4),0(GR3)      MOVE CHARS
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001CD0  92 40 4 002           MVI   2(GR4),X'40'           MOVE BLANK
001CD4  41 44 0 003           LA    GR4,3(GR4,0)           UPDATE EXPANDED INDEX BY 3
001CD8  41 33 0 002           LA    GR3,2(GR3,0)           UPDATE PACKED INDEX BY 2
001CDC  15 32                 CLR   GR3,GR2                WERE ALL POSITIONS MOVED
001CDE  47 60 F CCA           BC    NEQUAL,LGOUT2          GO MOVE NEXT CHAR IF NOT DONE
001CE2  0A D0                 SVC   X'D0'                  LOG OUT TABLE
001CE4  80                    DC    X'80'
001CE5  1D                    DC    X'1D'                   ,, 29 BYTES
001CE6  F84F                  DC    AL2(LGAREA-BASE&REG)    ,, ADDR OF MESSAGE
001CE8  41 11 0 00A           LA    GR1,10(GR1,0)          UPDATE DATA INDEX BY 10
001CEC  15 10                 CLR   GR1,GR0                WERE ALL LINES PRINTED
001CEE  47 60 F CB0           BC    NEQUAL,LGOUT1          GO DO NEXT LINE IF NOT
001CF2  0A DA                 SVC   X'DA'                  HALT & WAIT FOR ACTION
001CF4  47 F0 F 6EC           BC    ALWAYS,EXIT            ROUTINE EXIT
                              *
                              *       CONSTANTS
                              *
                              *
                              *       CCW TABLE
                              *
001CF8                CNOP  0,8                    DOUBLE WORD ALIGNMENT
001CF8  01 001844 2000 0002 PWRCCW CCW  X'01',WRITE,X'20',2    DIAG WRITE TO PNCH BUFF, SLI ON
001D00  C2 001849 2000 0001 RDCCW  CCW  X'C2',READ,X'20',1     DATA READ FROM BUFFER, SLI ON
001D08  C6 0017DD 2000 0003 CRDCCW CCW  X'C6',CKRDAR,X'20',3   DIAG CHECK READ CCW, SLI ON
001D10  C6 001234 2000 0064 ADRCCW CCW  X'C6',SCPDAT,X'20',100 DIAG READ FROM BUFFER, SLI ON
001D18  0000000A        TEN   DC    XL4'0A'
001D1C  F2F8F2F140E2C3C1D5 TITLE1 DC  C'2821 SCAN/2540, '
001D25  61F2F5F4F06B40
001D2C  C3C8C1D5D5C5D340D9      DC    C'CHANNEL REG FLT'
001D35  C5C740C6D3E3
001D3B  C2E4C6C6C5D940C1C4 MESS2 DC  C'BUFFER ADDRESSIN'
001D44  C4D9C5E2E2C9D5
001D4B  C740D7D9D6C2D3C5D4      DC    C'G PROBLEM'
001D54  0000FF          CLEAR DC    X'0000FF'              USED TO RESET DEAG CHECK READ AREA
                              *
                              *       ERROR MESSAGES FOR CHANNEL REGISTER
                              *
001D57  C5D9D940F0F3F0 ERRO30 DC    C'ERR 030'             ALL CHANNEL REGISTER BITS ALWAYS ON
001D5E  C5D9D940F0F3F1 ERRO31 DC    C'ERR 031'             ALL CHANNEL REG BITS ALWAYS OFF
001D65  C5D9D940F0F3F2 ERRO32 DC    C'ERR 032'             CHANNEL REG 0 BIT CANNOT TURN ON
001D6C  C5D9D940F0F3F3 ERRO33 DC    C'ERR 033'             CHANNEL REG 0 BIT CANNOT TURN OFF
001D73  C5D9D940F0F3F4 ERRO34 DC    C'ERR 034'             CHANNEL REG 1 BIT CANNOT TURN ON
001D7A  C5D9D940F0F3F5 ERRO35 DC    C'ERR 035'             CHANNEL REG 1 BIT CANNOT TURN OFF
001D81  C5D9D940F0F3F6 ERRO36 DC    C'ERR 036'             CHANNEL REG 2 BIT CANNOT TURN ON
001D88  C5D9D940F0F3F7 ERRO37 DC    C'ERR 037'             CHANNEL REG 2 BIT CANNOT TURN OFF
001D8F  C5D9D940F0F3F8 ERRO38 DC    C'ERR 038'             CHANNEL REG 3 BIT CANNOT TURN ON
001D96  C5D9D940F0F3F9 ERRO39 DC    C'ERR 039'             CHANNEL REG 3 BIT CANNOT TURN OFF
001D9D  C5D9D940F0F4F0 ERRO40 DC    C'ERR 040'             CHANNEL REG 4 BIT CANNOT TURN ON
001DA4  C5D9D940F0F4F1 ERRO41 DC    C'ERR 041'             CHANNEL REG 4 BIT CANNOT TURN OFF
001DAB  C5D9D940F0F4F2 ERRO42 DC    C'ERR 042'             CHANNEL REG 5 BIT CANNOT TURN ON
001DB2  C5D9D940F0F4F3 ERRO43 DC    C'ERR 043'             CHANNEL REG 5 BIT CANNOT TURN OFF
001DB9  C5D9D940F0F4F4 ERRO44 DC    C'ERR 044'             CHANNEL REG 6 BIT CANNOT TURN ON
001DC0  C5D9D940F0F4F5 ERRO45 DC    C'ERR 045'             CHANNEL REG 6 BIT CANNOT TURN OFF
001DC7  C5D9D940F0F4F6 ERRO46 DC    C'ERR 046'             CHANNEL REG 7 BIT CANNOT TURN ON
001DCE  C5D9D940F0F4F7 ERRO47 DC    C'ERR 047'             CHANNEL REG 7 BIT CANNOT TURN OFF
        00F000         REG   EQU   X'F000'
        001000         BASE  EQU   SEC&ST
                       END
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
        4   1048   CAW    1306,  131C,  1322,  1352,  137E,  13AA,  1424
                          149E,  14A2,  14AC,  14B0,  155C,  15EE,  1660
                          16B6,  168A,  16C0,  1704,  18C4,  18DC,  1912
                          1946,  198C
        8   1040   CSW
        1    0     GR0    1482,  1700,  1704,  188A,  188A,  1894,  1896
                          18C0,  18C4,  18D8,  18DC,  1902,  1912,  1942
                          1946,  197A,  197E,  1988,  198C,  19F2,  1A02
                          1B18,  1B1C,  1B32,  1B4A,  1B6A,  1CA8,  1CEC
        1    1     GR1    1302,  132C,  1330,  15DE,  19F6,  19FA,  19FE
                          19FE,  1A02,  1A4E,  1A56,  1A72,  1A80,  1B3A
                          1B3E,  1B46,  1B46,  1B5A,  1B5E,  1B66
                          1B66,  1B6A,  1CAC,  1CB0,  1CE8,  1CE8,  1CEC
        1    2     GR2    13CA,  13E8,  1A52,  1A8C,  1A96,  1A9E,  1AAA
                          1AAE,  1CBE,  1CDC
        1    3     GR3    1454,  1562,  15BA,  1CC2,  1CCA,  1CD8,  1CD8
                          1CDC
        1    4     GR4    149A,  149E,  14BA,  14C6,  1CC6,  1CCA,  1CD0
                          1CD4,  1CD4
        1    5     GR5    1482,  1486,  1486,  1488
        1    6     GR6
        1    7     GR7    1A4A,  1A76,  1A88,  1A8C,  1A8E,  1AB2,  1AC6
        1    8     GR8    1666,  16F4,  18B6,  1A46,  1A5A,  1A62,  1A6A
                          1A76,  1A7C,  1A7C,  1AB6,  1AC2
        1    9     GR9    1302,  15DE,  163E,  165C,  16B2,  16B6,  18F8
                          1976,  197E,  19EA,  1B14,  1B14,  1B1C
        1    A     GRA    1674,  1938,  1966,  19E8
        1    B     GRB    15E2,  16A2,  1710,  18CC,  18E8,  191A,  194E
                          19AA
        1    C     GRC    1318,  1328,  13BE,  13CA,  13D4,  13DC,  13E0
                          13E8,  14B6,  151C,  1564,  158C,  163E,  1648
                          164C,  165C,  1688,  16C6,  16CA,  1708,  188A
                          18BA,  18BC,  18E0,  18F4,  1994,  199C
        1    D     GRD    1322,  1402,  140A,  1412,  1428,  1480,  14F4
                          152C,  1578,  159C,  16C0,  1870,  1870,  187A
        1    E     GRE    1482,  16F8
        1    F     GRF    187A,  1894
        1   184E   HCK    1A08,  1A3A,  1A42
        2   100A   ICM
        1    4     LOW
        1   F000   REG    1364,  1390,  13BC,  1446,  146C,  147A,  1480
                          1506,  1510,  1556,  160A,  1626,  1630,  1636
                          1646,  16EA,  1888,  19E2,  1854,  1888,  1B9A
                          1BAC,  1BBA,  1BCC,  1BDA,  1BEC,  1BFA,  1C0C
                          1C1A,  1C2C,  1C3A,  1C4C,  1C5A,  1C6C,  1C7A
                          1C8C,  1C96,  1CE6
        6   12E8   SIO    1710,  18CC,  18E8,  191A,  194E,  19AA
        4   1D18   TEN    1A80,  1A96
        3   1000   BASE   1364,  1390,  13BC,  1446,  146C,  147A,  1480
                          1506,  1510,  1556,  160A,  1626,  1630,  1636
                          1646,  16EA,  1888,  19E2,  1854,  1888,  1B9A
                          1BAC,  1BBA,  1BCC,  1BDA,  1BEC,  1BFA,  1C0C
                          1C1A,  1C2C,  1C3A,  1C4C,  1C5A,  1C6C,  1C7A
                          1C8C,  1C96,  1CE6
        1    2     BUSY
        4   17B0   CLRC   1318
        4   16EC   EXIT   1C9C,  1CA4,  1CF4
        8   1058   EXTR
        1    48    HCAW   1322,  1480,  16C0
        1    40    HCSW   1402,  140A,  1412,  1428,  14F4,  152C,  1578
                          159C
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
        1    2     HIGH
        1   100D   NIOU
        1   1849   READ   1A2C,  1AF6,  1D00
        4   1004   SNSW   1346,  1372,  139E,  13EE,  14BE,  1570,  1654
                          1668,  16D2,  16DA,  16EC,  187C,  18AE,  1CA0
        3   1231   UAPU   12F6,  18A8,  19CA
        3   122D   UARD   12E8,  18A0,  19D8
        1    8     ZERO   13C2,  1A32
        1    1     ALLON  12F2,  1338,  134A,  1376,  139A,  13A2,  13D0
                          13F2,  1416,  143E,  1464,  14C2,  14DA,  14E6
                          1574,  1582,  1602,  161E,  1658,  166C,  16D6
                          16DE,  16FC,  1922,  1956,  19B2,  19BA,  19C6
                          1A1A,  1A22,  1A3E,  1A6E,  1AD2,  1ADA,  1AF2
                          1B2A,  1880
        1    5     ANYON  1340,  13C6,  1406,  140E,  144C,  1536,  15C2
                          15CA,  15D2
        1    8     AVAIL
        1   1848   CKRD1  193C,  1A16,  1ACE
        1   184C   CKRD2  196A,  1A1E
        3   1D54   CLEAR  19A0
        8   11FA   CSWAG  15A6,  15AC,  15B2,  15C6,  15CE,  15D6,  15F6
                          15FE
        1    4     CSWST  1520,  1590
       10   17E0   DATA0  18F8,  19EA,  19F6,  1A88,  1AB6,  1B3A,  1B5A
                          1B8E,  1BA0,  1CAC
       10   17EA   DATA1  1BAE,  1BC0
       10   17F4   DATA2  1BCE,  1BE0
       10   17FE   DATA3  1BEE,  1C00
       10   1808   DATA4  1C0E,  1C20
       10   1812   DATA5  1AD6,  1C2E,  1C40
       10   181C   DATA6  1AFE,  1C4E,  1C60
       10   1826   DATA7  19F2,  1A4E,  1A52,  1B18,  1B32,  1C6E,  1C80
       10   1830   DATAB  1B74
       10   183A   DATAX  197A,  1B7C,  1CA8
        1    8     EQUAL  1650,  1A78,  1A92
        1   184D   ERRSW  1AE6,  1B0E
        2   1714   EXIT1  1718
        2   171C   EXIT2  1065,  16FC
       16   179D   EXMSG  16EA
        1    2     GZERO
        1   17DC   HOTRD
        5   1010   INPSW
       16   1202   MESS1  19CA,  19D8,  19E2
       16   1D3B   MESS2  1C96
        1    4     MIXED  136E
        1    D     NHIGH  1698
        1    7     NZERO  13E4,  1524,  1568,  1594,  16CE
        8   1D00   RDCCW  1942
        8   1720   RSCCW  1700
        1   186C   RTNO1  1015
        3   1000   SECST  1352,  1354,  137E,  1380,  13AA,  13AC,  1424
                          1426,  1432,  1434,  14AC,  145E,  145C,  14AE
                          14FE,  1500,  154E,  1550,  15EE,  15F0,  15F6
                          15F8,  1616,  1618,  1716,  17B4,  189E,  18A0
                          18A6,  18A8,  1CBA,  1CBC,  1DD5
        1   11F7   SENSE  1312,  1312,  145C,  1460,  15BE,  1616,  161A
                          1728,  1932,  1960
        1   184A   STAT2  195A
        1   17DF   TRBLE  19EE,  1AA2,  1B0A,  1B26
        1   10E0   UNIT1
        1   10E4   UNIT2
        1   1844   WRITE  18FC,  190C,  190C,  1970,  1A0C,  1A26,  1ADE
                          1AEE,  1CB0,  1CBA,  1CF8
        8   1D10   ADRCCW 18C0,  18D8
        2   1C92   ADRCHK 18D4,  18F0
        1    8     ALLOFF 13FA,  14D2,  1546,  1586,  16F0,  1876,  1880
                          1890,  1882,  1998,  19D4,  1A5E,  1A66,  1AE2
                          1AFA,  1B02,  1842,  1862,  1892,  1BA4,  1BB2
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* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
                              1BC4,  1BD2,  1BE4,  1BF2,  1C04,  1C12,  1C24
                              1C32,  1C44,  1C52,  1C64,  1C72,  1C84,  1CA4
            1      F ALWAYS   1366,  1392,  13D8,  13EA,  1450,  146E,  1490
                              1508,  1512,  1528,  1558,  1562,  156C,  1598
                              15A2,  15E2,  1628,  1638,  1666,  1670,  16E2
                              1718,  1984,  19BE,  19E4,  19E8,  1A12,  1A36
                              1A84,  1A9A,  1AA6,  1ACA,  1AEA,  1B06,  1B22
                              1B2E,  1B56,  1B70,  1B8A,  1B9C,  1BBC,  1BDC
                              1BFC,  1C1C,  1C3C,  1C5C,  1C7C,  1C8E,  1C9C
                              1CF4
     4      1B26  ALZ000      1B22
     4      1B32  ALZ005      1B2A
     4      1B3E  ALZ010      1B4C
     2      1B50  ALZ015      1ACA
     4      1B5A  ALZ020      1842
     4      1B5E  ALZ021      1B6C
     4      1B74  ALZ025      1862
     2      1B84  ALZ028      1B70
     4      1B8E  ALZ030      1B78,  1B80
     4      1BA0  ALZ032      1B92
     4      1BAE  ALZ034      1B9C,  1BA4
     4      1BC0  ALZ036      1BB2
     4      1BCE  ALZ040      1BBC,  1BC4
     4      1BE0  ALZ042      1BD2
     4      1BEE  ALZ044      1BDC,  1BE4
     4      1C00  ALZ046      1BF2
     4      1C0E  ALZ048      1BFC,  1C04
     4      1C20  ALZ050      1C12
     4      1C2E  ALZ052      1C1C,  1C24
     4      1C40  ALZ054      1C32
     4      1C4E  ALZ056      1C3C,  1C44
     4      1C60  ALZ058      1C52
     4      1C6E  ALZ060      1C5C,  1C64
     4      1C80  ALZ062      1C72
     4      1C8E  ALZ064      1C7C,  1C84
     1      114C  CAWKEY      131C,  14A2,  16BA,  1896
     3      17D0  CKRDAR      193C,  196A,  19A0,  19B6,  19C2,  1D08
     4      19EA  CRCK00      1984
     4      19FA  CRCK05      1A04
     6      1A0C  CRCK10      1B1E
     4      1A16  CRCK11      1A3E,  1A78
     4      1A1E  CRCK20
     6      1A26  CRCK30
     4      1A3A  CRCK35      1A12
     4      1A52  CRCK38      1A84,  1A9A
     2      1A76  CRCK39      1A5E,  1A66,  1AA6
     4      1A88  CRCK40      1A6E
     4      1A9E  CRCK41      1A5A
     4      1AA2  CRCK42      1A92
     4      1AAA  CRCK43      1A62
     4      1AAE  CRCK44      1A6A
     4      1AB2  CRCK50      1A32
     4      1ABA  CRCK51      1AC6
     4      1ACE  CRCK55      1ABE
     4      1AE6  CRCK60      1ADA
     4      1AEE  CRCK80      1A1A,  1A22
     4      1AFE  CRCK81      1AF2
     4      1B0A  CRCK86      1AEA,  1B06
     6      1B0E  CRCK90      1A36,  1AD2,  1AE2,  1AFA,  1B02
     8      1D08  CRDCCW      1988
     4      112C  CSWSAV      15A6,  18D0,  18EC,  1926,  195A
     2      188A  DATA00      18B2
     4      18C0  DATA05
     4      18D8  DATA08
     6      18FC  DATA10      1980,  19E4
     6      1932  DATA20
     4      1942  DATA30
     6      1970  DATA40
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
     4      19C2  DGCK10      19BA
     4      1988  DGCKRD      1938,  1966
     7      1D57  ERRO30      1B54
     7      1D5E  ERRO31      1888
     7      1D65  ERRO32      189A
     7      1D6C  ERRO33      1BAC
     7      1D73  ERRO34      1BBA
     7      1D7A  ERRO35      1BCC
     7      1D81  ERRO36      1BDA
     7      1D88  ERRO37      1BEC
     7      1D8F  ERRO38      1BFA
     7      1D96  ERRO39      1C0C
     7      1D9D  ERRO40      1C1A
     7      1DA4  ERRO41      1C2C
     7      1DAB  ERRO42      1C3A
     7      1DB2  ERRO43      1C4C
     7      1DB9  ERRO44      1C5A
     7      1DC0  ERRO45      1C6C
     7      1DC7  ERRO46      1C7A
     7      1DCE  ERRO47      1C8C
     4      1CA0  EXITO1      1B2E,  1856,  188A,  1C8E
     2      16E6  EXITBY
     1      17DE  EXPECT      1A26,  1A2C
     1      100E  FLAGS1
     1      100F  FLAGS2
     9      17D3  HOTBIT
     2      1870  INIT00      1922,  1956,  19B2
     2      188A  INIT10      1880
     2      189A  INIT20      1890
     3      107D  IORADR
     5      1078  IORPSW      12FC
    29      184F  LGAREA      1CBC,  1CBE,  1CC2,  1CC6,  1CE6
     6      1CB0  LGOUT1      1CEE
     6      1CCA  LGOUT2      1CDE
     8      1070  MCRPSW
     1         C  MIXNON      153E,  15DA,  1B78
     1         6  NEQUAL      18D4,  18F0,  1980,  1A04,  1ABE,  1B1E,  1B4C
                              1B6C,  1CDE,  1CEE
     1         9  NMIXED
     1         D  NOTBSY
     1         4  NOTZRO
     8      1068  PIRPSW
     8      1CF8  PWRCCW      1902
     2      19E8  RETNCR      19BE,  19C6
     1      179C  SCHNUM      18AA,  1B36,  1C98
     8      10E8  SCPCCW      1678,  167E,  1682,  168C,  169C,  16B2
   180      1234  SCPDAT      10E8,  16A6,  16AC,  16AC,  1716,  1720,  1D10
     4      163E  SCPR00      16F4,  18B6
     2      1642  SCPR10      16DE
     4      164C  SCPR20      166C
     4      165C  SCPR30      1670,  16E2
     4      1668  SCPR40      1650
     4      1674  SCPR50      1658
     4      16A2  SCPR51      1698
     4      16B2  SCPR70
     6      16C0  SCPR80      16D6
     4      16CA  SCPR90      16CE
     4      10F0  SCPRK1      163E,  165C
    16      1770  SCPRK2      1646
     4      1730  SCPRK3      1648,  164C
     4      1100  SCPRK4      1674,  1678,  1682,  1688,  168C,  1692,  16A2
                              16A6
     4      1734  SCPRK5
     2      179A  SCPRKA      1692,  169C
     1      1847  SENSE1      1932
     1      184B  SENSE2      1960
     6      130C  SIOA00      1376,  1392,  13C2,  13EA,  1416,  1450,  1490
                              1628
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* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CHANNEL REG FLT -ROUTINE OVERLAY 01-

```
          4    136A SIOB00    1340
          4    1396 SIOC00    136E
          4    13DC SIOC01    13D0
          4    13BE SIOC0A    134A,  1366,  13A2,  13F2,  144C,  1574
          3    1738 SIOCN1    12FC
         16    175E SIOCN2    14EE,  160C
          4    13EE SIOD00    139A
          6    141A SIOD01    13FA,  1406,  140E
          4    1448 SIOD02    146E
          4    1454 SIOE00    143E
          4    1472 SIOE01    1464
          4    1482 SIOE02    1638
          6    1494 SIOF00    1454,  15BA
          6    14B0 SIOF01    156C
          2    150C SIOF02    14DA,  14E6
          6    1516 SIOF03    14D2,  1524
          6    152C SIOF04    1520
          4    1532 SIOF05    1528
          2    154A SIOF06    1536,  153E
          6    155C SIOF07    1546
          4    1564 SIOF08    14C2,  1508,  1512,  1558,  1568
          4    158C SIOI00    1594,  15A2
          6    159C SIOI01    1590
          6    15A6 SIOI02    1598
          4    15C6 SIOI03    15B6
          4    15DE SIOI04    1338,  1582
          6    15E4 SIOI05    15C2,  15CA,  15D2,  15DA
          6    160C SIOI06    1602
          2    162C SIOI07    161E
          4    1570 SIOINT    107D,  1738
         16    114E SIOMS1    1354,  1356,  135C,  1364,  1380,  1382,  1388
                              1390,  13AC,  13AE,  13B4,  13BC
         16    1184 SIOMS2    141A,  1426,  1434,  1436,  1446,  145E,  146C
                              147A,  15E4,  15F0,  15F8,  15FA,  160A,  160C
                              1618,  1626,  1630
         16    11C1 SIOMS3    1494,  14AE,  14CA,  14D6,  14DE,  14EA,  14EE
                              1500,  1506,  1510,  1550,  1556
         16    173B SIOMS4    1480,  1636
          1    114D SIOSWS    12EE,  1334,  13CC,  148C,  157E,  170C,  18C8
                              18E4,  1916,  191E,  194A,  1952,  1990,  19A6
                              19AE,  19D0
          4    1104 SIOVR1    1302,  15DE
          4    1128 SIOVR2    1306,  155C,  1660
          4    112C SIOVR3    130C,  130C,  1428,  1432,  143A,  1448,  1578
                              17B4
          4    1134 SIOVR4    1330,  133C,  136A,  1396
          3    1180 SIOVR5    12E8,  12F6,  1356,  1382,  13AE,  141A,  1494
                              15E4
          1    1183 SIOVR6    13F6,  13FE,  1472
          4    1138 SIOVR7    14C6,  14CE,  14E2
          4    113C SIOVR8    14F4,  14FE,  1516,  1516,  152C,  1532,  153A
                              1542,  154E
          4    1144 SIOVR9
          8    1728 SNSCCW    149A
          1    1845 STAT1A    1906,  1906,  1926
          1    1846 STAT1B    192C
          2    11F8 STATSV    1586,  1586,  159C,  15AC,  192C
          5    1060 SVRPSW
         16    1D1C TITLE1    1888
          1    17DD TSTCHR
          2    10E2 UN1ADR    13D4,  1708,  189E,  18E0,  199C
          2    10E6 UN2ADR    13DC,  18A6,  18BC,  18F4,  1994
          1    1000 XF8041
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

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* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

```
                            8041   TITLE F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-
                            XF8041 START 4096
          001000                  USING *,15
          ************************************************************************
          *                        FIRST OVERLAY - ROUTINE 02                   *
          ************************************************************************
          *         RESIDENT LABELS ADDRESSED BY OVERLAYS                       *
          ************************************************************************
          001000          SECST   EQU   *
          001004          SNSW    EQU   SECST&4
          001040          CSW     EQU   SECST&64
          001048          CAW     EQU   SECST&72
          0010E0          UNIT1   EQU   SECST&224
          0010E2          UN1ADR  EQU   SECST&226
          0010E4          UNIT2   EQU   SECST&228
          0010E6          UN2ADR  EQU   SECST&230
          00112C          SIOVR3  EQU   SECST&300
          001134          SIOVR4  EQU   SECST&308
          00114D          SIOSWS  EQU   SECST&333
          0011F8          STATSV  EQU   SECST&504
          0011FA          CSWAG   EQU   SECST&506
          001231          UAPU    EQU   SECST&561
          00112C          CSWSAV  EQU   SECST&300
          00114C          CAWKEY  EQU   SECST&332
          0011F7          SENSE   EQU   SECST&503
          00122D          UARD    EQU   SECST&557
          001234          SCPDAT  EQU   SECST&564
          00163E          SCPR00  EQU   SECST&1598
          0012E8          SIO     EQU   SECST&744
          001202          MESS1   EQU   SECST&514
          000048          HCAW    EQU   72
          000040          HCSW    EQU   64
          0016EC          EXIT    EQU   SECST&1772
          0016E6          EXITBY  EQU   SECST&1766
          00179C          SCHNUM  EQU   SECST&1948
          ************************************************************************
          001015                  ORG   SECST&21
          001015  001934          DC    AL3(RTN02)          INITIAL PSW STARTING ADDR FOR RTN 02
          0017D0                  ORG   SECST&2000
          ************************************************************************
          *                        VARIABLE FIELDS                             *
          ************************************************************************
          *         VARIABLES FOR ANALYZE ROUTINE - NO BOUNDARY                *
          ************************************************************************
          0017D0  00000000000000000    ALZV01 DC    XL52'00'
          0017D9  00000000000000000
          0017E2  00000000000000000
          0017EB  00000000000000000
          0017F4  00000000000000000
          0017FD  00000000000000
          001804  00                    CKRDAR DC    XL1'0'              CHECK READ DATA BYTE
          *
          001805  00000000000000000    DATAWK DC    XL20'0'
          00180E  00000000000000000
          001817  0000
          001819  5000000000000000000  DATA12 DC    X'500000000000000000'  DATA REG 12 BIT DATA GROUP
          001822  2000000000000000000         DC    X'200000000000000000'   ,,
          00182B  0000
          00182D  6000000000000000000  DATA11 DC    X'600000000000000000'  DATA REG 11 BIT DATA GROUP
          001836  1000000000000000000         DC    X'100000000000000000'   ,,
          00183F  0000
          001841  F000000000000000000  DATA0  DC    X'F00000000000000000'  DATA REG 0 BIT DATA GROUP
          00184A  0800000000000000000         DC    X'080000000000000000'   ,,
          001853  0000
          001855  F100000000000000000  DATA1  DC    X'F10000000000000000'  DATA REG 1 BIT DATA GROUP
          00185E  0400000000000000000         DC    X'040000000000000000'   ,,
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

```
001867   0000
001869   F20000000000000000    DATA2  DC   X'F20000000000000000'    DATA REG 2 BIT DATA GROUP
001872   0200000000000000000          DC   X'0200000000000000000'   ,,
00187B   0000
00187D   F30000000000000000    DATA3  DC   X'F30000000000000000'    DATA REG 3 BIT DATA GROUP
001886   0100000000000000000          DC   X'0100000000000000000'   ,,
00188F   0000
001891   F40000000000000000    DATA4  DC   X'F40000000000000000'    DATA REG 4 BIT DATA GROUP
00189A   0020000000000000000          DC   X'0020000000000000000'   ,,
0018A3   0000
0018A5   F50000000000000000    DATA5  DC   X'F50000000000000000'    DATA REG 5 BIT DATA GROUP
0018AE   0010000000000000000          DC   X'0010000000000000000'   ,,
0018B7   0000
0018B9   F60000000000000000    DATA6  DC   X'F60000000000000000'    DATA REG 6 BIT DATA GROUP
0018C2   0008000000000000000          DC   X'0008000000000000000'   ,,
0018CB   0000
0018CD   F70000000000000000    DATA7  DC   X'F70000000000000000'    DATA REG 7 BIT DATA GROUP
0018D6   0004000000000000000          DC   X'0004000000000000000'   ,,
0018DF   0000
0018E1   F80000000000000000    DATA8  DC   X'F80000000000000000'    DATA REG 8 BIT DATA GROUP
0018EA   0002000000000000000          DC   X'0002000000000000000'   ,,
0018F3   0000
0018F5   F90000000000000000    DATA9  DC   X'F90000000000000000'    DATA REG 9 BIT DATA GROUP
0018FE   0001000000000000000          DC   X'0001000000000000000'   ,,
001907   0000
001909   40000000000000000     DATAB  DC   X'40000000000000000'     DATA REG BLANK DATA GROUP
001912   00000000000000000            DC   X'00000000000000000'     ,,
001918   0000
00191D   3100000000000000000   DATAEX DC   X'3100000000000000000'   DATA REG EXTRA GRP-9 & 1 BITS
001926   0401000000000000000          DC   X'0401000000000000000'   ,,
00192F   0000
001931   00                    PROGSW DC   X'00'
```

```
*****************************************************************************
*                   ROUTINE 02 PREFIX                                       *
*****************************************************************************
001932                                CNOP  0,4                     FULL WORD ALIGNMENT
001932   07 00                        BCR   0,0
001934   02                    RTNO2  DC    XL1'02'                  ROUTINE NUMBER
001935   00                           DC    XL1'0'                   FLAGS
001936   FFFE                         DC    X'FFFE'                  ADDRESS OF NEXT ROUTINE
*****************************************************************************
```

```
001938   95 00 F 79C                  CLI   SCHNUM,X'00'             SEE IF SHLD RUN CTL PGM
00193C   47 80 F 942                  BC    EQUAL,INITOO             BRCH IF YES
001940   0A D6                        SVC   X'D6'                    ROUTINE EXIT
001942   91 40 F 931           INITOO TM    PROGSW,X'40'             IS RUN RTN SWITCH ON
001946   47 80 F 94E                  BC    ALLOFF,INIT05            BR IF NO
00194A   92 00 F 79C                  MVI   SCHNUM,X'00'             RESET SEARCH NO.
00194E   95 00 F 79C           INIT05 CLI   SCHNUM,X'00'             IS SEARCH NO. RESET
001952   47 60 F 6EC                  BC    NEQUAL,EXIT              BYPASS ROUTINE
001956   96 40 F 931                  OI    PROGSW,X'40'             TURN ON RUN RTN SWITCH
00195A   91 02 F 004                  TM    SNSW,X'02'               IS TITLE PRINTOUT DESIRED
00195E   47 80 F 968                  BC    ALLOFF,INIT10            BRANCH TO SKIP TITLE PRINT
001962   0A D0                        SVC   X'D0'                    PRINT TITLE
001964   80                           DC    X'80'                    ,, NORMAL OUTPUT
001965   1F                           DC    X'1F'                    ,, 31 CHARACTERS
001966   FD84                         DC    AL2(TITLE1-BASE&REG)     ,, ADDRESS OF TITLE
*
001968   91 40 F 004           INIT10 TM    SNSW,X'40'               SEE IF SEC SS 04 IS 1 - USE SCP RTN
00196C   47 80 F 974                  BC    ALLOFF,DATAOO            BR IF NO
001970   45 80 F 63E                  BAL   GR8,SCPROO               GO TO UTILITY ROUTINE
*
*****************************************************************************
*             DATA ACCUMULATION ROUTINE
*
*    THIS ROUTINE ACCUMULATES ALL THE DATA NECESSARY FOR THE ANALYZE
*    ROUTINE.
*****************************************************************************
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

```
*
001974   41 90 F 819           DATAOO LA    GR9,DATA12               SET REG 9 TO TABLE START -INDEX REG-
001978   1B CC                        SR    GRC,GRC                  RESET REG 12
*
*                  GATHER PUNCH BUFFER DATA
*
00197A   D2 13 F 805 9 000     DATA10 MVC   DATAWK(20),0(GR9)        SET A DATA GROUP IN WORK AREA
*****************************************************************************
*                  WRITE PUNCH DATA IS COLLECTED HERE
*
001980   41 00 F D58                  LA    GRO,PWRCCW               LOAD ADDR OF PUNCH WRITE CCW
001984   D7 07 F 806 F 806            XC    DATAWK&1(8),DATAWK&1     CLEAR WORK AREA EXCEPT WRITE DATA
00198A   D7 06 F 810 F 810            XC    DATAWK&11(7),DATAWK&11   ,,
001990   50 00 F 048                  ST    GRO,CAW                  STORE PUNCH CCW ADDR IN CAW
001994   92 00 F 14D                  MVI   SIOSWS,X'00'             RESET SIO SWITCHES -USE PUNCH-
001998   48 CO F 0E6                  LH    GRC,UN2ADR               SET PUNCH I/O ADDR IN GR12
00199C   45 BO F 2E8                  BAL   GRB,SIO                  GO TO START I/O ROUTINE
*
0019A0   91 01 F 14D                  TM    SIOSWS,X'01'             IS INTERVENTION REQ SWITCH SET
0019A4   47 10 F 942                  BC    ALLON,INITOO             RESTART PROGRAM IF ON
0019A8   D2 00 F 806 F 130            MVC   PWSTA1(1),CSWSAV&4       SAVE CHAN-END STATUS FOR PUNCH WRITE
0019AE   D2 00 F 807 F 1F8            MVC   PWSTA2(1),STATSV         SAVE DEV-END STATUS FOR PUNCH WRITE
*
0019B4   D2 00 F 808 F 1F7     DATA20 MVC   PWSNS(1),SENSE           SAVE SENSE DATA FOR PUNCH WRITE
0019BA   45 AO F A6E                  BAL   GRA,DGCKRD               GO DO DIAG CK READ TO PUNCH
0019BE   D2 00 F 809 F 804            MVC   PWCKRD(1),CKRDAR         SAVE CK RD DATA FROM PUNCH WRITE
*****************************************************************************
*                  READ PUNCH DATA IS COLLECTED HERE
*
0019C4   41 00 F D68           DATA30 LA    GRO,PRDCCW               LOAD ADDRESS OF PUNCH READ CCW
0019C8   50 00 F 048                  ST    GRO,CAW                  SET CCW ADDR IN CAW
0019CC   92 00 F 14D                  MVI   SIOSWS,X'00'             RESET SIO SWS -USE PUNCH-
0019D0   45 BO F 2E8                  BAL   GRB,SIO                  GO TO START I/O ROUTINE
*
0019D4   91 01 F 14D                  TM    SIOSWS,X'01'             IS INTERVENTION REQ SWITCH ON
0019D8   47 10 F 942                  BC    ALLON,INITOO             RESTART PROGRAM IF ON
0019DC   D2 00 F 808 F 130            MVC   PRSTA(1),CSWSAV&4        SAVE STATUS FROM PUNCH BUFFER READ
0019E2   D2 00 F 80C F 1F7            MVC   PRSNS(1),SENSE           SAVE SENSE DATA AFTER PUNCH READ
0019E8   45 AO F A6E                  BAL   GRA,DGCKRD               GO DO DIAG CK RD TO PUNCH
0019EC   D2 00 F 80D F 804            MVC   PRCKRD(1),CKRDAR         SAVE CK RD DATA AFTER PUNCH-READ
*
*****************************************************************************
*                  GATHER READ BUFFER DATA
*
*****************************************************************************
*                  WRITE READER DATA IS COLLECTED HERE
*
0019F2   41 00 F D60           DATA40 LA    GRO,RWRCCW               LOAD ADDR OF READ WRITE CCW
0019F6   50 00 F 048                  ST    GRO,CAW                  SET CCW ADDR IN CAW
0019FA   92 00 F 14D                  MVI   SIOSWS,X'00'             RESET SIO SWS -USE PUNCH ADDRESS-
0019FE   45 BO F 2E8                  BAL   GRB,SIO                  GO TO START I/O ROUTINE
*
001A02   91 01 F 14D                  TM    SIOSWS,X'01'             IS INTERVENTION REQ SWITCH ON
001A06   47 10 F 942                  BC    ALLON,INITOO             RESTART PROGRAM IF ON
001A0A   D2 00 F 810 F 130            MVC   RWSTA(1),CSWSAV&4        SAVE STATUS FROM READ BUFFER WRITE
001A10   D2 00 F 811 F 1F7            MVC   RWSNS(1),SENSE           SAVE SENSE DATA AFTER RD BUFF WRITE
001A16   96 02 F 14D                  OI    SIOSWS,X'02'             SET SIO SWITCH FOR READER
001A1A   45 AO F A6E                  BAL   GRA,DGCKRD               GO DO DIAG CK READ FOR RD BUFF WRITE
001A1E   D2 00 F 812 F 804            MVC   RWCKRD(1),CKRDAR         SAVE CK RD DATA AFTER RD BUFF WRITE
*****************************************************************************
*                  READ READER DATA IS COLLECTED HERE
*
001A24   41 00 F D70           DATA50 LA    GRO,RRDCCW               LOAD ADDR OF READ BUFF READ CCW
001A28   50 00 F 048                  ST    GRO,CAW                  SET CCW ADDR IN CAW
001A2C   92 02 F 14D                  MVI   SIOSWS,X'02'             RESET SIO SWITCHES -USE READER-
001A30   48 CO F 0E2                  LH    GRC,UN1ADR               LOAD READER ADDR IN REG 12
001A34   45 BO F 2E8                  BAL   GRB,SIO                  GO TO START I/O ROUTINE
*
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM —ROUTINE OVERLAY 02—

```
001A38   91 01 F 14D          TM    SIOSWS,X'01'        IS INTERVENTION REQ SWITCH ON
001A3C   47 10 F 942          BC    ALLON,INITOO        RESTART PROGRAM IF ON
001A40   D2 00 F 814 F 130    MVC   RRSTA(1),CSWSAV&4   SAVE STATUS FROM READ BUFFER READ
001A46   D2 00 F 815 F 1F7    MVC   RRSNS(1),SENSE      SAVE SENSE DATA AFTER READ BUFF READ
001A4C   45 A0 F A6E          BAL   GRA,DGCKRD          GO DO DIAG CK READ TO READER
001A50   D2 00 F 816 F 804    MVC   RRCKRD(1),CKRDAR    SAVE CK RD DATA AFTER READ BUFF READ
         *
001A56   D2 13 9 000 F 805    DATA60 MVC  0(20,GR9),DATAWK   RESTORE DATA FROM WORK AREA TO GROUP
001A5C   41 99 0 014          LA    GR9,20(GR9,0)       UPDATE REG 9 BY 20
001A60   41 00 F 931          LA    GR0,DATAEX&20       SET GR0 TO MAX COUNT
001A64   15 90                CLR   GR9,GR0             ALL DATA ACCUMULATED
001A66   47 60 F 97A          BC    NEQUAL,DATA10       GO GET NEXT DATA GROUP
001A6A   47 F0 F ACA          BC    ALWAYS,ALZA00       GO TO CONTROL PROGRAM
         *
         *
         *                          ROUTINE TO DO DIAG CK READ
         *
001A6E   41 00 F D78          DGCKRD LA   GR0,CRDCCW    LOAD ADDR OF DIAG CK RD CCW
001A72   50 00 F 048          ST    GR0,CAW             STORE ADDR OF CCW IN CAW
001A76   48 C0 F 0E6          LH    GRC,UN2ADR          SET PUNCH I/O ADDR IN GR 12
001A7A   91 02 F 14D          TM    SIOSWS,X'02'        IS READER CK RD WANTED
001A7E   47 80 F A86          BC    ALLOFF,*&8          BRANCH IF NOT READER
001A82   48 C0 F 0E2          LH    GRC,UN1ADR          SET UP ADDRESS OF READER
001A86   92 C0 F 804          MVI   CKRDAR,X'CO'        CLEAR DIAG CHECK READ AREA
001A8A   94 FD F 14D          NI    SIOSWS,X'FD'        RESET SIO SWITCHES EXCEPT READ-PUNCH
001A8E   45 B0 F 2E8          BAL   GRB,SIO             GO TO START I/O ROUTINE
         *
001A92   91 01 F 14D          TM    SIOSWS,X'01'        IS INTERV REQ SW ON
001A96   47 10 F 942          BC    ALLON,INITOO        RESTART PROG IF ON
001A9A   91 C0 F 804          TM    CKRDAR,X'CO'        WAS CHECK READ DATA TRANSFERRED
001A9E   47 10 F AAA          BC    ALLON,DGCK10        BR IF NOT OK
001AA2   47 F0 F AC8          BC    ALWAYS,RETNCR       BR IF OK
001AA6   47 80 F AC8          BC    ALLOFF,RETNCR       BRANCH IF OK
001AAA   D2 02 F 212 F 231    DGCK10 MVC  MESS1&16(3),UAPU   SET PUNCH ADDRESS IN MESSAGE
001AB0   91 02 F 14D          TM    SIOSWS,X'02'        IS READER BEING USED
001AB4   47 80 F ABE          BC    ALLOFF,*&10         BRANCH IF NOT READER
001AB8   D2 02 F 212 F 22D    MVC   MESS1&16(3),UARD    SET READER ADDRESS IN MESSAGE
001ABE   0A D0                SVC   X'D0'               PRINT DIAG CR RD MESSAGE
001AC0   40                   DC    X'40'               ,, ERROR MESSAGE
001AC1   2A                   DC    X'2A'               ,, 42 CHARACTERS
001AC2   F202                 DC    AL2(MESS1-BASE&REG) ,, ADDRESS OF MESSAGE
001AC4   47 F0 F 97A          BC    ALWAYS,DATA10       GO RESTART DATA GROUP
001AC8   07 FA                RETNCR BCR  ALWAYS,GRA    RETURN TO OTHER ROUTINE
         *
         **************************************************************
         *                     ANALYZE ROUTINE                        *
         **************************************************************
         *            ANALYZE FOR BAR, RAR, OR PAR ERRORS             *
         **************************************************************
001ACA   41 10 F 819          ALZA00 LA   GR1,DATA12    LOAD GR 1 WITH ADDR OF TABLE START
001ACE   41 20 F 91D          LA    GR2,DATAEX          LOAD GR 2 WITH ADDR OF TABLE END
001AD2   D2 13 F 805 1 000    ALZA10 MVC  DATAWK(20),0(GR1)  LOAD DATA IN WORK AREA
001AD8   91 01 F 809          TM    PWCKRD,X'01'        BR IF GOT WR PCH BUF ADDR CK
001ADC   47 10 F B06          BC    ALLON,ALZA20        ,,
001AE0   91 01 F 80D          TM    PRCKRD,X'01'        BR IF GOT RD PCH BUF ADDR CK
001AE4   47 10 F B06          BC    ALLON,ALZA20        ,,
001AE8   91 01 F 812          TM    RWCKRD,X'01'        BR IF GOT WR RDR BUF ADDR CK
001AEC   47 10 F B06          BC    ALLON,ALZA20        ,,
001AF0   91 01 F 80D          TM    PRCKRD,X'01'        BR IF GOT RD RDR BUF ADDR CK
001AF4   47 10 F B06          BC    ALLON,ALZA20        ,,
001AF8   15 12                CLR   GR1,GR2             BR IF END OF TABLE
001AFA   47 80 F B14          BC    EQUAL,ALZB00        ,,
001AFE   5E 10 F D80          AL    GR1,ALZKA1          ADD 20 TO GR 1
001B02   47 F0 F AD2          BC    ALWAYS,ALZA10       CONTINUE THIS RTN WITH NEXT DATA GRP
001B06   0A D0                ALZA20 SVC  X'D0'         ERR 001 - BUFFER ADDRESSING PROB
001B08   44                   DC    X'44'               PRINT PROG. NO PRIOR TO MSG
001B09   07                   DC    X'07'               NO. OF CHAR IN OUTPUT MESSAGE
001B0A   FDA3                 DC    AL2(ERR001-BASE&REG) MESSAGE ADDRESS
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM —ROUTINE OVERLAY 02—

```
001B0C   92 83 F 79C          MVI   SCHNUM,X'83'        SET UP TO SEARCH FOR ROUTINE 03
001B10   47 F0 F CDE          BC    ALWAYS,LGOUTO       GO SEE IF WANT LOG OUT
         **************************************************************
         *       COME HERE IF NO BUFFER ADDRESSING ERRORS EXIST - CK PWCKRD DATA*
         **************************************************************
001B14   41 10 F 819          ALZB00 LA   GR1,DATA12    LOAD GR1 WITH ADDR OF TABLE START
001B18   41 20 F 91D          LA    GR2,DATAEX          LOAD GR2 WITH ADDR OF TABLE END
001B1C   D2 13 F 805 1 000    ALZB10 MVC  DATAWK(20),0(GR1)  LOAD DATA IN WORK AREA
001B22   91 02 F 809          TM    PWCKRD,X'02'        BR IF PUNCH XLATE ERROR
001B26   47 10 F BBA          BC    ALLON,ALZD00        ,,
         **************************************************************
         *       COME HERE IF GOT (NA. NX.) - CHECK PRCKRD HERE       *
         **************************************************************
001B2A   D5 00 F 805 F 80A    ALZC00 CLC  PCHWR(1),PCHRD  BR IF DATA READ FROM PCH BUF OK
001B30   47 80 F B7C          BC    EQUAL,ALZC40        ,,
001B34   91 02 F 80D          TM    PRCKRD,X'02'        BR IF DID NOT GET RD XLATE
001B38   47 80 F B60          BC    ALLOFF,ALZC20       ,,
001B3C   91 04 F 80D          TM    PRCKRD,X'04'        BR IF GOT PARITY
001B40   47 10 F B56          BC    ALLON,ALZC10        ,,
001B44   91 08 F 80C          TM    PRSNS,X'08'         BR IF GOT INVALID CARD CODE
001B48   47 10 F B56          BC    ALLON,ALZC10        ,,
001B4C   0A D0                SVC   X'D0'               ERR 005 - PROB AT CHAN REG DURING
001B4E   44                   DC    X'44'               RD XFER CYCLE - GOT (NA.NX.NP)(D.NA.
001B4F   07                   DC    X'07'               X) WITHOUT INVALID CARD CODE
001B50   FDBF                 DC    AL2(ERR005-BASE&REG)
001B52   47 F0 F CB6          BC    ALWAYS,ALZH11       SELECT READ XLATE FLT
001B56   0A D0                ALZC10 SVC  X'D0'         ERR 006 - PROB IN BUFF INHIBIT
001B58   44                   DC    X'44'               LINES AND/OR CTLS OR BUFFER
001B59   07                   DC    X'07'               SENSE AMPS - GOT (NA.NX.NP)(D.NA.X)
001B5A   FDC6                 DC    AL2(ERR006-BASE&REG)
001B5C   47 F0 F CDA          BC    ALWAYS,LGOUTA       GO SEE IF WANT LOG OUT
001B60   91 04 F 80D          ALZC20 TM   PRCKRD,X'04'  BR IF GOT PARITY
001B64   47 10 F B72          BC    ALLON,ALZC30        ,,
001B68   0A D0                SVC   X'D0'               ERR 007 - CHAN REG PROB - GOT
001B6A   44                   DC    X'44'               (NA.NX.NP)(D.NA.NX.NP)
001B6B   07                   DC    X'07'
001B6C   FDCD                 DC    AL2(ERR007-BASE&REG)
001B6E   47 F0 F CB6          BC    ALWAYS,ALZH11       SELECT READ XLATE FLT
001B72   0A D0                ALZC30 SVC  X'D0'         ERR 008 - PROB IN INHIBIT LINES AND/
001B74   44                   DC    X'44'               OR CTLS OR SENSE AMPS - BOT (NA.NX.
001B75   07                   DC    X'07'               NP)(D.NA.NX.P)
001B76   FDD4                 DC    AL2(ERR008-BASE&REG)
001B78   47 F0 F CDA          BC    ALWAYS,LGOUTA       GO SEE IF WANT LOG OUT
001B7C   91 02 F 80D          ALZC40 TM   PRCKRD,X'02'  BR IF GOT XLATE
001B80   47 10 F B9E          BC    ALLON,ALZC50        ,,
001B84   91 04 F 80D          TM    PRCKRD,X'04'        BR IF DID NOT GET PARITY
001B88   47 80 F C06          BC    ALLOFF,ALZE00       ,,
001B8C   91 04 F 809          TM    PWCKRD,X'04'        BR IF GOT PARITY ON PUNCH WRITE
001B90   47 10 F BB0          BC    ALLON,ALZC60        ,,
001B94   0A D0                SVC   X'D0'               ERR 009 - PROB IN PARITY INHIBIT
001B96   44                   DC    X'44'               LINE OR CTLS OR PARITY SENSE AMP OR
001B97   07                   DC    X'07'               HAVE INTERMITTENT PARITY - GOT
001B98   FDDB                 DC    AL2(ERR009-BASE&REG) (NA.NX.NP)(ND.NA.NX.P)
001B9A   47 F0 F CDA          BC    ALWAYS,LGOUTA       GO SEE IF WANT LOG OUT
001B9E   0A D0                ALZC50 SVC  X'D0'         ERR 010 - FALSE READ XLATE PROB IN
001BA0   44                   DC    X'44'               READ XLATE CHECK CKTS - GOT
001BA1   07                   DC    X'07'               (NA.NX.NP)(ND.NA.X)
001BA2   FDE2                 DC    AL2(ERR010-BASE&REG)
001BA4   47 F0 F CDA          BC    ALWAYS,LGOUTA       GO SEE IF WANT LOG OUT
001BA8   92 85 F 79C          ALZC51 MVI  SCHNUM,X'85'  SET UP TO SEARCH FOR PCH XLATE FLT
001BAC   47 F0 F CDE          BC    ALWAYS,LGOUTO       GO SEE IF WANT LOG OUT
001BB0   0A D0                ALZC60 SVC  X'D0'         ERR 026 - FALSE PARITY CHECK - GOT
001BB2   44                   DC    X'44'               (NA.NX.P)(ND.NA.NX.P)
001BB3   07                   DC    X'07'
001BB4   FE52                 DC    AL2(ERR026-BASE&REG)
001BB6   47 F0 F CDA          BC    ALWAYS,LGOUTA       GO SEE IF WANT LOG OUT
         **************************************************************
         *       COME HERE IF GOT (NA. X ) - CHECK PRCKRD HERE
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

```
                                 **************************************************************
001BBA  D5 00 F 805 F 80A ALZD00 CLC  PCHWR(1),PCHRD   BR IF DATA READ FROM PCH BUF OK
001BC0  47 80 F BEA         BC   EQUAL,ALZD10     ,,
001BC4  91 02 F 80D         TM   PRCKRD,X'02'     BR IF GOT XLATE
001BC8  47 10 F C2A         BC   ALLON,ALZF00     ,,
001BCC  D5 00 F 805 F 813   CLC  PCHWR(1),RDRD    SEE IF DATA READ FROM READ BUFF OK
001BD2  47 80 F BE0         BC   EQUAL,ALZD01     BRANCH IF YES
001BD6  0A D0               SVC  X'D0'            ERR 011 - DATA REG PROB - GOT
001BD8  44                  DC   X'44'            (NA.X.NP)(D.NA.NX)
001BD9  07                  DC   X'07'            ,,
001BDA  FDE9                DC   AL2(ERR011-BASE&REG)
001BDC  47 F0 F CB6         BC   ALWAYS,ALZH11    SELECT READ XLATE FLT
001BE0  0A D0        ALZD01 SVC  X'D0'            ERR 025 - PUNCH XLATE PROB
001BE2  44                  DC   X'44'            ,,
001BE3  07                  DC   X'07'            ,,
001BE4  FE4B                DC   AL2(ERR025-BASE&REG)
001BE6  47 F0 F BA8         BC   ALWAYS,ALZC51    SET UP SEARCH NO. FOR PCH XLATE FLT
001BEA  91 02 F 80D  ALZD10 TM   PRCKRD,X'02'     BR IF GOT XLATE
001BEE  47 10 F BFC         BC   ALLON,ALZD20     ,,
001BF2  0A D0               SVC  X'D0'            ERR 012 - GOT FALSE PCH XLATE - GOT
001BF4  44                  DC   X'44'            (NA.X.NP)(ND.NA.NX)
001BF5  07                  DC   X'07'            ,,
001BF6  FDF0                DC   AL2(ERR012-BASE&REG)
001BF8  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
001BFC  0A D0        ALZD20 SVC  X'D0'            ERR 013 - MULTIPLE ERRORS - APPEAR
001BFE  44                  DC   X'44'            TO HAVE FALSE PUNCH AND FALSE READ
001BFF  07                  DC   X'07'            XLATE - GOT (NA.X.NP)(ND.NA.NX)
001C00  FDF7                DC   AL2(ERR013-BASE&REG)
001C02  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
               *  COME HERE IF GOT (NA.NX.NP)(ND.NA.NX.NP) - CHECK RWCKRD HERE  *
001C06  91 02 F 812  ALZE00 TM   RWCKRD,X'02'     BR IF GOT XLATE
001C0A  47 10 F C20         BC   ALLON,ALZE10     ,,
001C0E  91 04 F 812         TM   RWCKRD,X'04'     BR IF DID NOT GET PARITY
001C12  47 80 F C4E         BC   ALLOFF,ALZG00    ,,
001C16  0A D0               SVC  X'D0'            ERR 014 - FALSE PARITY SHLD NOT
001C18  44                  DC   X'44'            CHECK PARITY DURING DIAG WRITE - GOT
001C19  07                  DC   X'07'            (NA.NX.NP)(ND.NA.NX.NP)(NA.NX.P)
001C1A  FDFE                DC   AL2(ERR014-BASE&REG)
001C1C  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
001C20  0A D0        ALZE10 SVC  X'D0'            ERR 015 - FALSE PUNCH XLATE CHECKS -
001C22  44                  DC   X'44'            SHLD NOT XLATE CHECK DURING COL BIN
001C23  07                  DC   X'07'            WRITE - GOT (NA.NX.NP)(ND.NA.NX.NP)
001C24  FE05                DC   AL2(ERR015-BASE&REG)  (NA.X)
001C26  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
               *  COME HERE IF GOT (NA.X.NP)(D.NA.X) - CHECK RWCKRD HERE  *
001C2A  91 02 F 812  ALZF00 TM   RWCKRD,X'02'     BR IF DID NOT GET XLATE
001C2E  47 80 F C3C         BC   ALLOFF,ALZF10    ,,
001C32  0A D0               SVC  X'D0'            ERR 016 - FALSE XLATE - SHLD NOT GET
001C34  44                  DC   X'44'            XLATE DURING DIAG (COL BIN) WRITE -
001C35  07                  DC   X'07'            GOT (NA.X.NP)(D.NA.X)(NA.X) - WE
001C36  FE0C                DC   AL2(ERR016-BASE&REG)  HAVE MULTIPLE ERRORS
001C38  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
001C3C  91 04 F 812  ALZF10 TM   RWCKRD,X'04'     BR IF DID NOT GET PARITY
001C40  47 80 F C94         BC   ALLOFF,ALZH00    ,,
001C44  0A D0               SVC  X'D0'            ERR 017 - GOT FALSE PARITY - SHLD
001C46  44                  DC   X'44'            NOT GET PARITY DURING BUFFER WRITE -
001C47  07                  DC   X'07'            GOT (NA.X.NP)(D.NA.X)(NA.NX.P)
001C48  FE13                DC   AL2(ERR017-BASE&REG)
001C4A  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
               *  COME HERE IF GOT (NA.NX.NP)(ND.NA.NX.NP)(NA.NX.NP) - CHECK  *
               *  RRCKRD HERE                                                 *
001C4E  D5 00 F 805 F 813 ALZG00 CLC PCHWR(1),RDRD  BR IF DATA READ FROM READ BUFF OK
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* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

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001C54  47 80 F C62         BC   EQUAL,ALZG10     ,,
001C58  0A D0               SVC  X'D0'            ERR 018 - READ BUFFER OR DIAG WRITE
001C5A  44                  DC   X'44'            RPOB - GOT (NA.NX.NP)(ND.NA.NX.NP)
001C5B  07                  DC   X'07'            (NA.NX.NP)(D.NA)
001C5C  FE1A                DC   AL2(ERR018-BASE&REG)
001C5E  47 F0 F CB6         BC   ALWAYS,ALZH11    SELECT READ XLATE FLT
001C62  91 02 F 816  ALZG10 TM   RRCKRD,X'02'     BR IF DID NOT GET XLATE
001C66  47 80 F C74         BC   ALLOFF,ALZG20    ,,
001C6A  0A D0               SVC  X'D0'            ERR 019 - READ XLATE CHECK FALSE AND
001C6C  44                  DC   X'44'            INTERMITTENT - GOT (NA.NX.NP)(ND.NA.
001C6D  07                  DC   X'07'            NX.NP)(NA.NX.NP)(ND.NA.X)
001C6E  FE21                DC   AL2(ERR019-BASE&REG)
001C70  47 F0 F BA8         BC   ALWAYS,ALZC51    SET UP SEARCH NO. FOR PCH XLATE FLT
001C74  91 04 F 816  ALZG20 TM   RRCKRD,X'04'     BR IF GOT PARITY
001C78  47 10 F C8A         BC   ALLON,ALZG30     ,,
001C7C  15 12               CLR  GR1,GR2          BR IF END
001C7E  47 80 F CDE         BC   EQUAL,LGOUT0     ,,
001C82  5E 10 F D80         AL   GR1,ALZKA1       GET NEXT GROUP OF DATA
001C86  47 F0 F B1C         BC   ALWAYS,ALZB10    ,,
001C8A  0A D0        ALZG30 SVC  X'D0'            ERR 020 - INTERMITTENT PARITY PROB -
001C8C  44                  DC   X'44'            GOT (NA.NX.NP)(ND.NA.NX.NP)(NA.NX.
001C8D  07                  DC   X'07'            NP)(ND.NA.NX.P)
001C8E  FE28                DC   AL2(ERR020-BASE&REG)
001C90  47 F0 F CDA  ALZG40 BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
               *  COME HERE IF GOT (NA.X.NP)(D.NA.X)(NA.NX.NP) - CHECK  *
               *  RRCKRD HERE                                           *
001C94  D5 00 F 805 F 813 ALZH00 CLC PCHWR(1),RDRD  BR IF DATA READ FROM READ BUFF OK
001C9A  47 80 F CBE         BC   EQUAL,ALZH20     ,,
001C9E  91 02 F 816         TM   RRCKRD,X'02'     BR IF GOT XLATE
001CA2  47 10 F C80         BC   ALLON,ALZH10     ,,
001CA6  0A D0               SVC  X'D0'            ERR 021 - MULTIPLE ERRORS - GOT
001CA8  44                  DC   X'44'            (NA.X.NP)(D.NA.X)(NA.NX.NP)(D.NA.NX
001CA9  07                  DC   X'07'
001CAA  FE2F                DC   AL2(ERR021-BASE&REG)
001CAC  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
001CB0  0A D0        ALZH10 SVC  X'D0'            ERR 022 - PROB IN DATA REG OR READ
001CB2  44                  DC   X'44'            XLATOR - GOT (NA.X.NP)(D.NA.X)
001CB3  07                  DC   X'07'            (NA.NX.NP)(D.NA.X)
001CB4  FE36                DC   AL2(ERR022-BASE&REG)
001CB6  92 84 F 79C  ALZH11 MVI  SCHNUM,X'84'     SET UP TO SELECT READ XLATE FLT
001CBA  47 F0 F CDE         BC   ALWAYS,LGOUT0    GO SEE IF WANT LOG OUT
001CBE  91 02 F 816  ALZH20 TM   RRCKRD,X'02'     BR IF GOT XLATE
001CC2  47 10 F CD0         BC   ALLON,ALZH30     ,,
001CC6  0A D0               SVC  X'D0'            ERR 023 - MULTIPLE ERRORS - GOT
001CC8  44                  DC   X'44'            ERR 023 - MULTIPLE ERRORS - GOT
001CC9  07                  DC   X'07'            NX)
001CCA  FE3D                DC   AL2(ERR023-BASE&REG)
001CCC  47 F0 F CDA         BC   ALWAYS,LGOUTA    GO SEE IF WANT LOG OUT
001CD0  0A D0        ALZH30 SVC  X'D0'            ERR 024 - PROBLEM IN PUNCH XLATOR
001CD2  44                  DC   X'44'            GOT (NA.X.NP)(D.NA.X)(NA.NX.NP)
001CD3  07                  DC   X'07'            (ND.NA.X)
001CD4  FE44                DC   AL2(ERR024-BASE&REG)
001CD6  47 F0 F BA8         BC   ALWAYS,ALZC51    SET UP SEARCH NO. FOR PCH XLATE FLT
               *           DATA ACCUMULATION TABLE IS LOGGED OUT HERE
001CDA  92 FF F 79C  LGOUTA MVI  SCHNUM,X'FF'     SET UP TO BYPASS ALL REMAINING OVLYS
001CDE  91 20 F 004  LGOUT0 TM   SNSW,X'20'       SEE IF SEC SS 02 IS 1 - LOGOUT WANTED
001CE2  47 10 F CEA         BC   ALLON,LGOUT      BR IF YES
001CE6  47 F0 F D40         BC   ALWAYS,LGOUTX
001CEA  41 10 F 805  LGOUT  LA   GR1,DATAWK       LOAD GR 1 WITH ADDR OF LOG OUT
001CEE  D2 13 F 805 1 000 LGOUT1 MVC DATAWK(20),0(GR1)  SET UP DATA FOR PRINTOUT
001CF4  0A DD               SVC  X'DD'            CONVERT TO PRINT FORM
001CF6  0012                DC   AL2(18)          18 HEX BYTES
001CF8  0805                DC   AL2(DATAWK-SECST) HEX DATA ADDRESS
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM —ROUTINE OVERLAY 02—

```
001CFA  07E0                        DC    AL2(ALZVO1&16-SECST)   PRINT ADDRESS
001CFC  41 60 F 7EB          LA    GR6,ALZVO1&27          SET CK ADDR FOR RD/WR DATA
001D00  41 00 F 802          LA    GR0,ALZVO1&50          SET UP MAX PACKED ADDR
001D04  41 30 F 7E0          LA    GR3,ALZVO1&16          INIT INDEX 3 - USED TO ADDR PACKED
001D08  41 40 F 7D0          LA    GR4,ALZVO1             INIT INDEX 4 - USED TO ADDR UNPACK
001D0C  D2 01 4 000 3 000  LGOUT2 MVC   0(2,GR4),0(GR3)        MOVE CHARACTERS
001D12  41 33 0 002          LA    GR3,2(GR3,0)           UPDATE PACK INDEX BY 2
001D16  15 46                CLR   GR4,GR6                ARE WE AT 1ST RD/WR CHAR
001D18  47 60 F D24          BC    NEQUAL,LGOUT3          BRANCH IF NO
001D1C  41 44 0 002          LA    GR4,2(GR4,0)           UPDATE UNPACK ADDR INDEX BY 2
001D20  47 F0 F D0C          BC    ALWAYS,LGOUT2          GO MOVE NEXT CHAR
001D24  92 40 4 002  LGOUT3 MVI   2(GR4),X'40'           MOVE BLANK
001D28  41 44 0 003          LA    GR4,3(GR4,0)           UPDATE UNPACK ADDR INDEX BY 3
001D2C  15 30                CLR   GR3,GR0                WERE ALL POSITIONS MOVED
001D2E  47 60 F D0C          BC    NEQUAL,LGOUT2          GO MOVE NEXT CHAR IF NOT
001D32  0A D0                SVC   X'D0'                  LOG OUT TABLE
001D34  80                   DC    X'80'
001D35  34                   DC    X'34'
001D36  F7D0                 DC    AL2(ALZVO1-BASE&REG)
001D38  15 12                CLR   GR1,GR2                BR IF NOT END
001D3A  47 60 F D50          BC    NEQUAL,LGOUT4          ,,
001D3E  0A DA                SVC   X'DA'                  SET SENSE SWS AS DESIRED, THEN INTERRUPT
001D40  91 40 F 004  LGOUTX TM    SNSW,X'40'             SEE IF SEC SS 01 IS 1 - USE SCOPE RTN
001D44  47 80 F D4C          BC    ALLOFF,LGOUTY          BR IF NO
001D48  45 80 F 63E          BAL   GR8,SCPR00             BR TO SCOPE ROUTINE
001D4C  47 F0 F 6EC  LGOUTY BC    ALWAYS,EXIT            ROUTINE EXIT
001D50  5E 10 F D80  LGOUT4 AL    GR1,ALZKA1             ADD 20 TO GR1
001D54  47 F0 F CEE          BC    ALWAYS,LGOUT1
        *
        *                          CONSTANTS
        *
        *
        *                          CCW TABLE
        *
001D58                       CNOP  0,8                    DOUBLE WORD ALIGNMENT
001D58  01 001805 2000 0001  PWRCCW CCW  X'01',PCHWR,X'20',1    DIAG WRITE TO PNCH BUFF, SLI ON
001D60  25 00180E 2000 0002  RWRCCW CCW  X'25',RDWR,X'20',2     DIAG WRITE TO RD BUFF -SLI ON
001D68  C2 00180A 2000 0001  PRDCCW CCW  X'C2',PCHRD,X'20',1    DATA READ FOR PUNCH BUFF, SLI ON
001D70  C2 001813 2000 0001  RRDCCW CCW  X'C2',RDRD,X'20',1     DATA READ FROM READ BUFF, SLI ON
001D78  C6 001804 2000 0001  CRDCCW CCW  X'C6',CKRDAR,X'20',1   DIAG CHECK READ CCW, SLI ON
        ************************************************************************
        *         CONSTANTS FOR ANALYZE ROUTINE - WORD BOUNDARY      *
        ************************************************************************
001D80  00000014     ALZKA1 DC    XL4'14'                CONSTANT FOR RTN A00
        ************************************************************************
001D84  F2F8F2F140E2C3C1D5  TITLE1 DC  C'2821 SCAN/2540, '
001D8D  61F2F5F4F06840
001D94  C3D6D5E3D9D6D340D7         DC    C'CONTROL PROGRAM'
001D9D  D9D6C7D9C1D4
        ************************************************************************
        *               DEFINITION OF ERROR MESSAGES
        ************************************************************************
001DA3  C5D9D940F0F0F1  ERR001 DC  C'ERR 001'             BUFFER ADDRESSING PROBLEM
001DAA  C5D9D940F0F0F2  ERR002 DC  C'ERR 002'             *** RESERVED ***
001DB1  C5D9D940F0F0F3  ERR003 DC  C'ERR 003'             *** RESERVED ***
001DB8  C5D9D940F0F0F4  ERR004 DC  C'ERR 004'             *** RESERVED ***
001DBF  C5D9D940F0F0F5  ERR005 DC  C'ERR 005'             READ XLATE TO CHAN REG PROBLRM
001DC6  C5D9D940F0F0F6  ERR006 DC  C'ERR 006'             BUFFER INHIBIT LINES AND/OR CONTROLS
        *                                                 ,, OR SENSE AMPS
001DCD  C5D9D940F0F0F7  ERR007 DC  C'ERR 007'             READ XLATE TO CHAN REG PROBLRM
001DD4  C5D9D940F0F0F8  ERR008 DC  C'ERR 008'             BUFFER INHIBIT LINES AND/OR CONTROLS
        *                                                 ,, OR SENSE AMP
001DDB  C5D9D940F0F0F9  ERR009 DC  C'ERR 009'             PROB IN PARITY INHIBIT LINES OR
        *                                                 ,, HAVE INTERMITTANT PARITY
001DE2  C5D9D940F0F1F0  ERR010 DC  C'ERR 010'             FALSE READ XLATE PROB IN READ XLATE
        *                                                 ,, CHECK CIRCUITS
001DE9  C5D9D940F0F1F1  ERR011 DC  C'ERR 011'             DATA REGISTER PROBLEM
001DF0  C5D9D940F0F1F2  ERR012 DC  C'ERR 012'             FALSE PUNCH TRANSLATE CHECK
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM —ROUTINE OVERLAY 02—

```
001DF7  C5D9D940F0F1F3  ERR013 DC  C'ERR 013'             MULTIPLE ERRORS -APPEAR TO HAVE
001DFE  ?                       *                         ,, FALSE PUNCH & READ TRANSLATE CK
001E05  C5D9D940F0F1F4  ERR014 DC  C'ERR 014'             FALSE PARITY CHECK
001E0C  C5D9D940F0F1F5  ERR015 DC  C'ERR 015'             FALSE PUNCH TRANSLATE CHECK
001E13  C5D9D940F0F1F6  ERR016 DC  C'ERR 016'             MULTIPLE ERRORS - FALSE TRANSLATE CK
001E1A  C5D9D940F0F1F7  ERR017 DC  C'ERR 017'             FALSE PARITY CHECK
001E21  C5D9D940F0F1F8  ERR018 DC  C'ERR 018'             READ BUFFER OR DIAG WRITE PROBLEM
001E28  C5D9D940F0F1F9  ERR019 DC  C'ERR 019'             INTERMITTANT FALSE READ XLATE CHECK
001E2F  C5D9D940F0F2F0  ERR020 DC  C'ERR 020'             INTERMITTANT PARITY CIRCUIT PROBLEM
001E36  C5D9D940F0F2F1  ERR021 DC  C'ERR 021'             MULTIPLE ERRORS
001E3D  C5D9D940F0F2F2  ERR022 DC  C'ERR 022'             DATA REG OR READ XLATE PROBLEM
001E44  C5D9D940F0F2F3  ERR023 DC  C'ERR 023'             MULTIPLE ERRORS
001E4B  C5D9D940F0F2F4  ERR024 DC  C'ERR 024'             PUNCH TRANSLATOR PROBLEM
001E52  C5D9D940F0F2F5  ERR025 DC  C'ERR 025'             PUNCH TRANSLATOR PROBLEM
        C5D9D940F0F2F6  ERR026 DC  C'ERR 026'             FALSE PARITY CHECK
        ************************************************************************
        *                    EQUATES                                          *
        ************************************************************************
        *            GENERAL EQUATES                                          *
        ************************************************************************
001805       PCHWR  EQU   DATAWK
001806       PWSTA1 EQU   DATAWK&1
001807       PWSTA2 EQU   DATAWK&2
001808       PWSNS  EQU   DATAWK&3
001809       PWCKRD EQU   DATAWK&4
00180A       PCHRD  EQU   DATAWK&5
00180B       PRSTA  EQU   DATAWK&6
00180C       PRSNS  EQU   DATAWK&7
00180D       PRCKRD EQU   DATAWK&8
00180E       RDWR   EQU   DATAWK&9
001810       RWSTA  EQU   DATAWK&11
001811       RWSNS  EQU   DATAWK&12
001812       RWCKRD EQU   DATAWK&13
001813       RDRD   EQU   DATAWK&14
001814       RRSTA  EQU   DATAWK&15
001815       RRSNS  EQU   DATAWK&16
001816       RRCKRD EQU   DATAWK&17
        ************************************************************************
        *            GENERAL REGISTER EQUATES                                 *
        ************************************************************************
000000       GR0    EQU   0
000001       GR1    EQU   1
000002       GR2    EQU   2
000003       GR3    EQU   3
000004       GR4    EQU   4
000005       GR5    EQU   5
000006       GR6    EQU   6
000007       GR7    EQU   7
000008       GR8    EQU   8
000009       GR9    EQU   9
00000A       GRA    EQU   10
00000B       GRB    EQU   11
00000C       GRC    EQU   12
00000D       GRD    EQU   13
00000E       GRE    EQU   14
00000F       GRF    EQU   15
        ************************************************************************
        *            CONDITION CODE EQUATES                                   *
        ************************************************************************
000078       HION   EQU   120       HARDWARE I/O NEW PSW LOCATION
000008       ALLOFF EQU   8         ALL OFF    0
000005       ANYON  EQU   5         ANY ON       1  3
000001       ALLON  EQU   1         ALL ON          3
000004       MIXED  EQU   4         MIXED        1
000009       NMIXED EQU   9         NOT MIXED  0    3
000008       EQUAL  EQU   8         EQUAL      0
000006       NEQUAL EQU   6         NOT EQUAL     1 2
000004       LOW    EQU   4         LOW          1
```

* F8041   2821 SCAN/2540 READER/PUNCH
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000002	HIGH	EQU	2	HIGH	2
000008	ZERO	EQU	8	ZERO	0 2
000002	GZERO	EQU	2	GREATER ZERO	2
000008	AVAIL	EQU	8	AVAILABLE	0
000004	CSWST	EQU	4	CSW STORED	1
000002	BUSY	EQU	2	BUSY	2
00000F	ALWAYS	EQU	15	UNCONDITIONL	0 1 2 3
00000D	NOTBSY	EQU	13	NOT BUSY	0 1 3
000007	NZERO	EQU	7	NOT CC 0	1 2 3
000004	NOTZRO	EQU	4	NOT ZERO —AND—	1
00000C	MIXNON	EQU	12	MIXED OR NONE	0 1
00F000	REG	EQU	X'F000'		
001000	BASE	EQU	SECST		
		END			

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* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM —ROUTINE OVERLAY 02—

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

1	1048	CAW	1990,	19C8,	19F6,	1A28,	1A72		
1	1040	CSW							
1	0	GR0	1980,	1990,	19C4,	19C8,	19F2,	19F6,	1A24
			1A28,	1A60,	1A64,	1A6E,	1A72,	1D00,	1D2C
1	1	GR1	1ACA,	1AD2,	1AF8,	1AFE,	1B14,	1B1C,	1C7C
			1C82,	1CEA,	1CEE,	1D38,	1D50		
1	2	GR2	1ACE,	1AF8,	1B18,	1C7C,	1D38		
1	3	GR3	1D04,	1D0C,	1D12,	1D12,	1D2C		
1	4	GR4	1D08,	1D0C,	1D16,	1D1C,	1D1C,	1D24,	1D28
			1D28						
1	5	GR5							
1	6	GR6	1CFC,	1D16					
1	7	GR7							
1	8	GR8	1970,	1D48					
1	9	GR9	1974,	197A,	1A56,	1A5C,	1A5C,	1A64	
1	A	GRA	19BA,	19E8,	1A1A,	1A4C,	1AC8		
1	B	GRB	199C,	19D0,	19FE,	1A34,	1A8E		
1	C	GRC	1978,	1978,	1998,	1A30,	1A76,	1A82	
1	D	GRD							
1	E	GRE							
1	F	GRF							
1	4	LOW							
1	F000	REG	1966,	1AC2,	1B0A,	1B50,	1B5A,	1B6C,	1B76
			1B98,	18A2,	1BB4,	1BDA,	1BE4,	1BF6,	1C00
			1C1A,	1C24,	1C36,	1C48,	1C5C,	1C6E,	1C8E
			1CAA,	1CB4,	1CCA,	1CD4,	1D36		
1	12E8	SIO	199C,	19D0,	19FE,	1A34,	1A8E		
1	1000	BASE	1966,	1AC2,	1B0A,	1B50,	1B5A,	1B6C,	1B76
			1B98,	18A2,	1BB4,	1BDA,	1BE4,	1BF6,	1C00
			1C1A,	1C24,	1C36,	1C48,	1C5C,	1C6E,	1C8E
			1CAA,	1CB4,	1CCA,	1CD4,	1D36		
1	2	BUSY							
1	16EC	EXIT	1952,	1D4C					
1	48	HCAW							
1	40	HCSW							
1	2	HIGH							
1	78	HION							
20	1813	RDRD	1BCC,	1C4E,	1C94,	1D70			
20	180E	RDWR	1D60						
1	1004	SNSW	195A,	1968,	1CDE,	1D40			
1	1231	UAPU	1AAA						
1	122D	UARD	1AB8						
1	8	ZERO							
1	1	ALLON	19A4,	19D8,	1A06,	1A3C,	1A96,	1A9E,	1ADC
			1AE4,	1AEC,	1AF4,	1B26,	1B40,	1B48,	1B64
			1B80,	1B90,	1BC8,	1BEE,	1C0A,	1C78,	1CA2
			1CC2,	1CE2					
1	5	ANYON							
1	8	AVAIL							
1	11FA	CSWAG							
1	4	CSWST							
9	1841	DATA0							
9	1855	DATA1							
9	1869	DATA2							
9	187D	DATA3							
9	1891	DATA4							
9	18A5	DATA5							
9	18B9	DATA6							
9	18CD	DATA7							
9	18E1	DATA8							
9	18F5	DATA9							

```
* F8041    2821 SCAN/2540 READER/PUNCH
  F8041    CONTROL PROGRAM -ROUTINE OVERLAY 02-

 9  1909  DATAB
 1     8  EQUAL   193C,  1AFA,  1B30,  1BC0,  1BD2,  1C54,  1C7E
                  1C9A
 1     2  GZERO
 4  1CEA  LGOUT   1CE2
 1  1202  MESS1   1AAA,  1AB8,  1AC2
 1     4  MIXED
 1     7  NZERO
20  180A  PCHRD   1B2A,  1BBA,  1D68
20  1805  PCHWR   1B2A,  1BBA,  1BCC,  1C4E,  1C94,  1D58
20  180C  PRSNS   19E2,  1B44
20  180B  PRSTA   19DC
20  1808  PWSNS   19B4
20  1815  RRSNS   1A46
20  1814  RRSTA   1A40
 1  1934  RTNO2   1015
20  1811  RWSNS   1A10
20  1810  RWSTA   1A0A
 1  1000  SECST   1000,  1000,  1000,  1000,  1000,  1000,  1000
                  1000,  1000,  1000,  1000,  1000,  1000,  1000
                  1000,  1000,  1000,  1000,  1018,  1CF8,  1CFA
                  1E59
 1  11F7  SENSE   19B4,  19E2,  1A10,  1A46
 1  10E0  UNIT1
 1  10E4  UNIT2
 1     8  ALLOFF  1946,  195E,  196C,  1A7E,  1AA6,  1AB4,  1B38
                  1B88,  1C12,  1C2E,  1C40,  1C66,  1D44
 1     F  ALWAYS  1A6A,  1AA2,  1AC4,  1AC8,  1B02,  1B10,  1B52
                  1B5C,  1B6E,  1B78,  1B9A,  1BA4,  1BAC,  1BB6
                  1BDC,  1BE6,  1BF8,  1C02,  1C1C,  1C26,  1C38
                  1C4A,  1C5E,  1C70,  1C86,  1C90,  1CAC,  1CBA
                  1CCC,  1CD6,  1CE6,  1D20,  1D4C,  1D54
 4  1ACA  ALZA00  1A6A
 6  1AD2  ALZA10  1B02
 2  1B06  ALZA20  1ADC,  1AE4,  1AEC,  1AF4
 4  1B14  ALZB00  1AFA
 6  1B1C  ALZB10  1C86
 6  1B2A  ALZC00
 2  1B56  ALZC10  1B40,  1B48
 4  1B60  ALZC20  1B38
 2  1B72  ALZC30  1B64
 4  1B7C  ALZC40  1B30
 2  1B9E  ALZC50  1B80
 4  1BA8  ALZC51  1BE6,  1C70,  1CD6
 2  1BB0  ALZC60  1B90
 6  1BBA  ALZD00  1B26
 2  1BE0  ALZD01  1BD2
 4  1BEA  ALZD10  1BC0
 2  1BFC  ALZD20  1BEE
 4  1C06  ALZE00  1B88
 2  1C20  ALZE10  1C0A
 4  1C2A  ALZF00  1BC8
 4  1C3C  ALZF10  1C2E
 6  1C4E  ALZG00  1C12
 4  1C62  ALZG10  1C54
 4  1C74  ALZG20  1C66
 2  1C8A  ALZG30  1C78
 4  1C90  ALZG40
 6  1C94  ALZH00  1C40
 2  1CB0  ALZH10  1CA2
 4  1CB6  ALZH11  1852,  186E,  1BDC,  1C5E
 4  1CBE  ALZH20  1C9A
 2  1CD0  ALZH30  1CC2
 4  1D80  ALZKA1  1AFE,  1C82,  1D50
52  17D0  ALZVO1  1CFA,  1CFC,  1D00,  1D04,  1D08,  1D36
 1  114C  CAWKEY
 1  1804  CKRDAR  19BE,  19EC,  1A1E,  1A50,  1A86,  1A9A,  1D78
```

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* F8041    2821 SCAN/2540 READER/PUNCH
  F8041    CONTROL PROGRAM -ROUTINE OVERLAY 02-

 8  1D78  CRDCCW  1A6E
 1  112C  CSWSAV  19A8,  19DC,  1A0A,  1A40
 4  1974  DATA00  196C
 6  197A  DATA10  1A66,  1AC4
 9  182D  DATA11
 9  1819  DATA12  1974,  1ACA,  1B14
 6  19B4  DATA20
 4  19C4  DATA30
 4  19F2  DATA40
 4  1A24  DATA50
 6  1A56  DATA60
 9  191D  DATAEX  1A60,  1ACE,  1B18
20  1805  DATAWK  197A,  1984,  1984,  198A,  198A,  1A56,  1AD2
                  1B1C,  1CEA,  1CEE,  1CF8,  1E59,  1E59,  1E59
                  1E59,  1E59,  1E59,  1E59,  1E59,  1E59,  1E59
                  1E59,  1E59,  1E59,  1E59,  1E59,  1E59,  1E59
 6  1AAA  DGCK10  1A9E
 4  1A6E  DGCKRD  198A,  19E8,  1A1A,  1A4C
 7  1DA3  ERR001  1B0A
 7  1DAA  ERR002
 7  1DB1  ERR003
 7  1DB8  ERR004
 7  1DBF  ERR005  1B50
 7  1DC6  ERR006  1B5A
 7  1DCD  ERR007  1B6C
 7  1DD4  ERR008  1B76
 7  1DDB  ERR009  1898
 7  1DE2  ERR010  1B42
 7  1DE9  ERR011  1BDA
 7  1DF0  ERR012  1BF6
 7  1DF7  ERR013  1C00
 7  1DFE  ERR014  1C1A
 7  1E05  ERR015  1C24
 7  1E0C  ERR016  1C36
 7  1E13  ERR017  1C48
 7  1E1A  ERR018  1C5C
 7  1E21  ERR019  1C6E
 7  1E28  ERR020  1C8E
 7  1E2F  ERR021  1CAA
 7  1E36  ERR022  1CB4
 7  1E3D  ERR023  1CCA
 7  1E44  ERR024  1CD4
 7  1E4B  ERR025  1BE4
 7  1E52  ERR026  1BB4
 1  16E6  EXITBY
 4  1942  INIT00  193C,  19A4,  19D8,  1A06,  1A3C,  1A96
 4  194E  INIT05  1946
 4  1968  INIT10  195E
 4  1CDE  LGOUT0  1B10,  1BAC,  1C7E,  1CBA
 6  1CEE  LGOUT1  1D54
 6  1D0C  LGOUT2  1D20,  1D2E
 4  1D24  LGOUT3  1D18
 4  1D50  LGOUT4  1D3A
 4  1CDA  LGOUTA  1B5C,  1B78,  1B9A,  1BA4,  1BB6,  1BF8,  1C02
                  1C1C,  1C26,  1C38,  1C4A,  1C90,  1CAC,  1CCC
 4  1D40  LGOUTX  1CE6
 4  1D4C  LGOUTY  1D44
 1     C  MIXNON
 1     6  NEQUAL  1952,  1A66,  1D18,  1D2E,  1D3A
 1     9  NMIXED
 1     D  NOTBSY
 1     4  NOTZRO
20  180D  PRCKRD  19EC,  1AE0,  1AF0,  1B34,  1B3C,  1B60,  1B7C
                  1B84,  1BC4,  1BEA,  1C9C
 8  1D68  PRDCCW  19C4
 1  1931  PROGSW  1942,  1956
20  1809  PWCKRD  19BE,  1AD8,  1B22,  1B8C
 8  1D58  PWRCCW  1980
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8041   CONTROL PROGRAM -ROUTINE OVERLAY 02-

```
20   1806  PWSTA1  19A8
20   1807  PWSTA2  19AE
2    1AC8  RETNCR  1AA2,  1AA6
20   1816  RRCKRD  1A50,  1C62,  1C74,  1C9E,  1CBE
8    1D70  RRDCCW  1A24
20   1812  RWCKRD  1A1E,  1AE8,  1C06,  1C0E,  1C2A,  1C3C
8    1D60  RWRCCW  19F2
1    179C  SCHNUM  1938,  194A,  194E,  1B0C,  1BA8,  1CB6,  1CDA
1    1234  SCPDAT
1    163E  SCPR00  1970,  1D48
1    114D  SIOSWS  1994,  19A0,  19CC,  19D4,  19FA,  1A02,  1A16
                   1A2C,  1A38,  1A7A,  1A8A,  1A92,  1AB0
1    112C  SIOVR3
1    1134  SIOVR4
1    11F8  STATSV  19AE
16   1D84  TITLE1  1966
1    10E2  UN1ADR  1A30,  1A82
1    10E6  UN2ADR  1998,  1A76
1    1000  XF8041
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

DATE   15JUL65   17MAR66
EC   124265   125643

F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

PERIODS CORRESPOND TO BLANK COLUMNS.

```
COLS.   1 THROUGH 20      COLS.  21 THROUGH 40      COLS.  41 THROUGH 60      COLS.  61 THROUGH 80

BESD......AA..AAXF80      41..OAAA.AEN........      .................840      259.125643..80410001
9         YQ  Y9                   YQY Y8
          99  9                    999 99

BTXT.AAA..A8..AA8DAA      AAAAAAAAAABAAADAAGAQU     AAAAAAAAAAAAAAAAAAAAA     AAAAAAAAAAAAAA80410002
9    YQY  Y9  Y9 9QY      YYYYYYYYYY9YY99YY8Y98     YYYYYYYYYYYYYYYYYYYYY     YYYYYYYYYYYYYY
     999  9   9  99       999999999  9  9999        99999999999999999999     999999999999

BTXT.AA8..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAADAA     GAPMAAAAAAAA80410003
9    YQ9  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYY99YY     8Y98YYYYYYYY
     99   9   9 9999      99999999999999999999      9999999999999999  99     99 999999999

BTXT.AAO..AA..AAAAAA      AAAAAADAAGANO........                               ...........80410004
9    YQ&  YQ  Y9YYYY      YYYY99YY8Y9&
     99-  99  9 9999      9999  9999 -

BTXT.AAS..A8..AAAAAA      BAAAAAK4AAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA     AAAAAAAAAAAA80410005
9    YQ8  Y9  Y90YYY      0YYYYY99YYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY     YYYYYYYYYYYY
     9    9   9  999       9 999  99999999999       99999999999999999999     999999999999

BTXT.AJQ..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA     AAAAAAAAAI/80410006
9    Y99  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY     YYYYYYYYYY
     9    9   9 9999      99999999999999999999      99999999999999999999     9999999999

BTXT.AJ&..A8..AAO.AD      DR.XXX.CAW.XXXXXXXX.       GOT.CCO.BUT.NO.INTER     RUPTAAAAI/O.80410007
9    Y9   Y9  Y9                                                             YYYY
     9    9   9                                                              9999

BTXT.AJH..A8..AAADDR      .XXX.CAW.XXXXXXXX.GO       T.CC1.CSW.STATUS.XXX     X.SNS.XX....80410008
9    Y90  Y9  Y9
     9    9   9

BTXT.AJO..A8..AA.I/O      .ADDR.XXX.CAW.XXXXXX       XX.GOT.CC1.CSW.XXXXX     XXXXXXXXXXXA80410009
9    Y9&  Y9  Y9                                                             Y
     9    9   9                                                              9

BTXT.AJ8..A8..AAAAAA      AAAAAAADIAG.CK.RD.UNI      T.OOO.NOT.OKT.WILL.T     RY.AGAINAAAA80410010
9    Y9   Y9  Y9YYYY      YYYYYY                     8                        YYYY
     9    9   9 9999      999999                                              9999

BTXT.AKA..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA     AAAAAAAAAAAA80410011
9    Y9Q  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY     YYYYYYYYYYYY
     9 Z  9   9 9999      99999999999999999999      99999999999999999999     999999999999

BTXT.AKQ..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA     AAAAAAAAAAAA80410012
9    Y9Z  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY     YYYYYYYYYYYY
     9    9   9 9999      99999999999999999999      99999999999999999999     999999999999

BTXT.AKJ..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA     AAAAAAAAAAAA80410013
9    Y9Y  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY     YYYYYYYYYYYY
     9    9   9 9999      99999999999999999999      99999999999999999999     999999999999

BTXT.AKQ..A8..AAAAAA      AAAAAAAAAAAAKB1A2VAB       1EGA2DKB1A21KB0578AJ     1DKC1YOHPG1U80410014
9    Y9   Y9  Y9YYYY      YYYYYYYYYYYY 9 Y 8-9       8ZQ Q 9 Y 9 9 8 9Q8      9 9 9 Z 9 8
     9    9   9 9999      999999999999    9          9 Z                       9

BTXT.ALA..A8..AA1UPA      1717DO7AKAOH1DKCOHOH       DAOAEA3A&A14AA1EGA5F     AA14G&3&BQAA80410015
9    Y9Q  Y9  Y9 8 Y        R&  Q  Y  Z 8 9-Z Z      QY&YZQ Q Q 9-Y 8ZQ Q    -Q 9Z  -8 -Y
     999  9   9 9 9                0 9                999 Z 9      99          Z     9

BTXT.ALH..A8..AAODGA      3FBEADAHAPKB1G1AB01W       BO.21FGO3FAA14G.3FAA     ODGA3DBEADAH80410016
9    Y9Z  Y9  Y9 9ZQ      Q8QY9YZ98 9 R Y- 8        8- 9 8Z  Q-Q 9Z  --Y     9ZQ 88QY9YZ
     9    9   9   9        0999 9                     9       0 Z               9 9999 9
```

DATE   15JUL65   17MAR66
EC   124265   125643

F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

BTXT.ALA..A8..AAAPKB   1G1AB31W8O./1FGO3DAA   14GA3OAAODGA3FBEADAH   APKB1G1AB21W80410017
9   Y9Y Y9 Y998 9   R Y- 88- 9 8Z 8-Q   9ZQ Y-Y 9ZQ Q8QY9YZ   98 9 R Y- 8
9   9   9   9   9 9   9 9   9 0999 9

BTXT.ALH..A8..AABO./   1FEAOAGA3DG&3FQUAB1E   GA3DH0OSGO3SHOOWEAOA   GO3SQBGO3DAA80410018
9   Y9O Y9 Y98- 9   8QY&YZY 8Z Q98-9 8   ZQ QZ& Z 8Z& QY&Y   Z& 89 Z 8-Y
9   9- 9 9 9   99 9   09   9 9   9 9   -   9

BTXT.ALO..A8..AAODGA   3FAA1CGA4KBA1CAGOEG&   4KAL0DG&4KAMODGA3DKB   1E1ABEADAHAE80410019
9   Y9   Y9 Y9 9ZQ   Q-Y OZY 8-Y 0-Q-ZZ   8-Y-ZZ 8-9-ZZQ 8 9   Y Y8QY9YZ9-
9   9   9   9   0   99 Z   9 9   99   9 9   999 9

BTXT.AMY..A8..AAKG1U   0.BEABAAAAB11MAB1AGA   4DB0..11DAG11G&3FGO3D   EA4DBEAAA7AB80410020
9   Y99 Y9 Y9 9 8   - 8QY99Q90- 0-9 QZQ   R8- 9 0-9 9Z QZ 8   ZQ -8QY99 9Q
9   9   9   999 Z -   Z 9   9   Z   0   9   Z 999 0

BTXT.AM-..A8..AAA.17   GA4BBO.81DG04HBA1CBO   -81DBOAT73H&JHOEF&4H   FA1EGO3DKB1B80410021
9   Y9   Y9 Y9-   ZQ R8- 9 OZ Z-Y O8-   9 O8-Y9 8R Z-8RZ 0   -9 8Z   8 9 Y
9   9   9   9 09   9   9   9   9

BTXT.AMH..A8..AA1AA.   7Y&.OHKAOH1DBEADAHAK   KCOHOHDAOAE.4FAAODGA   5M&.18801JAA80410022
9   Y9- Y9 Y9 YZ   9 Z Y Z 88QY9YZ9   9-Z ZQY&YZ Q-Y 9ZQ   Z 9- Z-Q
9   9   9   9   999 9   9 9   0   Z

BTXT.AMO..A8..AA18GA   50B31JGA5DB21JAJ18GA   5DB11JKF1X7OKG140.BE   ABA.AOBO.11A80410023
9   Y9- Y9 Y9 9ZY   9- ZZQ 8- Z-Y 9ZQ   8- Z 9 8 9-8Q   Y99 9Y8- 9
9   9   9   9   9   9   9 99   9 99

BTXT.ANH..A8..AAGO5M   BO./1AGO5MPG1414EAOA   G.5UGO5MGO520G140.AG   1AG&5BAD1.GO80410024
9   Y99 Y9 Y9Z Z   8- 9 Z Z 9 8 8QY&Y   Z 8Z& 8Z 9 98--Q   ZZ 8-8 Z&
9   9   9   9 9   9-9   9 9Z9   9

BTXT.AN-..A8..AA5BA3   1.GA5MBEAHA4AXBO.61A   GO5MKCOH1YG3EAOAGO5M   GO4AAAODGA3F80410025
9   Y9   Y9 Y9 8-   ZY 88QY9989 8- 9   Z Z 9 Z 99 QY&YZ& Z   Z Q-Y 9ZQ Q
9   9   9   99 -   99 -   0   90

BTXT.ANH..A8..AAKG1U   0.AJ1EGA5FPA1818EAOA   G.5DGO5DGO50OA180DGO   5DKG1B1UOA1F80410026
9   Y9R Y9 Y9 9 8   - -Y 8ZQ Q 9   QY&Y   Z QZ& YZ 0 9 -ZZ   Y 9 Q89 Q
9   9 09 9   9 9   -   Z 9   Z   9Z Z

BTXT.ANA..A8..AA18AB   1FGA5FEA4DAV17G&5UAG   1GG&5UAS1FG&5UAD1FGO   5UHJ1DGCKB1E80410027
9   Y9Q Y9 Y9 -9   QZY ZQ --   Z -Q   QZ   -8 QZ -8 QZ&   -8 99Q 9 Y
9   9 09 9   Z   Z   Z   Z   9Z 9   9 Z

BTXT.ANY..A8..AA1ABE   ADAHAEBEAHABAKBO1MAB   1FGA6DBO.61DKF1B7/BE   AAA7AGA.17GA80410028
9   Y9   Y9 Y9 Y8Q   Y9YZ9-8QY99Q9Y- 0-9   QZQ 88- 9 0 9 Q 88Q   Y99 9Q- ZQ
9   9   9   99 999 Z   Z 9 99   0 99   9 0   9

BTXT.AOJ..AM..AA6UBO   .51DGO3DBO-51DBOAT73   GO4B................ 80410029
9   Y9Y Y8 Y9 88-   8 OZ 88- 8 O8-Y9 8   Z O
9   9 99 9 99   9   9   9

BTXT.AO6..A8..AAADOO   BOAS7OHO7AEO7AGA6QA.   ODGA6DHDOOKCOH1YG8A.   ODGA6DGO6M&J80410030
9   Y98 Y9 Y9QQ   8-Y8 &R& QR& QZY Z-   9ZQ R-Q   9 Z 99 -   9ZQ 8Z 8 Y
9 9 9   9   9 9- Z Z   9 0   9

BTXT.AOF..A8..AA1AKA   OY1BBAOMMAOM1C&O1AKA   OO1ANA1A7BGO6KKAOO7B   &A1AKC241AKP80410031
9   Y9R Y9 Y9 Y Y   9-Q Y Y Y 9 & Y 9   Y Y Y 9Y QZ- O 9 Y Q   Q Y 99 Y Y
9 09 9   9 99   Z 999   9   999 9   9   09   9

BTXT.AOO..A8..AA2824   AAOY&AOHKAOH1DKCOHOH   DAOAEAOAGO6BAAODGA6O   A.ODGA6BGO6M80410032
9   Y9- Y9 Y9 9   ZQ Q Z Y 8 9-Z Z   QY&YQY&YZ& Y-Y 9ZQ &   - 9ZQ ZZ 8
9   9   9   9   9 9 9 9   9

BTXT.AOW..A8..AABOAA   7EA.ODGA68EA66AJJLGA   7MAA7J&AOHHOOSBB1EEA   2YBCB4GO7M8O80410033
9   Y9   Y9 Y98-YQ   Q- 9ZY ZY 8-YZOZQ   8ZY Y Y ZZ& -9 8ZQ   8Q99Z 98
9   9   9   9 9 9   9999   0   99   9

F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

BTXT.APO..A8..AAAAFA   K4JAACDAJ7AAAAGGGAA   AMANOMAKE.THIS.UNIT.   RDY.WITH.BLA80410034
9   Y98 Y9 Y9YY Y   99YYY99Y9 YYY9QQQQYY   Y9Y9&   Y9Y9&
9   9   9   9 9 9   999 9 999 ZZZZ99   9 9 -

BTXT.APF..A8..AANK.C   ARDSSTATUS.XXXX.SNS.   XXPRESS.CONSOLE.STOP   -F.ENTER.SCO80410035
9   Y9R Y9 Y9   9   8
9   9   9

BTXT.APF..AW..AAPE.L   OOP.DATAADAROUTINE.B   YPASSEDAGAAAGG...... 80410036
9   Y9Y Y9 Y9   YOY   Y9YYY9Q
9   9   9   9-9   9 999 Z

BTXT.APO..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AA.AAAAAAAAJAAAAAAA   AAAAAAAAAAAA80410037
9   Y9- Y9 Y9YYYY   YYYYYYYYYYYYYYYYYYYY   YY YYYYYYYYYYYYYYYY   YYQYYYYYYYYY
9   9   9 9999   999999999999 9999999   99 9999999999999999   99999999999

BTXT.AQH..A8..AAHAAA   AAAAAADAAAAAAAABAAA   AAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80410038
9   Y99 Y9 Y99YYY   YYYYY9YYYYYYYYY9YYY   YYYYYY9YYYYYYYYYYYY   YYYYYYYYYYYY
9   9   9 9 999   999999 9999999999 999   999999 9999999999999   999999999999

BTXT.AQ-..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAGFLEA.JFGA80410039
9   Y9   Y9 Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   9YQQ8Q- Z-ZY
9   9   9 9999   99999999999999999999   99999999999999999999   9ZZ99

BTXT.AQH..A8..AAB4QG   ABODGA8BBOAPEMLAAAJA   GA8BAGBA1DBEABASBUBE   ABAWBABA7DA.80410040
9   Y9R Y9 Y9 89Q   -9 9ZY Y8-Y8Q88Y-QZY   ZY Q88ZY 88QY9Y 988Q   Y9Y 9Q-Y Q-
9   909 9   9   9   9 9Z999 9   999 9999 999   99 9Z

BTXT.AQA..A8..AAODGA   8BEA66LDHOOWAAEA&AOH   BA1EEA2YEM13G-DBAAEA   &AOHHOOSBB1E80410041
9   Y9Q Y9 Y9 9ZY   QZY 88YZ& ZYQQ Y Z   -Y 8ZQ -9 9Z Q-ZYQQ   Y ZZ& -9 8
9   9 0 9   9   9Z9   9 0   Z 9Z9   9

BTXT.AQY..A8..AAEA2Y   EM13G-DBHOOWAA7SKA8D   AAAAD8PH8E8EKA8E8D&A   OHBA1EEA2YAA80410042
9   Y9   Y9 Y9ZQ   -9 9Z Q-Z& ZQ 8 8 Z   QYZYQ 9 Z Z Y Z Y   Z-Y 8ZQ -9
9   9   9   9 9 0   9 9Z   9 0

BTXT.AJJ..A8..AA1EGA   8OKA8E1AKA8F18KA8G17   EJ9HKA8H7OAAEA&AOHBA   1EEA2YAA1EGA80410043
9   Y8Y Y9 Y9 8ZQ   & Y ZQ Y Z   Y Z   ZY O Y Z -ZYQY Y Z-Y   8ZQ -9 8ZQ
9   999 9   9   -9 Z 9   9   9Z9 9 9   0   9

BTXT.AJH..A8..AABOKA   8B1AKA8C17EJ9HKA8D7O   KAAA8DAIABAA8DNAG-8D   GO9KAAEH&AOH80410044
9   Y8R Y9 Y9 & Y   8 Q Y 8 ZY O Y 8-   8QY ZZ-Y8ZY Z9QZ Q   Z YZYQ9 Y Z
9   99   9   9 -   99 9   9   9 9   999   9   9 9Z 9

BTXT.AJA..A8..AAAB1E   HOOWGA9JHOOSKB7OEDDE   1EEA2YAA1EGA8OAG7KGA   9BGO9YAG7JGA80410045
9   Y8Q Y9 Y9-9 8   Z& ZY YZ& 9 -QR-Q   8ZQ -9 8ZQ &-Q ZQ   Z -Q ZQ
9   99   9   9   Z Z   0   9- Z 9   9

BTXT.AJH..A8..AA9YKB   2K21AB1EGA9FKB2K2VBO   DT2BGO8DGBAA7SBA7GAA   81AA7ZBAAAAJ80410046
9   Y8   Y9 Y9 9   9 9-9 8ZY Q 9 9 88-   Z8 9Z Q9QZQ 8-Y QZY   8ZQ -YQYZ9
9   99   9   9   9   ZZ   9 9   99 999

BTXT.AKA..A8..AAABNA   G-9BBA8FKA8DAAGOB2AB   8HGABOAB8DGABOKA7F8D   MA7F8AGABBGO80410047
9   Y8Y Y9 Y9Y89Q   Z Q-Y 8 8 ZQYZ Q8-9   ZZQQY-9 8ZQQY Y Q Z   Y Q 8ZYQOZ
9   999 9   9 999   Z 9   9   9 Z9   9Z9   9Z9 9 9   99 Z-

BTXT.AK8..A8..AACFAG   8FGABOBG8FAAAAAOAAAA   8WAJ8WFAAADABFGABBDA   BKGABBDABOGA80410048
9   Y89 Y9 Y9Q8-Q   8ZQQ9-Q 8ZY9Z&YYZQ   9ZY 9-9Q8ZYQQZYQRZY   QYZYQRZYQYZQ
9   99   9   9 Z9 Z   9Z Z   9 -9 9   9   99 Z ZO   Z ZO Z 9

BTXT.AKO..A8..AABHDF   AANGGABOAHAALAEQGOBB   AO7SNBAOAAGABKLJEQGO   BFAAJEFA7GGO80410049
9   Y8& Y9 Y9Q0-Q   Q89OZYQ9ZOYY8QQ9Z QR   Z& 89RZ&YYZYQO8YQ9Z   QR-YY9-9 QZ
9   99- 9   9 Z   99   Z   9 9Z Z   -   0-9 Z 9Z   Z 99 9

BTXT.AKQ..A8..AABFAA   JDAAJHAOAHAA7VEAAAG-   BFAHABFOBBGOC&AD8HGA   CFAD8PGABWAD80410050
9   Y8O Y9 Y9QR-Y   Y9-YY9Z&Y9ZY -YYYZ   QYZOY8Z&QQZ Q -9 ZQ   Q8-9 ZQQ -9
9   99   9   Z9 99 -Z0 Z   9   Z9 99 -Z0 Z   9   Z9   9Z

F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

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BTXT.AKS..A8..AA8DGA     CFFB8EGOCBAB8DGABFAB    8AGACFAA8VGACFG0CBFA    7GKAAA8EAIAB80410051
9   Y88  Y9  Y9 ZZY      Q8-9 8Z Q8-9 ZZQQQ-9    8ZYQ8-9 9ZYQ8Z Q8-9    Q YQ8 8Z-Y8
    99   9   9                Z9    Z9    9ZZ        Z9    Z9  Z9        999  9    99

BTXT.ALQ..A8..AAAA8A     NAG-BDGOCWAA7GGAC2G0    DJAA81BG7DAA7ZABAAGA    CKAJABNAG-C680410052
9  .Y89  Y9  Y9ZY Q      9QZ Q8Z Q9-9 QZQQ9Z     QYZY 8-Q QZQ  -9QYZY    Q8Z9Y89QZ Q8
   99   9   9 9 Z             Z9 Z    9 9Z        Z 99Z  9    99         Z  99 9 Z9

BTXT.AL&..A8..AABODG     EGGODJAA7ZAAAAGACDAJ    ABNAG-COGOCDAG85GOCF    AA85GACFB0DG80410053
9   Y8   Y9  Y98-Z9      QRZ QYZQ  -9QYZYQRZ9     Y89QZ Q8Z Q0-Q 9Z&QY   -Q 8ZQQY8-Z9
    99   9   9           Z  Z 9    99 Z0          999 Z  Z   Z    Z      9 9 9Z 9

BTXT.ALH..A8..AAEOGO     DJAB7ZGACJBODGENGOCO    AA7ZGACOBODGEUAB73GA    COBODGECGOCF80410054
9   Y80  Y9  Y9Q8Z       QY-9 ZYQY8-Z9QZZ QY     -9  ZYQY8-Z9QY8-9 ZY    Q&8-Z9QRZ QY
    99   9   9 Z         Z      Z   9Z Z Z           Z 9Z  Z              Z 9  Z0  Z9

BTXT.ALO..A8..AAAA73     GACFBODGE2AB7EGACSB0    DGEAGOCOAA7EGACOBODG    EHAB8GGADAB080410055
9   Y8&  Y9  Y9-9        ZYQY8-Z9Q8-9 QZYQ88-    Z9QQZ QY-9 QZYQY8-Z9    Q0-9 9ZYQY8-
    99   9   9           Z99  Z   Z  Z 9          Z   Z9  Z Z99           Z     Z99

BTXT.AL8..A8..AADGEG     GODFAA8GGADFBODGEFAB    8JGADJBODGEEGODWAA8J    GADWBODGEMAB80410056
9   Y8   Y9  Y9Z9QY      Z Q8-9 9ZYQ88-Z9Q--9    9ZYQY8-Z9QQZ Q8-9 9    ZYQ88-Z9Q0-9
    99   9   9 Z         9Z   Z99  Z                Z99  Z  Z9            Z99  Z

BTXT.AMA..A8..AA8LGA     D.BODGELGODFAA8LGADF    BODGEBAB8VGAD-BODGEI    GODWAA8VGADW80410057
9  .Y8Q  Y9  Y9 8ZY      Q 8-Z9QYZ Q8-9 8ZYQ8    8-Z9Q0-9 9ZYQ 8-Z9Q0   Z Q8-9 9ZYQ8
   99Z   9   9           Z9-   Z9   Z             9  Z-    Z9 Z-          Z    Z

BTXT.AMQ..A8..AABODG     EOAB8XGADABODGEGGODF    AA8XGADFBODGEFGODJBO    DJE3BC7DGO6M80410058
9   Y8Z  Y9  Y98-Z9      Q&-9 8ZYQY8-Z9Q Z QY    -9 8ZYQY8-Z9QYZ QY8-    Z8Q8-Q QZ  Y
    99   9   9           Z    9Z   Z  Z              9 Z9  Z  Z           9Z9    9

BTXT.AMJ..A8..AAAJOD     GA6MAA8DAA7SKA8DAABE    ABHDHHAJ8&AA8HA.8GKA    -.AAAB..BADAC80410059
9   Y8Y  Y9  Y9-Y 9      ZY YZY ZZQ 8 8 ZQY8Q    Y89Z9RZY -ZQ RZ  8 9    YQY-  9ZZY9
    99   9   9           99   9  Z Z              99  9  Z    9          9Z9    9

BTXT.AMQ..A8..AAA3AB     N2G-DBBOAN8GAJABNAG-    DABBG06MAAQDJAABBAQA    JAAAFAPOJAAC80410060
9   Y8   Y9  Y9Z9Y9      99Z QY8-Y8 8Z9Y89QZ     QQ8QZ  Y9Y9ZYYY9 Y98    YYY9 Y9-YYY9
    99   9   9               Z99  9    99 9       Z099   9 9 999  9        999  9   999

BTXT.ANA..A8..AAFAK4     JAAMAAAB2821.SCAN/25    40T.CHANNEL.REG.FLTB    UFFER.ADDRES80410061
9   Y8Q  Y9  Y9 Y99      YYYYZYYY8                8
    999  9   9           999 9999

BTXT.ANH..A8..AASING     .PROBLEMAAGERR.030ER    R.031ERR.032ERR.033E    RR.034ERR.0380410062
9   Y8Z  Y9  Y9               YYQ
    99   9   9                 99Z

BTXT.ANA..A8..AA5ERR     .036ERR.037ERR.038ER    R.039ERR.040ERR.041E    RR.042ERR.0480410063
9   Y8Y  Y9  Y9
    99   9   9

BTXT.ANH..AN..AA3ERR     .044ERR.045ERR.046ER    R.047.............    .............80410064
9   Y8Q  Y8  Y9
    99-  99  9

BRLD......AA....AAAA     AAANAAANAAA5AAAZAAP/    AAP/AAP8AAM9AANAAANA    HANJ........80410065
9       YQ   Y9Y9       8YQ98YQZ8YQ88YQ 8Y99     8Y988Y998Y8 8Y898Y88    9Y89
        9Z   9 9        999 999 999 999 99       99 999  999 999 9999    99

BEND.............     .................    .................    .............80410066
9

BDAT.............     .................    .................    .............80410067
9

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F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

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BDAT.............    .................    .................    .............80410069
9

BESD......AA..AAXF80     41.0AAA.AFJ........    .................    .............80410070
9       YQ  Y9           YQY Y88
        99              999 99

BTXT.AAN..AC..AAAJ4.    .................    .................    .............80410071
9   YQ9  Y9  Y9Y89
    99   9   9

BTXT.APO..A8..AAAAAA     AAAAAAAAAAAAAAAAAAAA    AAAAAAAAAAAAAAAAAAAA    AAAAAAAAAAAA80410072
9   Y9-  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY    YYYYYYYYYYYYYYYYYYYY    YYYYYYYYYYYY
    9    9   9999        9999999999999999999    9999999999999999999    999999999999

BTXT.AQH..A8..AAAAAA     AAAAAAAAAAAA&AAAAAAA    AAJAAAAAAAA-AAAAAA    AAAAAAAAAAAA80410073
9   Y99  Y9  Y9YYYY      YYYYYYYYYYYYYY YYYYYY    YYYYYYYYYYYY YYYYYY    YYQYYYYYYYYY
    9    9   9999        9999999999 999999       9999999999 999999       999999999

BTXT.AQ...A8..AAAOAA     AAAAAHAAAAAAAAA1AA    AAAAAADAAAAAAAAA2AA    AAAAAABAAAAA80410074
9   Y9   Y9  Y9Y YY      YYYYYY9YYYYYYYYYY YY    YYYYYY9YYYYYYYYYY YY    YYYYYY9YYYYY
    99   9   9           999999 9999999999 99    999999 9999999999 99    999999 99999

BTXT.AQH..A8..AAAAAA     A3AAAAAAAAAAAAAAAAA    A4AAAAAAAAJAAAAAAAA    A5AAAAAAAAAA80410075
9   Y9R  Y9  Y9YYYY      Y YYYYYYYY9YYYYYYYY     Y YYYYYYYYYYYYYYYYY     Y YYYYYYYYYQ
    9 0  9   9999        9 99999999 999999999    9 9999999999999999      9 9999999999

BTXT.AQA..A8..AAAAAA     AAAAA6AAAAAAAAAHAAA    AAAAA7AAAAAAAAADAAA    AAAAA8AAAAAA80410076
9   Y9Q  Y9  Y9YYYY      YYYYY YYYYYYYYY9YYY    YYYYY YYYYYYYYY9YYY    YYYYY YYYYYY
    9 0  9   9999        99999 999999999 9999    99999 999999999 9999    99999 999999

BTXT.AQY..A8..AAAAAB     AAAAAAA9AAAAAAAAAA    AAAAAAAA-AAAAAAAAA    AAAAAAAA1AA80410077
9   Y9   Y9  Y9YYYY9      YYYYYYYYY YYYYYYYYY9    YYYYYYYYY YYYYYYYYY    YYYYYYYYY9YY
    9    9   9 999        999999999 999999999    999999999 9999999999    999999999 99

BTXT.AJJ..A8..AAAAAA     AADAAAAAAAAAAGABAGF    EA7DGA9BBOA.91GA9FBA    7DEA7DG-6MF.80410078
9   Y8Y  Y9  Y9YYYY      YY99YYYYYYYYY9Y9YQQ     -Y QZY Z8 - 9ZY 8-Y    Q-Y QZ  Y-
    999  9   9999        99  9999999999 9 9ZZ    9      9       9       9      9

BTXT.AJH..A8..AA91AB     ODGA9QBOAPEDA.ODGA9D    EA66AA8JLDKL8EAAAAEH    PG8F8FPF8A8A80410079
9   Y8R  Y9  Y9 9-9      9ZY Z8-Y8Q0-  9ZY R     ZY 8ZQ 88Y 9 9QYZYQR    9 9 9 9 Q Q
    99   9   9                 9 9Z       0           9  999    9 9Z        9 9

BTXT.AJA..A8..AA&AOH     BA1EHOOWEA2YAA1EGA9B    KA8F1AKA8G18KA8H17EJ    BWKA8A8DAAEQ80410080
9   Y8Q  Y9  Y9 Y Z      -Y 8Z&  ZQ -9 8ZQ Z     Y9Q Y9   Y 9 ZY         Q8 Y 8 9ZYQZ
    99   9   9           9      0       9         9 Z9     9             Z 99   9Z

BTXT.AJH..A8..AA&AOH     BA1EEA2YAA1EGA9BKA8C    1AKA8D17EJBWKA8E8DAA    E-&AOHBA1EEA80410081
9   Y8   Y9  Y9 Y Z      -Y 8ZQ  -9 8ZQ Z Y 8    Q Y 8  ZYQ8 Y 8 9ZY     Q Y Z-Y 8ZQ
    99   9   9           9      0         9  9    Z99    Z99   9           Z 9  0

BTXT.AKA..A8..AA2YAA     1EGA9BKA8A1AKA8J17FB    1EEJBWKA8K8DAAEO&AOH    BB1EHOOSEA2Y80410082
9   Y8Y  Y9  Y9 -9       8ZQ Z Y Q Q Y 9 -9 .    8ZYQ Y 9 9ZYQ& Y Z     -9 8Z& ZQ
    999  9   9           9   9 9Z 9                 Z 9     9Z-9          0

BTXT.AK8..A8..AAAA1E     GA9BKA8M1AKA8N17EJBW    KA808DKLAA8EAIAMAA91    NAG-92G0BBAA80410083
9   Y89  Y9  Y9-9 8      ZQ Z Y 9QY Y Y ZYQ8     Y 9 9QY 9Z-Y9ZY 9      9QZ 8Z QYZY
    99   9   9           9   9   Z9   Z           9    9  Z              Z9 9

BTXT.AKO..A8..AAEH&A     OHHOOWAB1EGABFHOOSBO    8DDE1EEA2YAA1EGA9BA0    8DGABKG0BHGA80410084
9   Y8&  Y9  Y9QR Y      ZZ&  -9 8ZYQOZ& -&      9-Q 8ZQ  -9 8ZQ Z-&    9ZQQYZ Q ZY
    99-  9   9                   Z                          Z           9Z  Z

BTXT.AKQ..A8..AABHKB     2K21AB1EGABFKB2K2VBO    .S2BG092GBAA8JAJ9NKL    8EAAAA8AGACF80410085
9   Y80  Y9  Y9Q 9       9 9-9 8ZYQQ 9 9 88-     8 9Z 89QZQ 8ZY 8 9     9QY-9 8ZQQ9
    99   9   9 Z                  Z0   99         9     Z 9 9 9 9         99   9 9Z
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F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

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BTXT.AKS..A8..AAAA8E     GACFAA8KGACFAA8EGACF     NKGACMOAEAGO8KBODGEL     BC7DGODFAA8J80410086
9    Y88  Y9  Y9-9 8     ZQQ9-9 9ZQQ9-9 8ZQQ9    99ZYQ98QQYZ Q 8-Z9QO    -0 QZ QQZQ 8
     99   9   9     9          9Z      9Z   9 9Z      Z  9Z  Z9  Z           Z 999

BTXT.ALQ..A8..AAAJ9N     KL8EAAAB8AGACBNA8E8B     GAC4AB8EGAC-AD8EGACF     AH8DGACFBODG80410087
9    Y89  Y9  Y9ZY 8     9 9QY-9 8ZQQQ Y 9 8      ZYQ8-9 8ZYQ -9 8ZQQR    -9 8ZQQR8-Z9
     99   9   9 9 9            99   9 9ZO9 9  9        9  9Z  9 9Z              9 9Z 9

BTXT.AL&..A8..AAEGGO     DFBODGEFGODBAD8EGACB     BODGEEGODFBODGEMGODB     A88EGACFAD8E80410088
9    Y8   Y9  Y9QQZ      QO8-Z9Q Z QQ-9 8EGACB    8-Z9QYZ QO8-Z9Q Z QQ    -9 8ZQQQ-9 8
     99   9   9 ZO       Z-9  Z  Z9 -9  9 9ZO      9  Z9  Z-9  Z   Z9          9

BTXT.ALH..A8..AAGADF     AD8AGACABODGECGODBBO     DGESGODBBE7DGODFBODG     FBGODBNA8E8B80410089
9    Y8O  Y9  Y9ZYQ9     -9 8ZQQQ8-Z9QQZ QQ8-     Z9Q Z QQ-O QZ QQ8-Z9    QRZ QQ Y 9 8
     99   9   9  Z            9 9ZO9  Z9 Z99         Z   Z9      Z99        Z  Z99 9

BTXT.ALO..A8..AAGACK     AB8EGADSNA8E8LGACSBO     DGEZGODFBODGFCGOCQAB     8EGACDBODGE80410090
9    Y8&  Y9  Y9ZYQY     -9 8ZQQ8 Y 9 9ZYQ88-     Z9Q Z QO8-Z9Q8Z QO-9    8ZQQQ8-Z9Q
     99   9   9  Z9           9 9Z99   Z  9          Z  Z-9  Z  Z              9 9ZZ9. Z

BTXT.AL8..A8..AAGODB     BODGE7GODBAB8KGADJAD     8KGADFBODGEFGODBBODG     FEGODBAB8KGA80410091
9    Y8   Y9  Y9Z QQ     8-Z9Q Z QQ-9 9ZQQY-9     9ZYQ88-Z9QQZ QQ8-Z9     Q9Z QQ-9 9ZY
     99   9   9  Z9           9  Z   Z9   9ZZ        Z 9  ZZ  Z99             Z  Z9

BTXT.AMA..A8..AAD4BO     DGFDGODBAD8KGADDBODG     FLGODBNA8E8LGADKBODG     FKGODFAB8DGA80410092
9    Y8Q  Y9  Y9Q88-     Z9Q8Z QQ-9 9ZYQ-8-Z9     Q9Z QQ Y 9 9ZYQZ8-Z9    Q8Z QO-9 9ZY
     99Z  9   9 Z99           Z9  Z9      Z 9        Z  Z99  Z   Z9          Z9 Z-

BTXT.AMQ..A8..AADDBO     DGF/GOCQAD8DGADBNKGA     DFOAEAGOCMBODGFYGODB     NA8E8LGADFAB80410093
9    Y8Z  Y9  Y9QR8-     Z9Q9Z QO-9 9ZQQY99ZY     QQ8QQYZ Q88-Z9Q9Z QQ    Y 9 9ZYQQ-9
     99   9   9 Z09           Z   Z     9Z          Z9 9Z   Z99   Z  Z9      9     Z0

BTXT.AMJ..A8..AA8OGA     DABODGFXGODBBODGF6BD     7DGODFAB8DGAD8ODGF5      GODBBODGFDGO80410094
9    Y8Y  Y9  Y9 9ZQ     QQ8-Z9Q8Z QQ8-Z9Q9-0     QZ QQ-9 9ZQQ-8-Z9Q8     Z QQ8-Z9QZZ
     99   9   9    9      Z09   Z9  Z99   Z            Z9    9Z 9   Z9        Z99   Z

BTXT.AMQ..A8..AACQBG     7DAJODGADKGOE.AA8EKL     8EAABEAKHEGSA-7LAA8B     AA7SA.7OKA.A80410095
9    Y8   Y9  Y9QO-Q     Q-Y 9ZQQYZ Q ZQ 9 9      9QY8QY99998Z YZY 9      ZQ 8Z  - 9 Y
     99   9   9 Z  Z           9  9Z9  Z  9           99999      9 9         Z       9

BTXT.ANA..A8..AAAAA3     ABNFG-EUADABGOEDB..B     ADACNAG-EDBOA47ONKG-     E&BBA.ODGAED80410096
9    Y8Q  Y9  Y9QYZ9     9 99ZZ Q9ZZY9Z Q8-  9    ZZY99QZ Q88-Y9 -99Z     Q 8Q- 9ZYQ8
     999  9   9 Z9            9   Z  9  Z9           9 Z  Z99               Z 99    Z

BTXT.ANH..A8..AAEA66     GO6MOAEAGODDAAQEJAAA     VAQFJAABBAQBJAAAABAQL     JAAAFAQDJAAA80410097
9    Y8Z  Y9  Y9ZY 8     Z  Y8QQYZ QY9Y99YYY9     9Y98YYY9 Y98YYY9 Y99    YYY9 Y99YYY9
     99   9   9     9          9 9Z   Z9 9  999    9 9999  9 9999  9       999  9  999

BTXT.ANA..A8..AAAAAM     2821.SCAN/2540T.CONT     ROL.PROGRAMERR.OO1ER     R.OO2ERR.OO380410098
9    Y8Y  Y9  Y9YYY9                        8
     99   9   9 999

BTXT.ANH..A8..AAERR.     OO4ERR.OO5ERR.OO6ERR     .OO7ERR.OO8ERR.OO9ER     R.O1OERR.O1180410099
9    Y8O  Y9  Y9
     99-  9   9

BTXT.ANO..A8..AAERR.     O12ERR.O13ERR.O14ERR     .O15ERR.O16ERR.O17ER     R.O18ERR.O1980410100
9    Y8   Y9  Y9
     99   9   9

BTXT.AOY..A1..AAERR.     O2OERR.O21ERR.O22ERR     .O23ERR.O24ERR.O25ER     R.O26.......80410101
9    Y89  Y9  Y9
     99   9   9

BRLD......AM....AAAA     AAANAANJAAN/AAN/AANA     HAN1.................    ............80410102
9         Y8   Y9Y9     8YQ98Y888Y8 8Y888Y8R     9Y88
          99    9 9      999 999 999 999 9990      99
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F804   2821 SCAN/2540 READER/PUNCH
F804 CHANNEL REG FLT -ROUTINE OVERLAY 1-

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BEND.................     ....................     ....................     ...........80410103
9

BDAT.................     ....................     ....................     ...........80410104
9

....................     ....................     ....................     ...........80410105

BDAT.................     ....................     ....................     ...........80410106
9
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--- LAST PAGE ---

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   BUFFER ADDR FLT -ROUTINE OVERLAY 03-

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              8051   TITLE F8051   BUFFER ADDR FLT -ROUTINE OVERLAY 03-
              ****************************************************************
              *                                                            *
              *         MODIFICATIONS                                       *
              *             1. BUFFER ADDR FLT -ROUTINE OVERLAY 03-         *
              *                THIS ROUTINE WAS NOT MODIFIED.               *
              *             2. READER TRANSLATOR FLT -ROUTINE OVERLAY 04-   *
              *                THIS IS A NEW ADDITION TO THIS PROGRAM PACKAGE. *
              *                                                            *
              *         ENGINEERING CHANGE PREREQUISITES                    *
              *             1. HARDWARE                                     *
              *                2821 CONTROL UNIT WITH 2540 ATTACHMENT AT MINIMUM *
              *                E.C. LEVEL 124265                            *
              *             2. PROGRAM                                      *
              *                NONE                                         *
              *                                                            *
              ****************************************************************
              XE8051 START 4096
                     USING *,15
              ****************************************************************
              *                   SECOND OVERLAY - ROUTINE 03              *
              ****************************************************************
              *            RESIDENT LABELS ADDRESSED BY OVERLAYS           *
              ****************************************************************
001000        SECST  EQU  *
001004        SNSW   EQU  SECST&4
001040        CSW    EQU  SECST&64
001048        CAW    EQU  SECST&72
0010E0        UNIT1  EQU  SECST&224
0010E2        UN1ADR EQU  SECST&226
0010E4        UNIT2  EQU  SECST&228
0010E6        UN2ADR EQU  SECST&230
00112C        SIOVR3 EQU  SECST&300
001134        SIOVR4 EQU  SECST&308
00114D        SIOSWS EQU  SECST&333
0011F8        STATSV EQU  SECST&504
0011FA        CSWAG  EQU  SECST&506
001231        UAPU   EQU  SECST&561
00112C        CSWSAV EQU  SECST&300
00114C        CAWKEY EQU  SECST&332
0011F7        SENSE  EQU  SECST&503
00122D        UARD   EQU  SECST&557
0016EC        EXIT   EQU  SECST&1772
0016E6        EXITBY EQU  SECST&1766
00179C        SCHNUM EQU  SECST&1948
001234        SCPDAT EQU  SECST&564
00163E        SCPR00 EQU  SECST&1598
0012E8        SIO    EQU  SECST&744
000048        HCAW   EQU  72
000040        HCSW   EQU  64
001202        MESS1  EQU  SECST&514
              ****************************************************************
001015               ORG  SECST&21
001015 001908        DC   AL3(RTN03)       INITIAL PSW STARTING ADDR FOR RTN 03
0017D0               ORG  SECST&2000
              ****************************************************************
              *         VARIABLES FOR ROUTINE 03 - DOUBLE WORD BOUNDARY    *
              ****************************************************************
0017D0 00            DC   X'00'
0017D2               CNOP 0,8                  ALIGN ON DOUBLE WORD BOUNDARY
0017D2 07 00         BCR  0,0
0017D4 07 00         BCR  0,0
0017D6 07 00         BCR  0,0
0017D8 0000000000000000 ERNUM DC   XL8'00'
              ****************************************************************
              *         VARIABLES FOR ROUTINE 03 - WORD BOUNDARY           *
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* F8041   2821 SCAN/2540 READER/PUNCH
F8051   BUFFER ADDR FLT -ROUTINE OVERLAY 03-

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              ****************************************************************
0017E0 00000000       RESCNT DC  XL4'00'              WORK FIELD
              ****************************************************************
              *            VARIABLES FOR ROUTINE 03 - NO BOUNDARY          *
              ****************************************************************
0017E4 0000000000000000 DRDR DC  XL100'0'             READER DIAGNOSTIC CK READ DATA
0017ED 0000000000000000
0017F6 0000000000000000
0017FF 0000000000000000
001808 0000000000000000
001811 0000000000000000
00181A 0000000000000000
001823 0000000000000000
00182C 0000000000000000
001835 0000000000000000
00183E 0000000000000000
001847 00
001848 0000000000000000 RCSWAG DC XL8'0'              READER CSW
001850 0000000000000000 DRPU  DC  XL100'0'            PUNCH DIAGNOSTIC CK READ DATA
001859 0000000000000000
001862 0000000000000000
00186B 0000000000000000
001874 0000000000000000
00187D 0000000000000000
001886 0000000000000000
00188F 0000000000000000
001898 0000000000000000
0018A1 0000000000000000
0018AA 0000000000000000
0018B3 00
0018B4 0000000000000000 PCSWAG DC XL8'0'              PUNCH CSW
0018BC 00              SWITCH DC  X'00'
0018BD C5D9D940F0F5F140  ERRX  DC  C'ERR 051 '
0018C5 C4C5E5C9C3C540F0F0 LGMSG DC C'DEVICE 000 DIAG '
0018CE F040C4C9C1C740
0018D5 C3D240D9C440C4C1E3        DC   C'CK RD DATA'
0018DE C1
0018DF 406040D9C5E2C9C4E4 LGMSG1 DC C' - RESIDUAL COUN'
0018E8 C1D340C3D6E4D5
0018EF E340C9E240F0F0F0F0        DC   C'T IS 0000 SHLD B'
0018F8 40E2C8D3C440C2
0018FF C540F0F0F2F0              DC   C'E 0020'
              ****************************************************************
              *                   ROUTINE 03 PREFIX                        *
              ****************************************************************
001906               CNOP 0,4                  FULL WORD ALIGNMENT
001906 07 00         BCR  0,0
001908 03            RTN03 DC   XL1'03'         ROUTINE NUMBER
001909 00                  DC   XL1'0'          FLAGS
00190A FFFE                DC   X'FFFE'         ADDRESS OF NEXT ROUTINE
              ****************************************************************
00190C 95 83 F 79C   INIT00 CLI  SCHNUM,X'83'   SEE IF SEARCHING FOR ROUTINE 03
001910 47 80 F 918          BC   EQUAL,INIT01   BR IF YES
001914 47 F0 F 6EC          BC   ALWAYS,EXIT    BYPASS THIS ROUTINE
001918 91 02 F 004   INIT01 TM   SNSW,X'02'     WANT TITLE PRINTOUT - SEC SS 06 ON
00191C 47 80 F 926          BC   ALLOFF,INIT10  BR IF NO
001920 0A D0                SVC  X'D0'          PRINT TITLE
001922 80                   DC   X'80'          ,, NORMAL OUTPUT
001923 1F                   DC   X'1F'          ,, 31 CHARACTERS
001924 F DCA                DC   S(TITLE)       ,, ADDRESS OF TITLE
001926 91 40 F 004   INIT10 TM   SNSW,X'40'     WANT UTILITY ROUTINE - SEC SS 01
00192A 47 80 F 932          BC   ALLOFF,ADCK00  BR IF NO
00192E 45 80 F 63E          BAL  GR8,SCPR00     BR TO UTILITY ROUTINE
              *
              *        PERFORM TWO DIAGNOSTIC CHECK READS TO READER
              *
001932 D2 01 F 234 F DE9 ADCK00 MVC SCPDAT(2),R03K00  CLEAR READ AREA
001938 D2 61 F 236 F 235        MVC  SCPDAT&2(98),SCPDAT&1  ,,
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00193E   41 10 F DB0              LA    GR1,CRDCCW        LOAD CCW ADDRESS IN SEC PREF CAW
001942   50 10 F 048             ST    GR1,CAW           ,,
001946   48 C0 F 0E2             LH    GRC,UN1ADR        SET READER ADDRESS IN GR 12
00194A   92 02 F 14D             MVI   SIOSWS,X'02'      SET SIO PROGRAM SWITCHES
00194E   45 80 F 2E8             BAL   GRB,SIO           BR TO SIO ROUTINE
001952   91 C0 F 234             TM    SCPDAT,X'C0'      WAS ANY DATA TRANSFERRED
001956   47 80 F 96A             BC    ALLOFF,ADCK10     BR IF YES
00195A   D2 02 F 212 F 22D  ADCK01 MVC MESS1&16(3),UARD  SET READER ADDRESS IN OUTPUT MESSAGE
001960   0A D0                   SVC   X'D0'             ERROR - NO DATA WAS TRANSFERRED BY
001962   44                      DC    X'44'             ,,   DIAGNOSTIC CK RD TO READER
001963   2A                      DC    X'2A'             ,, 42 CHARACTERS
001964   F 202                   DC    S(MESS1)          ,, ADDRESS OF MESSAGE
001966   47 F0 F 932             BC    ALWAYS,ADCK00     GO TRY AGA IN
00196A   D2 01 F 234 F DE9  ADCK10 MVC SCPDAT(2),R03K00  CLEAR READ AREA
001970   D2 61 F 236 F 235       MVC   SCPDAT&2(98),SCPDAT&1  ,,
001976   45 80 F 2E8             BAL   GRB,SIO           BR TO SIO ROUTINE
00197A   91 C0 F 234             TM    SCPDAT,X'C0'      WAS ANY DATA TRANSFERRED
00197E   47 10 F 95A             BC    ALLON,ADCK01      BR IF NO
001982   D2 63 F 7E4 F 234       MVC   DRDR(100),SCPDAT  SAVE READER DIAG CHECK READ DATA
001988   D2 07 F 848 F 1FA       MVC   RCSWAG(8),CSWAG   SAVE READER CSW
         *
         *                       PERFORM TWO DIAGNOSTIC CHECK READS TO PUNCH
         *
00198E   D2 01 F 234 F DE9  ADCK20 MVC SCPDAT(2),R03K00  CLEAR READ AREA
001994   D2 61 F 236 F 235       MVC   SCPDAT&2(98),SCPDAT&1  ,,
00199A   48 C0 F 0E6             LH    GRC,UN2ADR        SET PUNCH ADDRESS IN GR 12
00199E   92 00 F 14D             MVI   SIOSWS,X'00'      SET SIO PROGRAM SWITCHES
0019A2   45 80 F 2E8             BAL   GRB,SIO           BR TO SIO ROUTINE
0019A6   91 C0 F 234             TM    SCPDAT,X'C0'      WAS ANY DATA TRANSFERRED
0019AA   47 80 F 9BE             BC    ALLOFF,ADCK30     BR IF YES
0019AE   D2 02 F 212 F 231  ADCK21 MVC MESS1&16(3),UAPU  SET PUNCH ADDRESS IN OUTPUT MESSAGE
0019B4   0A D0                   SVC   X'D0'             ERROR - NO DATA WAS TRANSFERRED BY
0019B6   44                      DC    X'44'             ,,   DIAGNOSTIC CK RD TO PUNCH
0019B7   2A                      DC    X'2A'             ,, 42 CHARACTERS
0019B8   F 202                   DC    S(MESS1)          ,, ADDRESS OF MESSAGE
0019BA   47 F0 F 98E             BC    ALWAYS,ADCK20     GO TRY AGAIN
0019BE   D2 01 F 234 F DE9  ADCK30 MVC SCPDAT(2),R03K00  CLEAR READ AREA
0019C4   D2 61 F 236 F 235       MVC   SCPDAT&2(98),SCPDAT&1  ,,
0019CA   45 80 F 2E8             BAL   GRB,SIO           BR TO SIO ROUTINE
0019CE   91 C0 F 234             TM    SCPDAT,X'C0'      WAS ANY DATA TRANSFERRED
0019D2   47 10 F 9AE             BC    ALLON,ADCK21      BR IF NO
0019D6   D2 63 F 850 F 234       MVC   DRPU(100),SCPDAT  SAVE PUNCH DIAG CHECK READ DATA
0019DC   D2 07 F 8B4 F 1FA       MVC   PCSWAG(8),CSWAG   SAVE PUNCH CSW
         *
         *                       SEPARATE RAR, PAR, AND BAR FAILURES HERE
         *
0019E2   41 10 F 7E4        ADCK40 LA  GR1,DRDR          INITIALIZE FILTER RTN FOR READER
0019E6   41 20 F 848             LA    GR2,DRDR&100      ,,
0019EA   45 30 F 9FA             BAL   GR3,ADCK41        BR TO FILTER ROUTINE
0019EE   41 10 F 850             LA    GR1,DRPU          INITIALIZE FILTER RTN FOR PUNCH
0019F2   41 20 F 8B4             LA    GR2,DRPU&100      ,,
0019F6   41 30 F A16             LA    GR3,ADCK50        ,,
0019FA   15 12              ADCK41 CLR GR1,GR2           BR IF END OF FILTER
0019FC   07 83                   BCR   EQUAL,GR3         ,,
0019FE   D2 00 F 234 1 000       MVC   SCPDAT(1),0(GR1)  SET UP DATA FOR FILTERING
001A04   94 01 F 234             NI    SCPDAT,X'01'      FILTER OUT ALL BUT ADDR ERRS
001A08   D2 00 1 000 F 234       MVC   0(1,GR1),SCPDAT   RETURN DATA
001A0E   41 10 1 001             LA    GR1,1(GR0,GR1)    ADD 1 TO GR1
001A12   47 F0 F 9FA             BC    ALWAYS,ADCK41     CONTINUE
001A16   95 14 F 84F        ADCK50 CLI RCSWAG&7,X'14'    RESIDUAL CCW COUNT FOR RDR EQ 20
001A1A   47 60 F AEE             BC    NEQUAL,ADCK60     BR IF NOT EQ
001A1E   95 14 F 8BB             CLI   PCSWAG&7,X'14'    RESIDUAL COUNT FOR PUNCH EQ 20
001A22   47 60 F AFA             BC    NEQUAL,ADCK70     BR IF NOT EQ - PAR PROBLEM
001A26   92 00 F 234             MVI   SCPDAT,X'00'      CLEAR COMPARE FIELD
001A2A   D2 62 F 235 F 234       MVC   SCPDAT&1(99),SCPDAT  ,,
001A30   D5 63 F 7E4 F 234       CLC   DRDR(100),SCPDAT  SEE IF ANY ADDR ERRS FOR READER
001A36   47 80 F A4C             BC    EQUAL,ADCK51      BR IF NO
001A3A   D5 63 F 850 F 234       CLC   DRPU(100),SCPDAT  SEE IF ANY ADDR ERRS FOR PUNCH
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001A40   47 80 F B02              BC    EQUAL,ADCK80      BR IF NO - READER BAR PROBLEM
001A44   92 20 F 8BC             MVI   SWITCH,X'20'      SET UP TO LOOK FOR FALSE ADDR CHECKS
001A48   47 F0 F B0E             BC    ALWAYS,ADCK90&4   BAR PROBLEM
001A4C   D5 63 F 850 F 234  ADCK51 CLC DRPU(100),SCPDAT  SEE IF ANY ADDR ERRS FOR PUNCH
001A52   47 60 F AFA             BC    NEQUAL,ADCK70     BR IF YES - PUNCH BAR PROBLEM
001A56   0A D0                   SVC   X'D0'             PRINT NO ADDRESSING ERRORS DETECTED
001A58   84                      DC    X'84'             ,, NORMAL OUTPUT
001A59   10                      DC    X'10'             ,, 16 CHARACTERS
001A5A   F EB3                   DC    S(NOERR)          ,, ADDRESS OF MESSAGE
001A5C   91 40 F 004        ADCK52 TM  SNSW,X'40'        SEE IF WANT UTILITY ROUTINE
001A60   47 80 F A68             BC    ALLOFF,*&8        BR IF NO
001A64   45 80 F 63E             BAL   GR8,SCPR00        BR IF YES
001A68   91 20 F 004             TM    SNSW,X'20'        SEE IF WANT LOG-OUT
001A6C   47 80 F AAE             BC    ALLOFF,PERT       BR IF NO
001A70   0A DD                   SVC   X'DD'             CONVERT READER CK RD DATA TO EBCDIC
001A72   005A                    DC    AL2(90)           NO OF DIAG CK READ BYTES
001A74   07E4                    DC    AL2(DRDR-SECST)   DIAG READ DATA ADDR
001A76   0234                    DC    AL2(SCPDAT-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
001A78   D2 02 F 8CC F 22D       MVC   LGMSG&7(3),UARD   SET READER ADDR IN OUTPUT MESSAGE
001A7E   D2 03 F 7E2 F 84E       MVC   RESCNT&2,RCSWAG&6 SAVE READER RESIDUAL COUNT
001A84   45 30 F ABE             BAL   GR3,ADCK53        GO PRINT READER DIAG CK READ DATA
001A88   0A DD                   SVC   X'DD'             CONVERT PUNCH CK RD DATA TO EBCDIC
001A8A   005A                    DC    AL2(90)           NO OF DIAG CK READ BYTES
001A8C   0850                    DC    AL2(DRPU-SECST)   DIAG READ DATA ADDR
001A8E   0234                    DC    AL2(SCPDAT-SECST) EBCDIC DATA ADDR IN OUTPUT MESSAGE
001A90   D2 02 F 8CC F 231       MVC   LGMSG&7(3),UAPU   SET PUNCH ADDRESS IN OUTPUT MESSAGE
001A96   D2 03 F 7E2 F 8BA       MVC   RESCNT&2,PCSWAG&6 SAVE PUNCH RESIDUAL COUNT
001A9C   45 30 F ABE             BAL   GR3,ADCK53        GO PRINT PUNCH DIAG CK READ DATA
001AA0   0A DA                   SVC   X'DA'             HALT & WAIT FOR ACTION
001AA2   91 40 F 004             TM    SNSW,X'40'        SEE IF WANT UTILITY ROUTINE
001AA6   47 80 F AAE             BC    ALLOFF,*&8        BR IF NO
001AAA   45 80 F 63E             BAL   GR8,SCPR00        BR IF YES
001AAE   91 20 E 1A3        PERT  TM   419(GRE),X'20'    IS LOOP ON SEC SS ON
001AB2   47 10 F 6EC             BC    ALLON,EXIT        BR IF YES
001AB6   96 40 F 79C             OI    SCHNUM,X'40'      SET UP TO BYPASS ALL REMAINING OVLYS
001ABA   47 F0 F 6EC             BC    ALWAYS,EXIT       ROUTINE EXIT
001ABE   58 00 F 7E0        ADCK53 L   GR0,RESCNT        LOAD RESIDUAL COUNT IN GR 0
001AC2   4E 00 F 7D8             CVD   GR0,ERNUM         CONVERT RESIDUAL COUNT TO DECIMAL
001AC6   0A DD                   SVC   X'DD'             CONVERT RESIDUAL COUNT TO PRINTABLE
001AC8   0003                    DC    AL2(3)            ,, 3 HEX BYTES
001ACA   07DD                    DC    AL2(ERNUM&5-SECST) ,, HEX DATA ADDRESS
001ACC   07D7                    DC    AL2(ERNUM-1-SECST) ,, PRINTABLE DATA ADDRESS
001ACE   D2 03 F 8F4 F 7D8       MVC   LGMSG1&21(4),ERNUM LOAD RESIDUAL COUNT IN MESSAGE
001AD4   0A D0                   SVC   X'D0'             PRINT RDR/PCH DIAG CK RD DATA
001AD6   80                      DC    X'80'             ,, NORMAL OUTPUT
001AD7   40                      DC    X'40'             ,, 64 CHARACTERS
001AD8   F 8C5                   DC    S(LGMSG)          ,, ADDRESS OF MESSAGE
001ADA   0A D0                   SVC   X'D0'             ,, FIRST 30 BYTES OF DIAG CK RD DAT
001ADC   80                      DC    X'80'             ,, NORMAL OUTPUT
001ADD   3C                      DC    X'3C'             ,, 60 CHARACTERS
001ADE   F 234                   DC    S(SCPDAT)         ,, ADDRESS OF MESSAGE
001AE0   0A D0                   SVC   X'D0'             ,, SECOND 30 BYTES
001AE2   80                      DC    X'80'             ,, NORMAL OUTPUT
001AE3   3C                      DC    X'3C'             ,, 60 CHARACTERS
001AE4   F 270                   DC    S(SCPDAT&60)      ,, ADDRESS OF MESSAGE
001AE6   0A D0                   SVC   X'D0'             ,, LAST 30 BYTES
001AE8   80                      DC    X'80'             ,, NORMAL OUTPUT
001AE9   3C                      DC    X'3C'             ,, 60 CHARACTERS
001AEA   F 2AC                   DC    S(SCPDAT&120)     ,, ADDRESS OF MESSAGE
001AEC   07 F3                   BCR   ALWAYS,GR3        RETURN
001AEE   95 14 F 8BB        ADCK60 CLI PCSWAG&7,X'14'    RESIDUAL CCW COUNT FOR PUNCH EQ 20
001AF2   47 60 F B0A             BC    NEQUAL,ADCK90     BR IF NO - BAR PROBLEM
001AF6   47 F0 F B02             BC    ALWAYS,ADCK80     RAR PROBLEM
         ***************************************************************
         *              COME HERE IF PAR PROJLEM
         ***************************************************************
001AFA   92 40 F 8BC        ADCK70 MVI SWITCH,X'40'      TURN ON PROGRAM PAR SWITCH
001AFE   47 F0 F CCA             BC    ALWAYS,ADCK80     GO FIND PAR PROBLEM
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                    ***************************************************************
                    *         COME HERE IF RAR PROBLEM                           *
                    ***************************************************************
001B02  92 80 F 8BC        ADCK80 MVI   SWITCH,X'80'          TURN ON PROGRAM RAR SWITCH
001B06  47 F0 F CCA               BC    ALWAYS,ADCKB0         GO FIND RAR PROBLEM
                    ***************************************************************
                    *         COME HERE IF BAR PROBLEM                           *
                    ***************************************************************
001B0A  92 00 F 8BC        ADCK90 MVI   SWITCH,X'00'          TURN ON PROGRAM BAR SWITCH
001B0E  45 B0 F BBE               BAL   GRB,ALOC00            GO SEE IF CAN FIND BAR PROBLEM
001B12  92 00 F 234               MVI   SCPDAT,X'00'          SET COMPARE FIELD TO ZEROS
001B16  D2 62 F 235 F 234         MVC   SCPDAT&1(99),SCPDAT   ,,
001B1C  92 01 F 28D               MVI   SCPDAT&89,X'01'       SET UP FOR ERROR 129
001B20  D5 59 F 234 F 7E4         CLC   SCPDAT(90),DRDR       SEE IF THIS PATTERN COMPARES
001B26  47 60 F B36               BC    NEQUAL,ADCK91         BR IF NO
001B2A  41 90 0 081               LA    GR9,129               SET UP ERROR NUMBER
001B2E  45 A0 F CBC               BAL   GRA,ALOC60            GO SET UP PRINTOUT
001B32  47 F0 F C9E               BC    ALWAYS,ADCKA0         GO PRINT BAR PROB 129
001B36  41 90 0 063        ADCK91 LA    GR9,99                SET UP ERROR 099
001B3A  D5 01 F DC8 F 84E         CLC   COM50(2),RCSWAG&6     SEE IF READER RESIDUAL COUNT IS 0050
001B40  47 60 F B56               BC    NEQUAL,ADCK92         BR IF NO
001B44  D5 01 F DC8 F 8BA         CLC   COM50(2),PCSWAG&6     SEE IF PUNCH RESIDUAL COUNT IS 0050
001B4A  47 60 F B56               BC    NEQUAL,ADCK92         BR IF NO
001B4E  45 A0 F CBC               BAL   GRA,ALOC60            GO SET UP PRINTOUT
001B52  47 F0 F C9E               BC    ALWAYS,ADCKA0         GO PRINT BAR PROBLEM 009
001B56  91 20 F 8BC        ADCK92 TM    SWITCH,X'20'          SEE OF POSSIBLE FALSE ADDRESS CHECKS
001B5A  47 80 F BB2               BC    ALLOFF,ADCK93         BR IF NO
001B5E  41 10 F DB8               LA    GR1,PUWCCW            LOAD CCW ADDRESS IN SEC PREF CAW
001B62  50 10 F 048               ST    GR1,CAW               LOAD CCW ADDRESS IN SEC PREF CAW
001B66  48 C0 F 0E6               LH    GRC,UN2ADR            SET PUNCH ADDR IN GR 12
001B6A  92 00 F 14D               MVI   SIOSWS,X'00'          SET SIO PROG SWITCHES FOR PUNCH
001B6E  45 B0 F 2E8               BAL   GRB,SIO               BR TO SIO ROUTINE
001B72  91 01 F 14D               TM    SIOSWS,X'01'          SEE IF GOT INTERV REQ
001B76  47 10 F 90C               BC    ALLON,INIT00          RESTART SECTION IF YES
001B7A  92 00 F 234               MVI   SCPDAT,X'00'          CLEAR READ FIELD
001B7E  D2 4E F 235 F 234         MVC   SCPDAT&1(79),SCPDAT   CLEAR READ FIELD
001B84  41 10 F DC0               LA    GR1,PURCCW            LOAD CCW ADDRESS IN SEC PREF CAW
001B88  50 10 F 048               ST    GR1,CAW               LOAD CCW ADDRESS IN SEC PREF CAW
001B8C  92 02 F 14D               MVI   SIOSWS,X'02'          SET SIO PROGRAM SWITCHES
001B90  45 B0 F 2E8               BAL   GRB,SIO               BR TO SIO ROUTINE
001B94  91 01 F 14D               TM    SIOSWS,X'01'          SEE IF GOT INTERV REQ
001B98  47 10 F 90C               BC    ALLON,INIT00          RESTART SECTION IF YES
001B9C  D5 4F F 234 F 2E8         CLC   SCPDAT(80),SIO        SEE IF DATA READ OK
001BA2  47 60 F BB2               BC    NEQUAL,ADCK93         BR IF NO
001BA6  41 90 0 086               LA    GR9,134               SET UP ERROR NUMBER 134
001BAA  45 A0 F CBC               BAL   GRA,ALOC60            GO SET UP PRINTOUT
001BAE  47 F0 F C9E               BC    ALWAYS,ADCKA0         GO PRINT BAR PROB 134
001BB2  41 90 0 032        ADCK93 LA    GR9,50                SET UP ERR 050
001BB6  45 A0 F CBC               BAL   GRA,ALOC60            GO SET UP PRINTOUT
001BBA  47 F0 F C9E               BC    ALWAYS,ADCKA0         GO PRINT BAR PROB 050
                    *
                    *         ROUTINE TO LOCALIZE BAR, PAR, OR RAR PROBLEMS
                    *
001BBE  41 10 0 033        ALOC00 LA    GR1,51                INITIALIZE ROUTINE
001BC2  41 90 0 033               LA    GR9,51                ,, START WITH ERR 051
001BC6  41 20 F E4F               LA    GR2,BTAON             ,, DEFINE START OF TENS BAR PATTERN
001BCA  41 30 F EB3               LA    GR3,BTEOFF&10         ,, DEFINE END OF TENS BAR PATTERNS
001BCE  41 40 F DEB               LA    GR4,BUAON             ,, DEFINE START OF UNITS BAR PATTRN
001BD2  15 43              ALOC10 CLR   GR4,GR3               SEE IF END OF BAR PATTERNS
001BD4  07 8B                     BCR   EQUAL,GRB             BR IF YES
001BD6  92 00 F 234               MVI   SCPDAT,X'00'          SET COMPARE FIELD TO ZEROS
001BDA  D2 62 F 235 F 234         MVC   SCPDAT&1(99),SCPDAT   ,,
001BE0  15 42                     CLR   GR4,GR2               SEE IF UNITS BAR PATTERNS
001BE2  47 40 F C36               BC    LOW,ALOC40            BR IF YES
001BE6  41 50 F E77               LA    GR5,BTCON             SEE IF TEN-C-ON PATTERN
001BEA  15 45                     CLR   GR4,GR5               ,,
001BEC  47 60 F BF8               BC    NEQUAL,ALOC20         ,, BR IF NO
001BF0  92 01 F 235               MVI   SCPDAT&1,X'01'        SET UP COMPARE FIELD FOR TENS-C ON
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001BF4  47 F0 F C42               BC    ALWAYS,ALOC50      ° GO COMPARE
001BF8  41 50 4 00A        ALOC20 LA    GR5,10(GR0,GR4)      INITIALIZE TENS LOAD COMPARE
001BFC  41 60 4 000               LA    GR6,0(GR0,GR4)       ,,
001C00  41 70 F 234               LA    GR7,SCPDAT           ,,
001C04  15 56              ALOC21 CLR   GR5,GR6              SEE IF END OF TENS LOAD
001C06  47 80 F C42               BC    EQUAL,ALOC50         BR IF YES - GO COMPARE
001C0A  91 01 6 000               TM    0(GR6),X'01'         SEE IF LOAD TEN ADDR ERRS IN CMP FLD
001C0E  47 80 F C2A               BC    ALLOFF,ALOC30        BR IF NO
001C12  92 01 7 000               MVI   0(GR7),X'01'         LOAD TEN ADDR ERRS
001C16  D2 08 7 001 7 000         MVC   1(9,GR7),0(GR7)      ,,
001C1C  41 00 F E8B               LA    GR0,BTDON            SEE IF TENS D ON PATTERN
001C20  15 40                     CLR   GR4,GR0              ,,
001C22  47 60 F C2A               BC    NEQUAL,ALOC30        ,, SET UP FOR TENS D ON
001C26  92 01 F 266               MVI   SCPDAT&50,X'01'      ,, SET UP FOR TENS D ON
001C2A  41 70 7 00A        ALOC30 LA    GR7,10(GR0,GR7)      UPDATE ADDRESSES
001C2E  41 60 6 001               LA    GR6,1(GR0,GR6)       ,,
001C32  47 F0 F C04               BC    ALWAYS,ALOC21        CONTINUE
001C36  D2 09 F 234 4 000  ALOC40 MVC   SCPDAT(10),0(GR4)    LOAD UNITS PATTERN
001C3C  D2 4F F 23E F 234         MVC   SCPDAT&10(80),SCPDAT ,,
001C42  41 80 F ADC        ALOC50 LA    GR8,ADCKA0           INITIALIZE ERR BRCH ADDR
001C46  41 90 1 000               LA    GR9,0(GR0,GR1)       INITIALIZE ERROR NUMBER
001C4A  91 C0 F 8BC               TM    SWITCH,X'C0'         SEE IF RAR OR PAR PROBLEM
001C4E  47 80 F C72               BC    ALLOFF,ALOC52        BR IF NO - GO COMPARE
001C52  91 80 F 8BC               TM    SWITCH,X'80'         SEE IF RAR PROBLEM
001C56  47 10 F C6A               BC    ALLON,ALOC51         BR IF YES
001C5A  41 80 8 014               LA    GR8,20(GR0,GR8)      SET ERROR BRCH FOR PUNCH
001C5E  41 90 9 002               LA    GR9,2(GR0,GR9)       SET ERROR NUMBER FOR PUNCH
001C62  41 70 F 850               LA    GR7,DRPU             SET UP TO COMPARE TO PUNCH DATA
001C66  47 F0 F C76               BC    ALWAYS,ALOC53        GO COMPARE PUNCH DATA
001C6A  41 80 8 00A        ALOC51 LA    GR8,10(GR0,GR8)      SET ERROR BRANCH FOR READER
001C6E  41 90 9 001               LA    GR9,1(GR0,GR9)       SET ERROR NUMBER FOR READER
001C72  41 70 F 7E4        ALOC52 LA    GR7,DRDR             SET UP TO COMPARE TO READ DATA
001C76  45 A0 F CBC        ALOC53 BAL   GRA,ALOC60           SET UP ERROR NUMBER
001C7A  15 42                     CLR   GR4,GR2              SEE IF UNITS BAR PATTERNS
001C7C  47 40 F C8A               BC    LOW,ALOC54           BR IF YES
001C80  D5 4F F 235 7 000         CLC   SCPDAT&1(80),0(GR7)  COMPARE DATA -TENS-
001C86  47 F0 F C90               BC    ALWAYS,ALOC54&6      ,,
001C8A  D5 4F F 234 7 000  ALOC54 CLC   SCPDAT(80),0(GR7)    COMPARE DATA -UNITS-
001C90  07 88                     BCR   EQUAL,GR8            PRINT ERROR IF PATTERN EQUAL
001C92  41 10 1 003               LA    GR1,3(GR0,GR1)       UPDATE ERROR NUMBER
001C96  41 40 4 00A               LA    GR4,10(GR0,GR4)      UPDATE PATTERN ADDRESS
001C9A  47 F0 F BD2               BC    ALWAYS,ALOC10        CONTINUE
001C9E  0A D0              ADCKA0 SVC   X'D0'                PRINT - BAR PROBLEM - ERROR NUMBER
001CA0  44                        DC    X'44'                ,, IN BYTE 3 OF GR 9
001CA1  07                        DC    X'07'                ,, 7 CHARACTERS
001CA2  F 8BD                     DC    S(ERRX)              ,, MESSAGE ADDRESS
001CA4  47 F0 F A5C               BC    ALWAYS,ADCK52        GO SEE IF WANT UTILITY RTN OR LOGOUT
001CA8  0A D0                     SVC   X'D0'                PRINT - RAR PROBLEM - ERROR NUMBER
001CAA  44                        DC    X'44'                ,, IN BYTE 3 OF GR 9
001CAB  07                        DC    X'07'                ,, 7 CHARACTERS
001CAC  F 8BD                     DC    S(ERRX)              ,, MESSAGE ADDRESS
001CAE  47 F0 F A5C               BC    ALWAYS,ADCK52        GO SEE IF WANT UTILITY RTN OR LOGOUT
001CB2  0A D0                     SVC   X'D0'                PRINT - PAR PROBLEM - ERROR NUMBER
001CB4  44                        DC    X'44'                ,, IN BYTE 3 OF GR 9
001CB5  07                        DC    X'07'                ,, 7 CHARACTERS
001CB6  F 8BD                     DC    S(ERRX)              ,, MESSAGE ADDRESS
001CB8  47 F0 F A5C               BC    ALWAYS,ADCK52        GO SEE IF WANT UTILITY RTN OR LOGOUT
001CBC  4E 90 F 7D8        ALOC60 CVD   GR9,ERNUM            CONVERT ERROR NUMBER TO DECIMAL
001CC0  0A DD                     SVC   X'DD'                CONVERT ERROR NUMBER TO EBCDIC
001CC2  0002                      DC    AL2(2)               ,, 2 HEX BYTES
001CC4  07DE                      DC    AL2(ERNUM&6-SECST)   ,, HEX DATA ADDRESS
001CC6  -08C1                     DC    AL2(ERRX&4-SECST)    ,, EBCDIC DATA ADDRESS
001CC8  07 FA                     BCR   ALWAYS,GRA           RETURN TO PROGRAM
001CCA  45 B0 F BBE        ADCKB0 BAL   GRB,ALOC00           GO FIND RAR OR PAR PROBLEM
001CCE  41 10 0 06F               LA    GR1,111              INITIALIZE ERROR NUMBER
001CD2  41 90 0 06F               LA    GR9,111              ,,
001CD6  92 01 F 234               MVI   SCPDAT,X'01'         SET UP COMPARE DATA FOR ERR 111/112
001CDA  D2 62 F 235 F 234         MVC   SCPDAT&1(99),SCPDAT  ,,
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* F8041   2821 SCAN/2540 READER/PUNCH
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001CE0   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001CE4   41 90 1 002              LA    GR9,2(GR0,GR1)       UPDATE ERROR NUMBER
001CE8   92 00 F 234              MVI   SCPDAT,X'00'          SET UP COMPARE DATA FOR ERR 113/114
001CE8   92 00 F 235              MVI   SCPDAT&1,X'00'        '' ''
001CF0   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001CF4   41 90 1 004              LA    GR9,4(GR0,GR1)       UPDATE ERROR NUMBER
001CF8   D2 01 F 236 F 234        MVC   SCPDAT&2(2),SCPDAT    SET UP COMPARE DATA FOR ERR 115/116
001CFE   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D02   41 90 1 006              LA    GR9,6(GR0,GR1)       UPDATE ERROR NUMBER
001D06   D2 01 F 238 F 234        MVC   SCPDAT&4(2),SCPDAT    SET UP.COMPARE DATA FOR ERR 117/118
001D0C   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D10   41 90 1 008              LA    GR9,8(GR0,GR1)       UPDATE ERROR NUMBER
001D14   D2 16 F 23A F 234        MVC   SCPDAT&6(23),SCPDAT   SET UP COMPARE DATA FOR ERR 119/120
001D1A   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D1E   41 90 1 00A              LA    GR9,10(GR0,GR1)      UPDATE ERROR NUMBER
001D22   D2 13 F 251 F 234        MVC   SCPDAT&29(20),SCPDAT  SET UP COMPARE FOR ERR 121/122
001D28   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D2C   41 90 1 00C              LA    GR9,12(GR0,GR1)      UPDATE ERROR NUMBER
001D30   D2 62 F 235 F 234        MVC   SCPDAT&1(99),SCPDAT   SET UP COMPARE DATA FOR ERR 123/124
001D36   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D3A   41 90 1 00E              LA    GR9,14(GR0,GR1)      UPDATE ERROR NUMBER
001D3E   92 01 F 234              MVI   SCPDAT,X'01'          SET UP COMPARE DATA FOR ERR 125/126
001D42   D2 06 F 235 F 234        MVC   SCPDAT&1(7),SCPDAT    '' ''
001D48   45 20 F D84              BAL.  GR2,ADCKB1            GO COMPARE
001D4C   92 01 F 234              MVI   SCPDAT,X'01'          SET UP COMPARE DATA FOR ERR 130/131
001D50   D2 62 F 235 F 234        MVC   SCPDAT&1(99),SCPDAT   '' ''
001D56   92 00 F 234              MVI   SCPDAT,X'00'          '' ''
001D5A   41 90 1 013              LA    GR9,19(GR0,GR1)      SET UP ERROR NUMBER
001D5E   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D62   D2 07 F 235 F 234        MVC   SCPDAT&1(8),SCPDAT    SET UP COMPARE DATA FOR ERR 132/133
001D68   41 90 1 015              LA    GR9,21(GR0,GR1)      SET UP ERROR NUMBER
001D6C   45 20 F D84              BAL   GR2,ADCKB1            GO COMPARE
001D70   41 90 1 010              LA    GR9,16(GR0,GR1)      UPDATE ERROR NUMBER
001D74   91 80 F 8BC              TM    SWITCH,X'80'          SEE IF READER
001D78   47 F0 F DA8              BC    ALWAYS,ADCKB3         BR IF YES
001D7C   41 90 9 001              LA    GR9,1(GR0,GR9)       UPDATE ERROR NUMBER FOR PUNCH
001D80   47 F0 F DA8              BC    ALWAYS,ADCKB3         GO PRINT PUNCH ERROR
001D84   41 70 F CA8      ADCKB1  LA    GR7,ADCKA0&10         INITIALIZE BRANCH
001D88   41 60 F 7E4              LA    GR6,DRDR             SET UP TO COMPARE TO READER DATA
001D8C   91 80 F 8BC              TM    SWITCH,X'80'          SEE IF READER
001D90   47 10 F DA0              BC    ALLON,ADCKB2         BR IF YES
001D94   41 70 7 00A              LA    GR7,10(GR0,GR7)      SET UP PUNCH BRANCH ADDRESS
001D98   41 60 F 850              LA    GR6,DRPU             SET UP TO COMPARE TO PUNCH DATA
001D9C   41 90 9 001              LA    GR9,1(GR0,GR9)       UPDATE ERROR NUMBER FOR PUNCH
001DA0   D5 63 F 234 6 000 ADCKB2 CLC   SCPDAT(100),0(GR6)   COMPARE DATA
001DA6   07 62                    BCR   NEQUAL,GR2           BR IF NOT EQUAL
001DA8   45 A0 F CBC      ADCKB3  BAL   GRA,ALOC60           GO CONVERT ERROR NUMBER TO DECIMAL
001DAC   07 F7                    BCR   ALWAYS,GR7           GO PRINT ERROR NUMBER
*******************************************************************
*         CCW,S USED BY ROUTINE 03                                *
*******************************************************************
001DB0   C6 001234 2000 0064 CRDCCW CCW  X'C6',SCPDAT,X'20',100  DIAG CK READ CCW - SILI ON
001DB8   01 0012E8 2000 0050 PUWCCW CCW  X'01',SIO,X'20',80      WRITE PUNCH BUFFER - SILI ON
001DC0   C2 001234 2000 0050 PURCCW CCW  X'C2',SCPDAT,X'20',80   READ PUNCH BUFFER - SILI ON
*******************************************************************
*         CONSTANTS FOR ROUTINE 03 - NO BOUNDARY                  *
*******************************************************************
001DC8   0032             COM50   DC    X'0032'
001DCA   F2F8F2F140E2C3C1D5 TITLE  DC    C'2821 SCAN/2540, '
001DD3   61F2F5F4F06B40
001DDA   C2E4C6C6C5D940C1C4       DC    C'BUFFER ADDR FLT'
001DE3   C40940C6D3E3
001DE9   0000             R03K00  DC    X'0000'
001DEB   000001000001010101 BUAON DC    X'00000100000101010101'
001DF4   01
001DF5   010100010100000000 BUAOFF DC   X'01010001010000000000'
001DFE   00
001DFF   010100000100000101 BUBON DC    X'01010000010000010101'
```

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* F8041   2821 SCAN/2540 READER/PUNCH
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001E08   01
001E09   000001010001010000 BUBOFF DC   X'00000101000101000000'
001E12   00
001E13   010101010000010000 BUCON  DC   X'01010101000001000001'
001E1C   01
001E1D   000000000101000101 BUCOFF DC   X'00000000010100010100'
001E26   00
001E27   000101010101000001 BUDON  DC   X'00010101010100000100'
001E30   00
001E31   010000000000010100 BUDOFF DC   X'01000000000001010001'
001E3A   01
001E3B   010000010101010100 BUEON  DC   X'01000001010101010000'
001E44   00
001E45   000101000000000001 BUEOFF DC   X'00010100000000000101'
001E4E   01
001E4F   010000010000010101 BTAON  DC   X'01000001000001010100'
001E58   00
001E59   000101000101000000 BTAOFF DC   X'00010100010100000000'
001E62   00
001E63   010101000001000001 BTBON  DC   X'01010100000100000100'
001E6C   00
001E6D   000000010100010100 BTBOFF DC   X'00000001010001010000'
001E76   00
001E77   010000000000000000 BTCON  DC   X'01000000000000000000'
001E80   00
001E81   000000000001010001 BTCOFF DC   X'00000000000101000100'
001E8A   00
001E8B   000010101000000000 BTDON  DC   X'00000101010000000000'
001E94   00
001E95   010100000000000101 BTDOFF DC   X'01010000000000010100'
001E9E   01
001E9F   000100000101010101 BTEON  DC   X'00010000010101010100'
001EA8   00
001EA9   010001010000000000 BTEOFF DC   X'01000101000000000000'
001EB2   00
001EB3   D5D640C5D9D9E240C4 NOERR  DC   C'NO ERRS DETECTED'
001EBC   C5E3C5C3E3C5C4
*******************************************************************
*         GENERAL REGISTER EQUATES                                *
*******************************************************************
000000            GR0    EQU   0
000001            GR1    EQU   1
000002            GR2    EQU   2
000003            GR3    EQU   3
000004            GR4    EQU   4
000005            GR5    EQU   5
000006            GR6    EQU   6
000007            GR7    EQU   7
000008            GR8    EQU   8
000009            GR9    EQU   9
00000A            GRA    EQU   10
00000B            GRB    EQU   11
00000C            GRC    EQU   12
00000D            GRD    EQU   13
00000E            GRE    EQU   14
00000F            GRF    EQU   15
*******************************************************************
*         CONDITION CODE EQUATES                                  *
*******************************************************************
000078            HION   EQU   120          HARDWARE I/O NEW PSW LOCATION
000008            ALLOFF EQU   8            ALL OFF     0
000005            ANYON  EQU   5            ANY ON        1   3
000001            ALLON  EQU   1            ALL ON            3
000004            MIXED  EQU   4            MIXED         1
000009            NMIXED EQU   9            NOT MIXED   0     3
000008            EQUAL  EQU   8            EQUAL       0
000006            NEQUAL EQU   6            NOT EQUAL       1 2
000004            LOW    EQU   4            LOW           1
```

* F8041   2821 SCAN/2540 READER/PUNCH
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```
000002    HIGH    EQU   2           HIGH            2
000008    ZERO    EQU   8           ZERO         0
000002    GZERO   EQU   2           GREATER ZERO    2
000008    AVAIL   EQU   8           AVAILABLE    0
000004    CSWST   EQU   4           CSW STORED      1
000002    BUSY    EQU   2           BUSY            2
00000F    ALWAYS  EQU   15          UNCONDITIONL 0 1 2 3
00000D    NOTBSY  EQU   13          NOT BUSY     0 1   3
000007    NZERO   EQU   7           NOT CC 0         1 2 3
000004    NOTZRO  EQU   4           NOT ZERO -AND-   1
00000C    MIXNON  EQU   12          MIXED OR NONE 0 1
```

```
**********************************************************************
*           ERROR NUMBER LIST FOR ROUTINE 03                         *
**********************************************************************
*      ERROR 050 - BAR PROBLEM.  ERROR PATTERN CANNOT BE IDENTIFIED.
*                    PROBLEM MAY BE INTERMITTENT.
*      ERROR 051 - BAR UNITS A OUTPUT ALWAYS ACTIVE.
*      ERROR 052 - RAR UNITS A INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 053 - PAR UNITS A INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 054 - BAR UNITS A OUTPUT NEVER ACTIVE.
*      ERROR 055 - RAR UNITS A INPUT TO BAR NEVER ACTIVE.
*      ERROR 056 - PAR UNITS A INPUT TO BAR NEVER ACTIVE.
*      ERROR 057 - BAR UNITS B OUTPUT ALWAYS ACTIVE.
*      ERROR 058 - RAR UNITS B INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 059 - PAR UNITS B INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 060 - BAR UNITS B OUTPUT NEVER ACTIVE.
*      ERROR 061 - RAR UNITS B INPUT TO BAR NEVER ACTIVE.
*      ERROR 062 - PAR UNITS B INPUT TO BAR NEVER ACTIVE.
*      ERROR 063 - BAR UNITS C OUTPUT ALWAYS ACTIVE.
*      ERROR 064 - RAR UNITS C INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 065 - PAR UNITS C INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 066 - BAR UNITS C OUTPUT NEVER ACTIVE.
*      ERROR 067 - RAR UNITS C INPUT TO BAR NEVER ACTIVE.
*      ERROR 068 - PAR UNITS C INPUT TO BAR NEVER ACTIVE.
*      ERROR 069 - BAR UNITS D OUTPUT ALWAYS ACTIVE.
*      ERROR 070 - RAR UNITS D INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 071 - PAR UNITS D INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 072 - BAR UNITS D OUTPUT NEVER ACTIVE.
*      ERROR 073 - RAR UNITS D INPUT TO BAR NEVER ACTIVE.
*      ERROR 074 - PAR UNITS D INPUT TO BAR NEVER ACTIVE.
*      ERROR 075 - BAR UNITS E OUTPUT ALWAYS ACTIVE.
*      ERROR 076 - RAR UNITS E INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 077 - PAR UNITS E INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 078 - BAR UNITS E OUTPUT NEVER ACTIVE.
*      ERROR 079 - RAR UNITS E INPUT TO BAR NEVER ACTIVE.
*      ERROR 080 - PAR UNITS E INPUT TO BAR NEVER ACTIVE.
*      ERROR 081 - BAR TENS A OUTPUT ALWAYS ACTIVE.
*      ERROR 082 - RAR TENS A INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 083 - PAR TENS A INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 084 - BAR TENS A OUTPUT NEVER ACTIVE.
*      ERROR 085 - RAR TENS A INPUT TO BAR NEVER ACTIVE.
*      ERROR 086 - PAR TENS A INPUT TO BAR NEVER ACTIVE.
*      ERROR 087 - BAR TENS A B OUTPUT ALWAYS ACTIVE.
*      ERROR 088 - RAR TENS B INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 089 - PAR TENS B INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 090 - BAR TENS B OUTPUT NEVER ACTIVE.
*      ERROR 091 - RAR TENS B INPUT TO BAR NEVER ACTIVE.
*      ERROR 092 - PAR TENS B INPUT TO BAR NEVER ACTIVE.
*      ERROR 093 - BAR TENS C OUTPUT ALWAYS ACTIVE.
*      ERROR 094 - RAR TENS C INPUT TO BAR ALWAYS ACTIVE - OR, RAR
*                    TENS C TRIGGER ALWAYS ACTIVE.
*      ERROR 095 - PAR TENS C INPUT TO BAR ALWAYS ACTIVE - OR, PAR
*                    TENS C TRIGGER ALWAYS ACTIVE.
*      ERROR 096 - BAR TENS C OUTPUT NEVER ACTIVE.
*      ERROR 097 - RAR TENS C INPUT TO BAR NEVER ACTIVE.
*      ERROR 098 - PAR TENS C INPUT TO BAR NEVER ACTIVE.
*      ERROR 099 - BAR TENS D OUTPUT ALWAYS ACTIVE.
*      ERROR 100 - RAR TENS D INPUT TO BAR ALWAYS ACTIVE.
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W.k.D.

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* F8041   2821 SCAN/2540 READER/PUNCH
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*      ERROR 101 - PAR TENS D INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 102 - BAR TENS D OUTPUT NEVER ACTIVE.
*      ERROR 103 - RAR TENS D INPUT TO BAR NEVER ACTIVE.
*      ERROR 104 - PAR TENS D INPUT TO BAR NEVER ACTIVE.
*      ERROR 105 - BAR TENS E OUTPUT ALWAYS ACTIVE.
* *    ERROR 106 - RAR TENS E INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 107 - PAR TENS E INPUT TO BAR ALWAYS ACTIVE.
*      ERROR 108 - BAR TENS E OUTPUT NEVER ACTIVE.
*      ERROR 109 - RAR TENS E INPUT TO BAR NEVER ACTIVE.
*      ERROR 110 - PAR TENS E INPUT TO BAR NEVER ACTIVE.
*      ERROR 111 - RAR PROBLEM PROBABLY CAUSED BY ONE OF THE FOLLOWING-
*                    1.  UNITS AND/OR TENS TRIGGERS A AND/OR B
*                        ALWAYS ACTIVE.
*                    2.  UNITS TRIGGER A NEVER ACTIVE.
*                    3.  TENS TRIGGERS D AND/OR E NEVER ACTIVE.
*                    4.  FALSE ADDRESS CHECKS.
*      ERROR 112 - SAME AS ERROR 111 EXCEPT FOR PAR.
*      ERROR 113 - RAR UNITS TRIGGER B NEVER ACTIVE.
*      ERROR 114 - PAR UNITS TRIGGER B NEVER ACTIVE.
*      ERROR 115 - RAR UNITS C TRIGGER NEVER ACTIVE.
*      ERROR 116 - PAR UNITS C TRIGGER NEVER ACTIVE.
*      ERROR 117 - RAR UNITS D TRIGGER NEVER ACTIVE.
*      ERROR 118 - PAR UNITS D TRIGGER NEVER ACTIVE.
*      ERROR 119 - RAR TENS B TRIGGER NEVER ACTIVE.
*      ERROR 120 - PAR TENS B TRIGGER NEVER ACTIVE.
*      ERROR 121 - RAR TENS C TRIGGER NEVER ACTIVE.
*      ERROR 122 - PAR TENS C TRIGGER NEVER ACTIVE.
*      ERROR 123 - RAR PROBLEM PROBABLY CAUSED BY ONE OF THE FOLLOWING-
*                    1.  UNITS AND/OR TENS TRIGGERS D AND/OR E
*                        ALWAYS ACTIVE.
*                    2.  UNITS ADVANCE NEVER ACTIVE.
*                    3.  TENS ADVANCE NEVER ACTIVE.
*      ERROR 124 - SAME AS ERROR 123 EXCEPT FOR PAR.
*      ERROR 125 - RAR UNITS C TRIGGER ALWAYS ACTIVE.
*      ERROR 126 - PAR UNITS C TRIGGER ALWAYS ACTIVE.
*      ERROR 127 - RAR PROBLEM.  ERROR PATTERN CANNOT BE IDENTIFIED.
*                    PROBLEM MAY BE INTERMITTEN
*      ERROR 128 - PAR PROBLEM.  ERROR PATTERN CANNOT BE IDENTIFIED.
*                    PROBLEM MAY BE INTERMITTENT.
*      ERROR 129 - PROBLEM IN CIRCUITS USED TO DETECT COLUMN 80.
*      ERROR 130 - RAR UNITS E TRIGGER NEVER ACTIVE.
*      ERROR 131 - PAR UNITS E TRIGGER NEVER ACTIVE
*      ERROR 132 - RAR TENS A TRIGGER NEVER ACTIVE.
*      ERROR 133 - PAR TENS A TRIGGER NEVER ACTIVE
*      ERROR 134 - FALSE ADDRESS CHECKS
**********************************************************************
**********************************************************************
            END
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   BUFFER ADDR FLT -ROUTINE OVERLAY 03-

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

1	1048	CAW	1942,	1B62,	1B88				
1	1040	CSW							
1	0	GR0	1A0E,	1ABE,	1AC2,	1BF8,	1BFC,	1C1C,	1C20
			1C2A,	1C2E,	1C46,	1C5A,	1C5E,	1C6A,	1C6E
			1C92,	1C96,	1CE4,	1CF4,	1D02,	1D10,	1D1E
			1D2C,	1D3A,	1D5A,	1D68,	1D70,	1D7C,	1D94
			1D9C						
1	1	GR1	193E,	1942,	19E2,	19EE,	19FA,	19FE,	1A08
			1A0E,	1A0E,	1B5E,	1B62,	1B84,	1B88,	1BBE
			1C46,	1C92,	1C92,	1CCE,	1CE4,	1CF4,	1D02
			1D10,	1D1E,	1D2C,	1D3A,	1D5A,	1D68,	1D70
1	2	GR2	19E6,	19F2,	19FA,	1BC6,	1BE0,	1C7A,	1CE0
			1CF0,	1CFE,	1D0C,	1D1A,	1D28,	1D36,	1D48
			1D5E,	1D6C,	1DA6				
1	3	GR3	19EA,	19F6,	19FC,	1A84,	1A9C,	1AEC,	1BCA
			1BD2						
1	4	GR4	1BCE,	1BD2,	1BE0,	1BEA,	1BF8,	1BFC,	1C20
			1C36,	1C7A,	1C96,	1C96			
1	5	GR5	1BE6,	1BEA,	1BF8,	1C04			
1	6	GR6	1BFC,	1C04,	1C0A,	1C2E,	1C2E,	1D88,	1D98
			1DA0						
1	7	GR7	1C00,	1C12,	1C16,	1C16,	1C2A,	1C2A,	1C62
			1C72,	1C80,	1C8A,	1D84,	1D94,	1D94,	1DAC
1	8	GR8	192E,	1A64,	1AAA,	1C42,	1C5A,	1C5A,	1C6A
			1C6A,	1C90					
1	9	GR9	1B2A,	1B36,	1BA6,	1BB2,	1BC2,	1C46,	1C5E
			1C5E,	1C6E,	1C6E,	1CBC,	1CD2,	1CE4,	1CF4
			1D02,	1D10,	1D1E,	1D2C,	1D3A,	1D5A,	1D68
			1D70,	1D7C,	1D7C,	1D9C,	1D9C		
1	A	GRA	1B2E,	1B4E,	1BAA,	1BB6,	1C76,	1CC8,	1DA8
1	B	GRB	194E,	1976,	19A2,	19CA,	1B0E,	1B6E,	1B90
			1BD4,	1CCA					
1	C	GRC	1946,	199A,	1B66				
1	D	GRD							
1	E	GRE	1AAE						
1	F	GRF							
1	4	LOW	1BE2,	1C7C					
1	12E8	SIO	194E,	1976,	19A2,	19CA,	1B6E,	1B90,	1B9C
			1DB8						
1	2	BUSY							
100	17E4	DRDR	1982,	19E2,	19E6,	1A30,	1A74,	1B20,	1C72
			1D88						
100	1850	DRPU	19D6,	19EE,	19F2,	1A3A,	1A4C,	1A8C,	1C62
			1D98						
8	1BBD	ERRX	1CA2,	1CAC,	1CB6,	1CC6			
1	16EC	EXIT	1914,	1AB2,	1ABA				
1	48	HCAW							
1	40	HCSW							
1	2	HIGH							
1	78	HION							
4	1AAE	PERT	1A6C						
1	1004	SNSW	1918,	1926,	1A5C,	1A68,	1AA2		
1	1231	UAPU	19AE,	1A90					
1	122D	UARD	195A,	1A78					
1	8	ZERO							
1	1	ALLON	197E,	19D2,	1AB2,	1B76,	1B98,	1C56,	1D90
1	5	ANYON							
1	8	AVAIL							
10	1E4F	BTAON	1BC6						
10	1E63	BTBON							
10	1E77	BTCON	1BE6						

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* F8041   2821 SCAN/2540 READER/PUNCH
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10	1E8B	BTDON	1C1C						
10	1E9F	BTEON							
10	1DEB	BUAON	1BCE						
10	1DFF	BUBON							
10	1E13	BUCON							
10	1E27	BUDON							
10	1E3B	BUEON							
2	1DC8	COM50	1B3A,	1B44					
1	11FA	CSWAG	1988,	19DC					
1	4	CSWST							
1	8	EQUAL	1910,	19FC,	1A36,	1A40,	1BD4,	1C06,	1C90
8	17D8	ERNUM	1AC2,	1ACA,	1ACC,	1ACE,	1CBC,	1CC4	
1	2	GZERO							
16	18C5	LGMSG	1A78,	1A90,	1AD8				
1	1202	MESS1	195A,	1964,	19AE,	19B8			
1	4	MIXED							
16	1EB3	NOERR	1A5A						
1	7	NZERO							
1	1908	RTN03	1015						
1	1000	SECST	1000,	1000,	1000,	1000,	1000,	1000,	1000
			1000,	1000,	1000,	1000,	1000,	1000,	1000
			1000,	1000,	1000,	1000,	1018,	1A74,	1A76
			1A8C,	1ABE,	1ACA,	1ACC,	1CC4,	1CC6	
1	11F7	SENSE							
16	1DCA	TITLE	1924						
1	10E0	UNIT1							
1	10E4	UNIT2							
6	1932	ADCK00	192A,	1966					
6	195A	ADCK01	197E						
6	196A	ADCK10	1956						
6	198E	ADCK20	19BA						
6	19AE	ADCK21	19D2						
6	19BE	ADCK30	19AA						
4	19E2	ADCK40							
2	19FA	ADCK41	19EA,	1A12					
4	1A16	ADCK50	19F6						
6	1A4C	ADCK51	1A36						
4	1A5C	ADCK52	1CA4,	1CAE,	1CB8				
4	1ABE	ADCK53	1A84,	1A90					
4	1AEE	ADCK60	1A1A						
4	1AFA	ADCK70	1A22,	1A52					
4	1B02	ADCK80	1A40,	1AF6					
4	1B0A	ADCK90	1A48,	1AF2					
4	1B36	ADCK91	1B26						
4	1B56	ADCK92	1B40,	1B4A					
4	1BB2	ADCK93	1B5A,	1BA2					
2	1C9E	ADCKA0	1B32,	1B52,	1BAE,	1BBA,	1C42,	1D84	
4	1CCA	ADCKB0	1AFE,	1B06					
4	1D84	ADCKB1	1CE0,	1CF0,	1CFE,	1D0C,	1D1A,	1D28,	1D36
			1D48,	1D5E,	1D6C				
6	1DA0	ADCKB2	1D90						
4	1DA8	ADCKB3	1D78,	1D80					
1	8	ALLOFF	191C,	192A,	1956,	19AA,	1A60,	1A6C,	1AA6
			1B5A,	1C0E,	1C4E				
4	1BBE	ALOC00	1B0E,	1CCA					
2	1BD2	ALOC10	1C9A						
4	1BF8	ALOC20	1BEC						
2	1C04	ALOC21	1C32						
4	1C2A	ALOC30	1C0E,	1C22					
6	1C36	ALOC40	1BE2						
4	1C42	ALOC50	1BF4,	1C06					
4	1C6A	ALOC51	1C56						
4	1C72	ALOC52	1C4E						
4	1C76	ALOC53	1C66						
6	1C8A	ALOC654	1C7C,	1C86					
4	1CBC	ALOC60	1B2E,	1B4E,	1BAA,	1BB6,	1C76,	1DA8	
1	F	ALWAYS	1914,	1966,	19BA,	1A12,	1A48,	1ABA,	1AEC

W.L.D.

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   BUFFER ADDR FLT -ROUTINE OVERLAY 03-

```
                    1AF6, 1AFE, 1B06, 1832, 1852, 1BAE, 1BBA
                    1BF4, 1C32, 1C66, 1C86, 1C9A, 1CA4, 1CAE
                    1C88, 1CC8, 1D78, 1D80, 1DAC
  10   1E59 BTAOFF
  10   1E6D BTBOFF
  10   1E81 BTCOFF
  10   1E95 BTDOFF
  10   1EA9 BTEOFF  1BCA
  10   1DF5 BUAOFF
  10   1E09 BUBOFF
  10   1E1D BUCOFF
  10   1E31 BUDOFF
  10   1E45 BUEOFF
   1   114C CAWKEY
   8   1DB0 CRDCCW  193E
   1   112C CSWSAV
   1   16E6 EXITBY
   4   190C INIT00  1B76, 1B98
   4   1918 INIT01  1910
   4   1926 INIT10  191C
  16   18DF LGMSG1  1ACE
   1     C MIXNON
   1     6 NEQUAL  1A1A, 1A22, 1A52, 1AF2, 1B26, 1B40, 1B4A
                    1BA2, 1BEC, 1C22, 1DA6
   1     9 NMIXED
   1     D NOTBSY
   1     4 NOTZRO
   8   18B4 PCSWAG  19DC, 1A1E, 1A96, 1AEE, 1B44
   8   1DC0 PURCCW  1B84
   8   1DB8 PUWCCW  1B5E
   2   1DE9 R03K00  1932, 196A, 198E, 19BE
   8   1848 RCSWAG  1988, 1A16, 1A7E, 1B3A
   4   17E0 RESCNT  1A7E, 1A96, 1ABE
   1   179C SCHNUM  190C, 1AB6
   1   1234 SCPDAT  1932, 1938, 1938, 1952, 196A, 1970, 1970
                    197A, 1982, 198E, 1994, 1994, 19A6, 198E
                    19C4, 19C4, 19CE, 19D6, 19FE, 1A04, 1A08
                    1A26, 1A2A, 1A2A, 1A30, 1A3A, 1A4C, 1A76
                    1A8E, 1ADE, 1AE4, 1AEA, 1B12, 1B16, 1B16
                    1B1C, 1B20, 1B7A, 1B7E, 1B7E, 1B9C, 1BD6
                    1BDA, 1BDA, 1BF0, 1C00, 1C26, 1C36, 1C3C
                    1C3C, 1C80, 1C8A, 1CD6, 1CDA, 1CDA, 1CE8
                    1CEC, 1CF8, 1CF8, 1D06, 1D06, 1D14, 1D14
                    1D22, 1D22, 1D30, 1D30, 1D3E, 1D42, 1D42
                    1D4C, 1D50, 1D50, 1D56, 1D62, 1D62, 1DA0
                    1DB0, 1DC0
   1   163E SCPR00  192E, 1A64, 1AAA
   1   114D SIOSWS  194A, 199E, 1B6A, 1B72, 1B8C, 1B94
   1   112C SIOVR3
   1   1134 SIOVR4
   1   11F8 STATSV
   1   188C SWITCH  1A44, 1AFA, 1B02, 1B0A, 1B56, 1C4A, 1C52
                    1D74, 1D8C
   1   10E2 UN1ADR  1946
   1   10E6 UN2ADR  199A, 1B66
   1   1000 XF8051
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   READER TRANSLATOR FLT -ROUTINE OVERLAY 04-

```
                   .8051 TITLE F8051  READER TRANSLATOR FLT -ROUTINE OVERLAY 04-
                   XF8051 START 4096
  001000                 USING *,15
  002000                 USING *&4096,10
  ***********************************************************************
  *                      THIRD OVERLAY - ROUTINE 04                     *
  ***********************************************************************
  *           RESIDENT LABELS ADDRESSED BY OVERLAYS                     *
  ***********************************************************************
  001000         SECST  EQU  *
  001004         SNSW   EQU  SECST&4
  001040         CSW    EQU  SECST&64
  001048         CAW    EQU  SECST&72
  0010E0         UNIT1  EQU  SECST&224
  0010E2         UN1ADR EQU  SECST&226
  0010E4         UNIT2  EQU  SECST&228
  0010E6         UN2ADR EQU  SECST&230
  00112C         SIOVR3 EQU  SECST&300
  001134         SIOVR4 EQU  SECST&308
  00114D         SIOSW5 EQU  SECST&333
  0011F8         STATSV EQU  SECST&504
  0011FA         CSWAG  EQU  SECST&506
  001231         UAPU   EQU  SECST&561
  00112C         CSWSAV EQU  SECST&300
  00114C         CAWKEY EQU  SECST&332
  0011F7         SENSE  EQU  SECST&503
  00122D         UARD   EQU  SECST&557
  0016EC         EXIT   EQU  SECST&1772
  0016E6         EXITBY EQU  SECST&1766
  00179C         SCHNUM EQU  SECST&1948
  001234         SCPDAT EQU  SECST&564
  00163E         SCPR00 EQU  SECST&1598
  0012E8         SIO    EQU  SECST&744
  001060         SVRPSW EQU  SECST&96
  001714         EXIT1  EQU  SECST&1812
  00171C         EXIT2  EQU  SECST&1820
  000048         HCAW   EQU  72
  000040         HCSW   EQU  64
  001202         MESS1  EQU  SECST&514
  00114D         SIOSWS EQU  SECST&333
  ***********************************************************************
  001015                 ORG  SECST&21
  001015 001950          DC   AL3(RTN04)         INITIAL PSW STARTING ADDR FOR RTN 04
  001060                 ORG  SECST&96
  001060 010000000F0     DC   X'010000000F'      SVC RETURN PSW
  001065 001BBB          DC   AL3(RDCRD1)
         0017D0          ORG  SECST&2000
  ***********************************************************************
  *              VARIABLES-DOUBLE WORD BOUNDARY-                        *
  ***********************************************************************
  0017D0                 CNOP 0,8
  0017D0 0000000000000000 WKAR3 DC  XL8'00'
  0017D8 0000000000000000 WKAR4 DC  XL8'00'
  ***********************************************************************
  *              VARIABLES - WORD BOUNDARY-                             *
  ***********************************************************************
  0017E0                 CNOP 0,4
  0017E0 00000000        TSTOR DC  XL4'00'
  0017E4 00000000        ERNO  DC  XL4'00'
  ***********************************************************************
  *              VARIABLES -NO BOUNDARY-                                *
  ***********************************************************************
  0017E8 000000000000000000 DRDAT DC  6XL14'00'
  0017F1 0000000000
  0017F6 000000000000000000
```

W.L.O.

* F8041   2821 SCAN/2540 READER/PUNCH
  F8051   READER TRANSLATOR FLT —ROUTINE OVERLAY 04—

```
0017FF    0000000000
001804    0000000000000000000
00180D    0000000000
001812    00000000000000000
00181B    0000000000
001820    00000000000000000
001829    0000000000
00182E    00000000000000000000
001837    0000000000
00183C    00000000000000000000    SENDAT  DC    6XL14'00'
001845    0000000000
00184A    00000000000000000000
001853    0000000000
001858    00000000000000000000
001861    0000000000
001866    00000000000000000000
00186F    0000000000
001874    00000000000000000000
00187D    0000000000
001882    00000000000000000000
00188B    0000000000
001890    00000000000000000000    CKRDAT  DC    6XL14'00'
001899    0000000000
00189E    00000000000000000000
0018A7    0000000000
0018AC    00000000000000000000
0018B5    0000000000
0018BA    00000000000000000000
0018C3    0000000000
0018C8    00000000000000000000
0018D1    0000000000
0018D6    00000000000000000000
0018DF    0000000000
0018E4    00000000000000000000    COMDAT  DC    6XL16'00'
0018ED    0000000000000000
0018F4    0000000000000000
0018FD    0000000000000000
001904    0000000000000000
00190D    0000000000000000
001914    0000000000000000
00191D    0000000000000000
001924    00000000000000000
00192D    0000000000
001934    000000000000000000
00193D    0000000000
001944    00                      ERSW1   DC    X'00'
001945    C5D9D940E7E7E7E7        ERRX    DC    C'ERR XXXX'
```

```
          *****************************************************************
          *                  ROUTINE 04 PREFIX                           *
          *****************************************************************
00194E                            CNOP    0,4
00194E    07 00                   BCR     0,0
001950    04                RTN04 DC      XL1'04'          ROUTINE NUMBER
001951    00                      DC      XL1'00'          FLAGS
001952    FFFE                    DC      X'FFFE'          ADDRESS OF NEXT ROUTINE
          *
001954    95 84 F 79C       RT00  CLI     SCHNUM,X'84'     SEE IF SHOULD RUN THIS ROUTINE
001958    47 80 F 96E             BC      EQUAL,RT01       ,, BRCH IF YES
00195C    95 00 F 79C             CLI     SCHNUM,X'00'     SEE IF SHLD RUN THIS ROUTINE
001960    47 80 F 96E             BC      EQUAL,RT01       ,, BRCH IF YES
001964    D2 02 F 065 F FED  RTOX  MVC     SVRPSW6(3),SCRAD SET UP RETURN SVC PSW ADDR
00196A    47 F0 F 714             BC      ALWAYS,EXIT1     BYPASS DATA CARDS & ROUTINE EXIT
00196E    91 02 F 004       RT01  TM      SNSW,X'02'       SEE IF WANT TITLE PRINTOUT
001972    47 80 F 97C             BC      ALLOFF,RTO2      ,, BRCH IF NO
001976    0A D0                   SVC     X'D0'            PRINT TITLE
001978    80                      DC      X'80'            ,, NORMAL OUTPUT
001979    0E                      DC      X'0E'            ,, 14 CHARACTERS
00197A    F F58                   DC      S(TITLE)         ,, ADDRESS OF TITLE
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00197C    91 40 F 004       RTO2  TM      SNSW,X'40'       SEE IF WANT UTILITY ROUTINE
001980    47 80 F 988             BC      ALLOFF,RTO3      ,, BRCH IF NO
001984    45 80 F 63E             BAL     GR8,SCPROO       BRCH TO UTILITY ROUTINE
          *
          *                  DATA COLLECTION ROUTINE
          *
001988    41 10 F E58       RTO3  LA      GR1,INDAT        INITIALIZE
00198C    41 20 F 7E8             LA      GR2,DRDAT        ,,
001990    41 30 F 83C             LA      GR3,SENDAT       ,,
001994    41 40 F 890             LA      GR4,CKRDAT       ,,
001998    1B 66                   SR      GR6,GR6          ,,
00199A    92 00 F 8E4             MVI     COMDAT,X'00'     ,,
00199E    D2 5E F 8E5 F 8E4       MVC     COMDAT&1(95),COMDAT ,,
0019A4    45 A0 F BE6       RTO4  BAL     GRA,DWR          GO PERFORM DIAG WRITE TO READER
0019A8    45 A0 F C10             BAL     GRA,DRR          GO READ RD BUFFER
0019AC    D7 03 F 7E0 F 7E0       XC      TSTOR(4),TSTOR   COMBINE READ DATA & INVAL CARD CODE
0019B2    D2 00 F 7E0 2 000       MVC     TSTOR(1),0(GR2)  ,,
0019B8    91 08 3 000             TM      0(GR3),X'08'     ,,
0019BC    47 80 F 9C4             BC      ALLOFF,RTO5      ,,
0019C0    92 80 F 7E1             MVI     TSTOR&1,X'80'    ,,
0019C4    58 B0 F 7E0       RTO5  L       GRB,TSTOR        ,,
0019C8    18 96                   LR      GR9,GR6          ,,
0019CA    5C 80 F E48             M       GR8,NINE         ,,
0019CE    1B 88                   SR      GR8,GR8          ,,
0019D0    5D 80 F E4C             D       GR8,EIGHT        ,,
0019D4    88 B0 8 000             SRL     GRB,0(GR8)       ,,
0019D8    50 B0 F 7E0             ST      GRB,TSTOR        ,,
0019DC    41 99 F 8E4             LA      GR9,COMDAT(GR9)  ,,
0019E0    D6 03 9 000 F 7E0       OC      0(4,GR9),TSTOR   ,,
0019E6    41 60 6 001             LA      GR6,1(GR0,GR6)   SEE IF END OF DATA COLLECTION
0019EA    41 B0 0 051             LA      GRB,81(GR0,GR0)  ,,
0019EE    15 6B                   CLR     GR6,GRB          ,,
0019F0    47 80 F A08             BC      EQUAL,RTO6       ,,
0019F4    41 10 1 002             LA      GR1,2(GR0,GR1)   UPDATE ADDRESSES FOR NEXT CHARACTER
0019F8    41 20 1 002             LA      GR2,1(GR0,GR2)   ,,
0019FC    41 30 3 001             LA      GR3,1(GR0,GR3)   ,,
001A00    41 40 4 001             LA      GR4,1(GR0,GR4)   ,,
001A04    47 F0 F 9A4             BC      ALWAYS,RTO4      GO COLLECT DATA FOR NEXT CHARACTER
001A08    41 10 1 002       RTO6  LA      GR1,2(GR0,GR1)
001A0C    45 A0 F BE6             BAL     GRA,DWR          CLEAR VALIDITY CHECK
          *
          *                  ERROR DETECTION ROUTINE
          *
001A10    D5 5B F 8E4 F EFC  RT10  CLC     COMDAT(92),OUTDAT SEE IF GOT ANY ERRORS
001A16    47 60 F A1E             BC      NEQUAL,RT20      ,, BRCH IF YES
001A1A    47 F0 F C6C             BC      ALWAYS,LGOUT     GO SEE IF WANT LOG OUT
001A1E    41 10 0 054       RT20  LA      GR1,84(GR0,GR0)  INITIALIZE DATA RECORD COUNT
001A22    92 84 F 79C             MVI     SCHNUM,X'84'     SET UP TO BYPASS ALL REMAINING OVLYS
001A26    0A DB                   SVC     X'DB'            LOAD FIRST DATA CARD IN BUFFER
001A28    0234                    DC      AL2(SCPDAT-SECST) ,,
001A2A    45 B0 F B8E       PT051 BAL     GRB,RDCRD        GO READ A DATA CARD
001A2E    41 90 F 234       PTO6  LA      GR9,SCPDAT       SET UP CURRENT DATA ADDRESS
001A32    92 00 F 944       PT061 MVI     ERSW1,X'00'      RESET ERR SW 1
001A36    1B 22                   SR      GR2,GR2          SET COUNT OF MASKS IN GR 2
001A38    43 20 9 000             IC      GR2,0(GR0,GR9)   ,,
001A3C    41 90 9 001             LA      GR9,1(GR0,GR9)   UPDATE CURRENT ADDR BY 1
001A40    43 30 9 000       PT062 IC      GR3,0(GR0,GR9)   SET CC IN GR 3
001A44    89 30 0 018             SLL     GR3,24           ,,
001A48    41 90 9 001             LA      GR9,1(GR0,GR9)   UPDATE CURRENT ADDR BY 1
001A4C    41 40 0 004             LA      GR4,4(GR0,GR0)   SET 4 IN GR 4
001A50    41 50 F 8E4       PT063 LA      GR5,COMDAT       SET TEST DATA ADDR
001A54    1B 88                   SR      GR8,GR8          SET UP TEST ADDRESS
001A56    43 80 9 000             IC      GR8,0(GR0,GR9)   ,,
001A5A    41 58 5 000             LA      GR5,0(GR8,GR5)   ,,
001A5E    41 90 9 001             LA      GR9,1(GR0,GR9)   UPDATE CURRENT ADDR BY 1
001A62    43 60 9 000             IC      GR6,0(GR0,GR9)   SET UP MASK
001A66    41 90 9 001             LA      GR9,1(GR0,GR9)   UPDATE CURRENT ADDR BY 1
001A6A    50 20 F 7D0             ST      GR2,WKAR3        CONVERT CC
```

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* F8041   2821 SCAN/2540 READER/PUNCH
F8051   READER TRANSLATOR FLT -ROUTINE OVERLAY 04-

```
001A6E  1B 22              SR    GR2,GR2         ,,
001A70  41 70 0 080        LA    GR7,128         ,,
001A74  8D 20 0 002        SLDL  GR2,2           ,,
001A78  88 70 2 000        SRL   GR7,0(GR2)      ,,
001A7C  49 70 F E52        CH    GR7,THRT2       IS CC 2
001A80  47 60 F A88        BC    NEQUAL,PT0630   ,, BRCH IF NO
001A84  41 70 0 050        LA    GR7,80          SET CC FOR ANY OR ALL
001A88  58 20 F 7D0 PT0630 L     GR2,WKAR3       RESTORE GR 2
001A8C  44 60 F B7E        EX    GR6,TMA         TEST DATA
001A90  44 70 F B82        EX    GR7,BCON        BRCH IF ERROR RESULT
001A94  92 FF F 944        MVI   ERSW1,X'FF'     TURN ON ERR SW 1
001A98  46 20 F AF8        BCT   GR2,PT067       BRCH IF NOT END OF MASKS FOR THIS CC
001A9C  46 40 F AA0        BCT   GR4,*&4         UPDATE CURRENT ADDRESS
001AA0  1E 94              ALR   GR9,GR4         ,,
001AA2  1E 94              ALR   GR9,GR4         ,,
001AA4  41 80 F 27A PT0631 LA    GR8,SCPDAT&70   DOES THIS CARD CONTAIN NEXT DATA FLD
001AA8  41 70 9 003        LA    GR7,3(GRO,GR9)  ,,
001AAC  15 78              CLR   GR7,GR8         ,,
001AAE  47 20 F ADA        BC    HIGH,PT065      ,, BRCH IF NO
001AB2  91 10 F 004        TM    SNSW1,X'10'     PRINT CORRECT RESULTS
001AB6  47 F0 F AC4        BC    ALWAYS,PT064    ,, BRCH IF NO
001ABA  D2 03 F 949 9 000  MVC   ERRX&4(4),O(GR9) SET FAULT NO IN MESSAGE
001AC0  45 80 F B86        BAL   GRB,PRCRES      GO PRINT FAULT NO.
001AC4  41 90 9 004  PT064 LA    GR9,4(GRO,GR9)  UPDATE CURRENT ADDR BY 4
001AC8  41 80 F 27A        LA    GR8,SCPDAT&70   DOES THIS CARD CONTAIN NEXT DATA FLD
001ACC  41 70 9 009        LA    GR7,9(GRO,GR9)  ,,
001AD0  15 78              CLR   GR7,GR8         ,,
001AD2  47 20 F A2A        BC    HIGH,PT051      ,, BRCH IF NO
001AD6  47 F0 F A32        BC    ALWAYS,PT061    CONTINUE
001ADA  45 80 F B8E  PT065 BAL   GRB,RDCRD       READ A DATA CARD
001ADE  91 10 F 004        TM    SNSW1,X'10'     PRINT CORRECT RESULTS
001AE2  47 F0 F AF0        BC    ALWAYS,PT066    ,, BRCH IF NO
001AE6  D2 03 F 949 F 234  MVC   ERRX&4(4),SCPDAT SET FAULT NO IN MESSAGE
001AEC  45 80 F B86        BAL   GRB,PRCRES      GO PRINT FAULT NO.
001AF0  41 90 F 238  PT066 LA    GR9,SCPDAT&4    SET CURRENT ADDRESS
001AF4  47 F0 F A32        BC    ALWAYS,PT061    CONTINUE
001AF8  46 40 F A50  PT067 BCT   GR4,PT063       BRCH IF DID NOT USE 4 MASKS
001AFC  41 80 F 27A        LA    GR8,SCPDAT&70   DOES THIS CARD CONTAIN NEXT DATA FLD
001B00  41 70 9 008        LA    GR7,8(GRO,GR9)  ,,
001B04  15 78              CLR   GR7,GR8         ,,
001B06  47 C0 F A40        BC    LOEQ,PT062      ,, BRCH IF YES
001B0A  45 80 F B8E        BAL   GRB,RDCRD       READ A DATA CARD
001B0E  41 90 F 234        LA    GR9,SCPDAT      SET CURRENT ADDRESS
001B12  47 F0 F A40        BC    ALWAYS,PT062    CONTINUE
001B16  46 20 F AF8  PT068 BCT   GR2,PT067       BRCH IF NOT LAST MASK
001B1A  46 40 F B1E        BCT   GR4,*&4         UPDATE CURRENT ADDRESS
001B1E  1E 94              ALR   GR9,GR4         ,,
001B20  1E 94              ALR   GR9,GR4         ,,
001B22  91 FF F 944        TM    ERSW1,X'FF'     SEE IF ERR SW 1 ON
001B26  47 10 F AA4        BC    ALLON,PT0631    ,, BRCH IF YES
001B2A  41 80 F 27A        LA    GR8,SCPDAT&70   DOES THIS CARD CONTAIN NEXT DATA FLD
001B2E  41 70 9 003        LA    GR7,3(GRO,GR9)  ,,
001B32  15 78              CLR   GR7,GR8         ,,
001B34  47 20 F B72        BC    HIGH,PT06A      ,, BRCH IF NO
001B38  D2 02 F 949 9 001 PT069 MVC ERRX&4(3),1(GR9) MOVE ERROR NO. TO ERROR MESSAGE
001B3E  D7 07 F 7D0 F 7D0  XC    WKAR3(8),WKAR3  CONVERT ERR NO. TO BINARY & SAVE
001B44  D2 02 F 7D5 9 001  MVC   WKAR3&5(3),1(GR9) ,,
001B4A  F2 22 F 7D5 F 7D5  PACK  WKAR3&5(3),WKAR3&5(3) ,,
001B50  4F 80 F 7D0        CVB   GR8,WKAR3       ,,
001B54  41 80 8 08C        LA    GR8,140(GRO,GR8) ,,
001B58  50 80 8 7E4        ST    GR8,ERNO        ,,
001B5C  4E 80 F 7D0        CVD   GR8,WKAR3       CONVERT ERROR NO. TO PRINTABLE
001B60  0A DD              SVC   X'DD'           ,,
001B62  0002               DC    AL2(2)          ,,
001B64  07D6               DC    AL2(WKAR3&6-SECST) ,,
001B66  0949               DC    AL2(ERRX&4-SECST)  ,,
001B68  0A DO              SVC   X'DO'           ERR XXX - SEE ERNO & ERR DEFINSHUN
001B6A  44                 DC    X'44'           ,, ERROR OUTPUT
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   READER TRANSLATOR FLT -ROUTINE OVERLAY 04-

```
001B6B  07                 DC    X'07'           ,, 7 CHARACTERS
001B6C  F 945              DC    S(ERRX)         ,, MESSAGE ADDRESS
001B6E  47 F0 F C6C        BC    ALWAYS,LGOUT    GO SEE IF WANT LOG OUT
001B72  45 80 F B8E  PT06A BAL   GRB,RDCRD       READ A DATA CARD
001B76  41 90 F 234        LA    GR9,SCPDAT      SET CURRENT ADDRESS
001B7A  47 F0 F B38        BC    ALWAYS,PT069    CONTINUE
001B7E  91 00 5 000  TMA   TM    O(GR5),X'00'    TEST DATA
001B82  47 00 F B16  BCON  BC    NA,PT068
*
*       ROUTINE TO PRINT FAULT NUMBERS
*
001B86  0A DO      PRCRES  SVC   X'DO'           PRINT FAULT NO.
001B88  80                 DC    X'80'           ,, NORMAL OUTPUT
001B89  08                 DC    X'08'           ,, 8 CHARACTERS
001B8A  F 945              DC    S(ERRX)         ,, MESSAGE ADDRESS
001B8C  07 FB              BCR   ALWAYS,GRB      RETURN TO MAIN PROGRAM
*
*       ROUTINE TO READ DATA CARDS
*
001B8E  92 00 F 234  RDCRD MVI   SCPDAT,X'00'    CLEAR READ BUFFER
001B92  D2 4E F 235 F 234  MVC   SCPDAT&1(79),SCPDAT ,,
001B98  0A DB              SVC   X'DB'           READ A DATA CARD
001B9A  0234               DC    AL2(SCPDAT-SECST) READ BUFFER ADDRESS
001B9C  41 10 1 001        LA    GR1,1(GRO,GR1)  INCREASE CARD COUNT
001BA0  4E 10 F 7D0        CVD   GR1,WKAR3       CONVERT CARD NO. TO PRINTABLE
001BA4  0A DD              SVC   X'DD'           ,,
001BA6  0002               DC    AL2(2)          ,,
001BA8  07D6               DC    AL2(WKAR3&6-SECST) ,,
001BAA  07D8               DC    AL2(WKAR4-SECST)   ,,
001BAC  D5 02 F 7D8 F 281  CLC   WKAR4(3),SCPDAT&77 SEE IF DATA CARD SEQUENCE OK
001BB2  47 60 F BC2        BC    NEQUAL,RDCRDX   ,, BRCH IF NO
001BB6  07 FB              BCR   ALWAYS,GRB      RETURN TO MAIN PROGRAM
001BB8  58 20 F E54  RDCRD1 L    GR2,CDCNT       SEE IF CORR NO. DATA CARDS READ
001BBC  15 21              CLR   GR2,GR1         ,,
001BBE  47 80 F BD4        BC    EQUAL,RDCRD2    ,, BRCH IF YES
001BC2  41 30 0 08C RDCRDX LA    GR3,140(GRO,GRO) SET UP ERROR NO.
001BC6  50 30 F 7E4        ST    GR3,ERNO        ,,
001BCA  0A DO              SVC   X'DO'           ERROR 140 - MISSING DATA RECORDS OR
001BCC  44                 DC    X'44'           ,,        DATA RECORDS OUT OF SEQ
001BCD  07                 DC    X'07'           ,, 7 CHARACTERS
001BCE  F FFO              DC    S(ERR140)       ,, MESSAGE ADDRESS
001BD0  47 F0 F C6C        BC    ALWAYS,LGOUT    GO SEE IF WANT LOG OUT
001BD4  41 30 0 08D RDCRD2 LA    GR3,141(GRO,GRO) SET UP ERROR NUMBER
001BD8  50 30 F 7E4        ST    GR3,ERNO        ,,
001BDC  0A DO              SVC   X'DO'           ERROR 141 - CAN NOT ISOLATE FAILURE
001BDE  44                 DC    X'44'           ,, ERROR MESSAGE
001BDF  07                 DC    X'07'           ,, 7 CHARACTERS
001BE0  F FF7              DC    S(ERR141)       ,, MESSAGE ADDRESS
001BE2  47 F0 F C6C        BC    ALWAYS,LGOUT    GO SEE IF WANT LOG OUT
*
*       ROUTINE TO PERFORM DIAGNOSTIC WRITE TO READER
*
001BE6  48 C0 F 0E6  DWR   LH    GRC,UN2ADR      SET PUNCH I/O ADDR IN GR 12
001BEA  D2 01 F 234 1 000  MVC   SCPDAT(2),O(GR1) LOAD WRITE DATA
001BF0  D2 9D F 236 F 234  MVC   SCPDAT&2(158),SCPDAT ,,
001BF6  41 00 F E30        LA    GRO,RWRCCW      LOAD ADDR OF READER WRITE CCW
001BFA  50 00 F 048        ST    GRO,CAW         ,,
001BFE  92 00 F 14D        MVI   SIOSWS,X'00'    RESET SIO SWS -USE PUNCH ADDRESS-
001C02  45 80 F 2E8        BAL   GRB,SIO         BRCH TO SIO ROUTINE
001C06  91 01 F 14D        TM    SIOSWS,X'01'    SEE IF INTERVENTION REQ SW ON
001C0A  47 10 F BE6        BC    ALLON,DWR       ,, REPEAT WRITE IF YES
001C0E  07 FA              BCR   ALWAYS,GRA      RETURN TO MAIN PROGRAM
*
*       ROUTINE TO READ READER BUFFER
*
001C10  92 00 F 234  DRR   MVI   SCPDAT,X'00'    CLEAR READ FIELD
001C14  D2 9E F 235 F 234  MVC   SCPDAT&1(159),SCPDAT ,,
001C1A  41 00 F E38        LA    GRO,RRDCCW      LOAD ADDR OF READER READ CCW
```

W.L.D.

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```
001C1E   50 00 F 048              ST    GR0,CAW              ,,
001C22   92 02 F 14D              MVI   SIOSWS,X'02'         RESET SIO SWITCHES -USE READER-
001C26   48 C0 F 0E2              LH    GRC,UN1ADR           LOAD READER ADDR IN GR 12
001C2A   45 B0 F 2E8              BAL   GRB,SIO              BRCH TO SIO ROUTINE
001C2E   91 01 F 14D              TM    SIOSWS,X'01'         SEE IF INTERVENTION REQ SW ON
001C32   47 10 F 9A4              BC    ALLON,RT04           ,, RETRY WRITE & READ IF YES
001C36   D2 00 2 000 F 234        MVC   0(1,GR2),SCPDAT      SAVE READ DATA
001C3C   D2 00 3 000 F 1F7        MVC   0(1,GR3),SENSE       SAVE READ SENSE DATA
                             *
                             *     ROUTINE TO PERFORM READER DIAGNOSTIC CHECK READ
                             *
001C42   41 00 F E40        DCRR  LA    GR0,CRDCCW           LOAD ADDR OF DIAG CK RD CCW
001C46   50 00 F 048              ST    GR0,CAW              ,,
001C4A   92 02 F 14D              MVI   SIOSWS,X'02'         RESET SIO SWS -USE READER-
001C4E   92 00 F 234              MVI   SCPDAT,X'00'         CLEAR READ FIELD
001C52   D2 9E F 235 F 234        MVC   SCPDAT&1(159),SCPDAT ,,
001C58   45 B0 F 2E8              BAL   GRB,SIO              BRCH TO SIO ROUTINE
001C5C   91 01 F 14D              TM    SIOSWS,X'01'         SEE IF INTERVENTION REQ SW ON
001C60   47 10 F 9A4              BC    ALLON,RT04           ,, RETRY WRITE & READ IF YES
001C64   D2 00 4 000 F 234        MVC   0(1,GR4),SCPDAT      SAVE CHECK READ DATA
001C6A   07 FA                    BCR   ALWAYS,GRA           RETURN TO MAIN PROGRAM
                             *
                             *     LOG OUT ROUTINE
                             *
001C6C   91 20 F 004        LGOUT TM    SNSW,X'20'           SEE IF WANT LOG OUT
001C70   47 80 F E1C              BC    ALLOFF,LGOUTX        ,, BRCH IF NO
001C74   92 60 F 234              MVI   SCPDAT,C'-'          PRINT COLUMN HEADERS
001C78   D2 47 F 235 F 234        MVC   SCPDAT&1(72),SCPDAT  ,,
001C7E   45 B0 F CD8              BAL   GRB,LGOUT9           ,,
001C82   0A D0                    SVC   X'D0'                ,,
001C84   80                       DC    X'80'                ,,
001C85   49                       DC    X'49'                ,,
001C86   F F66                    DC    S(MSG1)              ,,
001C88   45 B0 F CC4              BAL   GRB,LGOUT8           ,,
001C8C   92 40 F 234              MVI   SCPDAT,X'40'         ,,
001C90   D2 47 F 235 F 234        MVC   SCPDAT&1(72),SCPDAT  ,,
001C96   D2 0A F 240 F FAF        MVC   SCPDAT&25(11),MSG2   ,,
001C9C   45 B0 F CBA              BAL   GRB,LGOUT7           ,,
001CA0   D2 04 F 236 F FBA        MVC   SCPDAT&2(5),MSG3     ,,
001CA6   D2 0A F 23E F FC7        MVC   SCPDAT&10(11),MSG4   ,,
001CAC   D2 0C F 24C F FBA        MVC   SCPDAT&24(13),MSG3   ,,
001CB2   45 B0 F CBA              BAL   GRB,LGOUT7           ,,
001CB6   47 F0 F CE0              BC    ALWAYS,LGOUTM        ,,
001CBA   92 C9 F 23C        LGOUT7 MVI  SCPDAT&8,C'I'        ,,
001CBE   D2 1C F 25D F 24C        MVC   SCPDAT&40(29),SCPDAT&24 ,,
001CC4   92 C9 F 234        LGOUT8 MVI  SCPDAT,C'I'          ,,
001CC8   92 C9 F 24A              MVI   SCPDAT&22,C'I'       ,,
001CCC   92 C9 F 25A              MVI   SCPDAT&38,C'I'       ,,
001CD0   92 C9 F 26A              MVI   SCPDAT&54,C'I'       ,,
001CD4   92 C9 F 27C              MVI   SCPDAT&72,C'I'       ,,
001CD8   0A D0              LGOUT9 SVC   X'D0'               ,,
001CDA   80                       DC    X'80'               ,,
001CDB   49                       DC    X'49'               ,,
001CDC   F 234                    DC    S(SCPDAT)           ,,
001CDE   07 FB                    BCR   ALWAYS,GRB          ,,
001CE0   41 10 F E58        LGOUTM LA   GR1,INDAT           INITIALIZE
001CE4   41 20 F 7E8              LA    GR2,DRDAT           ,,
001CE8   41 30 0 000              LA    GR3,0(GR0,GR0)      ,,
001CEC   41 40 F 83C              LA    GR4,SENDAT          ,,
001CF0   41 50 F 890              LA    GR5,CKRDAT          ,,
001CF4   41 60 0 051              LA    GR6,81(GR0,GR0)     ,,
001CF8   0A D0                    SVC   X'D0'               PRINT BLANK LINE
001CFA   80                       DC    X'80'               ,,
001CFB   01                       DC    X'01'               ,,
001CFC   F F67                    DC    S(MSG6)             ,,
001CFE   92 40 F 234        LGOUTA MVI  SCPDAT,X'40'        CLEAR PRINT FIELD
001D02   D2 4E F 235 F 234        MVC   SCPDAT&1(79),SCPDAT ,,
001D08   D2 01 F 7D0 1 000        MVC   WKAR3(2),0(GR1)     CONVERT WRITE DATA TO PRINTABLE
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```
001D0E   0A DD                    SVC   X'DD'               ,,
001D10   0002                     DC    AL2(2)              ,,
001D12   07D0                     DC    AL2(WKAR3-SECST)    ,,
001D14   0237                     DC    AL2(SCPDAT&3-SECST) ,,
001D16   D2 00 F 7D6 F 7D0        MVC   WKAR3&6(1),WKAR3    CONVERT WRITE DATA TO HOLLARITH
001D1C   41 70 F 23E              LA    GR7,SCPDAT&10       ,,
001D20   D2 01 F 25D F FD2        MVC   SCPDAT&41(2),MSG5   ,,
001D26   D2 11 F 265 F 25D        MVC   SCPDAT&49(18),SCPDAT&41 ,,
001D2C   41 B0 0 001              LA    GRB,1(GR0,GR0)      ,,
001D30   41 90 F FD4              LA    GR9,HCON            ,,
001D34   43 80 9 000        LGOUTB IC   GR8,0(GR0,GR9)      ,,
001D38   44 80 F D70              EX    GR8,LGOUTE          ,,
001D3C   47 80 F D46              BC    ALLOFF,LGOUTC       ,,
001D40   D2 00 7 000 9 00D        MVC   0(1,GR7),13(GR9)    ,,
001D46   41 B0 B 001        LGOUTC LA   GRB,1(GR0,GRB)      ,,
001D4A   41 80 0 007              LA    GR8,7(GR0,GR0)      ,,
001D4E   15 B8                    CLR   GRB,GR8             ,,
001D50   47 40 F D64              BC    LOW,LGOUTD          ,,
001D54   D2 00 F 7D6 F 7D1        MVC   WKAR3&6(1),WKAR3&1  ,,
001D5A   41 80 0 00D              LA    GR8,13(GR0,GR0)     ,,
001D5E   15 B8                    CLR   GRB,GR8             ,,
001D60   47 80 F D74              BC    EQUAL,LGOUTF        ,,
001D64   41 70 7 001        LGOUTD LA   GR7,1(GR0,GR7)      ,,
001D68   41 90 9 001              LA    GR9,1(GR0,GR9)      ,,
001D6C   47 F0 F D34              BC    ALWAYS,LGOUTB       ,,
001D70   91 00 F 7D6        LGOUTE TM   WKAR3&6,X'00'       ,,
001D74   D2 00 F 7D0 2 000  LGOUTF MVC  WKAR3(1),0(GR2)     CONVERT READ DATA TO PRINTABLE
001D7A   0A DD                    SVC   X'DD'               ,,
001D7C   0001                     DC    AL2(1)              ,,
001D7E   07D0                     DC    AL2(WKAR3-SECST)    ,,
001D80   024D                     DC    AL2(SCPDAT&25-SECST) ,,
001D82   1B 88                    SR    GR8,GR8             CONVERT EXPECTED READ & SENSE DATA
001D84   18 93                    LR    GR9,GR3             ,,
001D86   5C 80 F E48              M     GR8,NINE            ,,
001D8A   5D 80 F E4C              D     GR8,EIGHT           ,,
001D8E   41 89 F EFC              LA    GRB,OUTDAT(GR9)     ,,
001D92   D2 01 F 7D2 B 000        MVC   WKAR3&2(2),0(GRB)   ,,
001D98   58 70 F 7D0              L     GR7,WKAR3           ,,
001D9C   89 70 8 010              SLL   GR7,16(GR8)         ,,
001DA0   50 70 F 7D0              ST    GR7,WKAR3           ,,
001DA4   91 80 F 7D1              TM    WKAR3&1,X'80'       ,,
001DA8   47 80 F DB0              BC    ALLOFF,*&8          ,,
001DAC   92 F8 F 266              MVI   SCPDAT&50,X'F8'     ,,
001DB0   0A DD                    SVC   X'DD'               ,,
001DB2   0001                     DC    AL2(1)              ,,
001DB4   07D0                     DC    AL2(WKAR3-SECST)    ,,
001DB6   0255                     DC    AL2(SCPDAT&33-SECST) ,,
001DB8   D2 00 F 7D0 4 000        MVC   WKAR3(1),0(GR4)     CONVERT READ SENSE DATA FOR PRINT
001DBE   0A DD                    SVC   X'DD'               ,,
001DC0   0001                     DC    AL2(1)              ,,
001DC2   07D0                     DC    AL2(WKAR3-SECST)    ,,
001DC4   025D                     DC    AL2(SCPDAT&41-SECST) ,,
001DC6   D2 00 F 7D0 5 000        MVC   WKAR3(1),0(GR5)     CONVERT CHECK READ DATA FOR PRINT
001DCC   0A DD                    SVC   X'DD'               ,,
001DCE   0001                     DC    AL2(1)              ,,
001DD0   07D0                     DC    AL2(WKAR3-SECST)    ,,
001DD2   026D                     DC    AL2(SCPDAT&57-SECST) ,,
001DD4   D5 01 F 25D F 265        CLC   SCPDAT&41(2),SCPDAT&49 SEE IF SENSE DATA OK
001DDA   47 80 F DE2              BC    EQUAL,LGOUTG        ,, BRCH IF YES
001DDE   92 5C F 234              MVI   SCPDAT,C'*'         SET ERROR FLAG
001DE2   95 00 5 000        LGOUTG CLI  0(GR5),X'00'        SEE IF ANY CHECK READ DATA
001DE6   47 80 F DEE              BC    EQUAL,LGOUT4        ,, BRCH IF NO
001DEA   92 5C F 234              MVI   SCPDAT,C'*'         SET ERROR FLAG
001DEE   D5 01 F 24D F 255  LGOUTH CLC  SCPDAT&25(2),SCPDAT&33 SEE IF DATA READ OK
001DF4   47 80 F DFC              BC    EQUAL,LGOUTK        ,, BRCH IF YES
001DF8   92 5C F 234              MVI   SCPDAT,C'*'         SET ERROR FLAG
001DFC   0A D0              LGOUTK SVC   X'D0'              PRINT LOG OUT DATA
001DFE   80                       DC    X'80'               ,,
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```
001DFF   48                      DC    X'48'                '
001E00   F 234                   DC    S(SCPDAT)
001E02   41 10 1 002      LA     GR1,2(GR0,GR1)     UPDATE ADDRESSES FOR NEXT LINE
001E06   41 20 2 001      LA     GR2,1(GR0,GR2)     ,,
001E0A   41 30 3 001      LA     GR3,1(GR0,GR3)     ,,
001E0E   41 40 4 001      LA     GR4,1(GR0,GR4)     ,,
001E12   41 50 5 001      LA     GR5,1(GR0,GR5)     ,,
001E16   46 60 F CFE      BCT    GR6,LGOUTA         BRCH IF NOT END OF LOG OUT
001E1A   0A DA            SVC    X'DA'              WAIT FOR ACTION
001E1C   91 40 F 004   LGOUTX TM  SNSW,X'40'        SEE IF WANT UTILITY ROUTINE
001E20   47 80 F E28      BC     ALLOFF,LGOUTY      ,, BRCH IF NO
001E24   45 80 F 63E      BAL    GR8,SCPROO         BRCH TO UTILITY ROUTINE
001E28   47 F0 F 964   LGOUTY BC  ALWAYS,RTOX       ROUTINE EXIT
         *
         *        CCW,S USED BY READER XLATE FLT
         *
001E30   25 001234 2000 00A0  RWRCCW CCW X'25',SCPDAT,X'20',160   DIAG WRITE TO RD BUFF —SLI ON—
001E38   C2 001234 2000 0050  RRDCCW CCW X'C2',SCPDAT,X'20',80    READ READER BUFFER —SLI ON—
001E40   C6 001234 2000 0050  CRDCCW CCW X'C6',SCPDAT,X'20',80    DIAG CHECK READ CCW —SLI ON—
         *************************************************************
         *           CONSTANTS —WORD BOUNDARY—                       *
         *************************************************************
001E48                        CNOP   0,4
001E48   00000009       NINE   DC    XL4'09'
001E4C   00000008       EIGHT  DC    XL4'08'
001E50   0000                  DC    XL2'00'
001E52   0020           THRT2  DC    XL2'20'
001E54   000000D4       CDCNT  DC    XL4'D4'
         *************************************************************
         *           CONSTANTS —NO BOUNDARY—                         *
         *************************************************************
001E58   1E000F000720033001  INDAT DC X'1E000F00072003300138003C001E000F'
001E61   38003C001E000F
001E68   38001C000E0003200l        DC X'38001C000E000320013000382C032401'
001E71   3000382C032401
001E78   22012101202120112        DC X'2201210120212011200920052003240 3'
001E81   09200520032403
001E88   3403140114031C030C        DC X'3403140114031C030C010A010C030A03'
001E91   010A010C030A03
001E98   3C0300002C012A0128        DC X'3C0300002C012A012803240222022000'
001EA1   03240222022000
001EA8   3401300310000C001A        DC X'3401300310000C001A0130003C010202'
001EB1   0130003C010202
001EB8   2C022A002900282028        DC X'2C022A002900282028102802 8042802'
001EC1   10280828042802
001EC8   28012A0229023402 34       DC X'28012A022902340234003020301 01C02'
001ED1   00302030101C02
001ED8   1A022800200118000A        DC X'1A022800200118000A021C0100140018'
001EE1   021C0100140018
001EE8   00240030002802 0402       DC X'0024003000280204020802100220030 0'
001EF1   08021002200300
001EF8   01082C03                  DC X'01082C03'
001EFC   A3F1FDFEFF7FBDFE7F  OUTDAT DC X'A3F1FDFEFF7FBDFE7F7050B8FEFF7FBC'
001F05   7050B8FEFF7FBC
001F0C   000020201 8100A06038      DC X'000020201810 0A0603820121008864402'
001F15   20121008864402
001F1C   1110A4543020104844        DC X'1110A4543020104844824928A0512C18'
001F25   824928A0512C18
001F2C   0C262351C4F4804120        DC X'0C262351C4F4804120D08854321D1089'
001F35   D08854321D1089
001F3C   4522D20914A25540AA        DC X'4522D20914A25540AA60325A0E070BDF'
001F45   60325A0E070BDF
001F4C   EFF7FAFDBEFF6FBFDB        DC X'EFF7FAFDBEFF6FBFDBE7F780'
001F55   E7F780
001F58   D9C5C1C440E7D3C1E3  TITLE  DC C'READ XLATE FLT'
001F61   C540C6D3E3
001F66   C9404040C4C9C1C740  MSG1   DC C'I   DIAG WRITE D'
001F6F   E6D9C9E3C540C4
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001F76   C1E3C1404040C94040        DC C'ATA  I   READ D'
001F7F   40D9C5C1C440C4
001F86   C1E3C1404040C94040        DC C'ATA  I SENSE D'
001F8F   E2C5D5E2C540C4
001F96   C1E3C1404040C940C3        DC C'ATA  I CHECK RE'
001F9F   C8C5C3D240D9C5
001FA6   C1C440C4C1E3C140C9        DC C'AD DATA I'
001FAF   C1C3E34040C940C5E7  MSG2  DC C'ACT I EXPD'
001FB8   D7C4
001FBA   60C8C5E76040C94060  MSG3  DC C'-HEX- I -HEX-'
001FC3   C8C5E760
001FC7   60C8D6D3D3C1D9C9E3  MSG4  DC C'-HOLLARITH-'
001FD0   C860
001FD2   F0F0                MSG5  DC C'00'
         001F67             MSG6  EQU  MSG1&1
001FD4   201008040201201008  HCON  DC X'2010080402012010080402 01FF'
001FDD   040201FF
001FE1   E3C5F0F1F2F3F4F5F6        DC C'TE0123456789'
001FEA   F7F8F9
001FED   00171C              SCRAD DC AL3(EXIT2)
         *************************************************************
         *           GENERAL REGISTER EQUATES                        *
         *************************************************************
000000   GR0   EQU   0
000001   GR1   EQU   1
000002   GR2   EQU   2
000003   GR3   EQU   3
000004   GR4   EQU   4
000005   GR5   EQU   5
000006   GR6   EQU   6
000007   GR7   EQU   7
000008   GR8   EQU   8
000009   GR9   EQU   9
00000A   GRA   EQU   10
00000B   GRB   EQU   11
00000C   GRC   EQU   12
00000D   GRD   EQU   13
00000E   GRE   EQU   14
00000F   GRF   EQU   15
         *************************************************************
         *           CONDITION CODE EQUATES                          *
         *************************************************************
000078   HION    EQU  120      HARDWARE I/O NEW PSW LOCATION
000008   ALLOFF  EQU  8        ALLOFF      0
000005   ANYON   EQU  5        ANY ON          1 3
000001   ALLON   EQU  1        ALL ON            3
000004   MIXED   EQU  4        MIXED         1
000009   NMIXED  EQU  9        NOT MIXED   0   3
000008   EQUAL   EQU  8        EQUAL       0
000006   NEQUAL  EQU  6        NOT EQUAL     1 2
000004   LOW     EQU  4        LOW           1
000002   HIGH    EQU  2        HIGH            2
000008   ZERO    EQU  8        ZERO        0
000002   GZERO   EQU  2        GREATER ZERO    2
000008   AVAIL   EQU  8        AVAILABLE   0
000004   CSWST   EQU  4        CSW STORED    1
000002   BUSY    EQU  2        BUSY            2
00000F   ALWAYS  EQU  15       UNCONDITIONAL 0 1 2 3
00000D   NOTBSY  EQU  13       NOT BUSY    0 1   3
000007   NZERO   EQU  7        NOT CC 0      1 2 3
000004   NOTZRO  EQU  4        NOT ZERO —AND—  1
00000C   MIXNON  EQU  12       MIXED OR NONE 0 1
00000C   LOEQ    EQU  12       LOW & EQUAL   0 1
000000   NA      EQU  0
         *
         *        ERROR DEFINITIONS
         *
001FF0   C5D9D940F1F4F0  ERR140 DC C'ERR 140'   DATA RECORDS MISSING OR OUT OF SEQ
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001FF7   C5D9D940F1F4F1        ERR141 DC    C'ERR 141'           CAN NOT ISOLATE FAILURE
                                      END
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* F8041   2821 SCAN/2540 READER/PUNCH
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POST ASSEMBLY DATA.

' REFERENCES TO DEFINED SYMBOLS.

```
1     0 ·    NA    1B82
1     1048   CAW   1BFA,  1C1E,  1C46
1     1040   CSW
4     1C10   DRR   19A8
4     1BE6   DWR   19A4,  1AOC,  1COA
1     0      GRO   19E6,  19EA,  19EA,  19F4,  19F8,  19FC,  1A00
                   1A08,  1A1E,  1A1E,  1A38,  1A3C,  1A40,  1A48
                   1A4C,  1A4C,  1A56,  1A5E,  1A62,  1A66,  1AA8
                   1AC4,  1ACC,  1B00,  1B2E,  1B54,  1B9C,  1BC2
                   1BC2,  1BD4,  1BD4,  1BF6,  1BFA,  1C1A,  1C1E
                   1C42,  1C46,  1CE8,  1CE8,  1CF4,  1CF4,  1D2C
                   1D2C,  1D34,  1D46,  1D4A,  1D4A,  1D5A,  1D5A
                   1D64,  1D68,  1E02,  1E06,  1E0A,  1E0E,  1E12
1     1      GR1   1988,  19F4,  19F4,  1A08,  1A08,  1A1E,  1B9C
                   1B9C,  1BA0,  1BBC,  1BEA,  1CE0,  1D08,  1E02
                   1E02
1     2      GR2   198C,  19B2,  19F8,  19F8,  1A36,  1A36,  1A38
                   1A6A,  1A6E,  1A6E,  1A74,  1A78,  1A88,  1A98
                   1B16,  1BB8,  1BBC,  1C36,  1CE4,  1D74,  1E06
                   1E06
1     3      GR3   1990,  19B8,  19FC,  19FC,  1A40,  1A44,  1BC2
                   1BC6,  1BD4,  1BD8,  1C3C,  1CE8,  1D84,  1E0A
                   1E0A
1     4      GR4   1994,  1A00,  1A00,  1A4C,  1A9C,  1AA0,  1AA2
                   1AF8,  1B1A,  1B1E,  1B20,  1C64,  1CEC,  1DB8
                   1E0E,  1E0E
1     5      GR5   1A50,  1A5A,  1A5A,  1B7E,  1CF0,  1DC6,  1DE2
                   1E12,  1E12
1     6      GR6   1998,  1998,  19C8,  19E6,  19E6,  19EE,  1A62
                   1A8C,  1CF4,  1E16
1     7      GR7   1A70,  1A78,  1A7C,  1A84,  1A90,  1AA8,  1AAC
                   1ACC,  1AD0,  1B00,  1B04,  1B2E,  1B32,  1D1C
                   1D40,  1D64,  1D64,  1D98,  1D9C,  1DA0
1     8      GR8   1984,  19CA,  19CE,  19CE,  19D0,  19D4,  1A54
                   1A54,  1A56,  1A5A,  1AA4,  1AAC,  1AC8,  1AD0
                   1AFC,  1B04,  1B2A,  1B32,  1B50,  1B54,  1B54
                   1B58,  1B5C,  1D34,  1D38,  1D4A,  1D4E,  1D5A
                   1D5E,  1D82,  1D82,  1D86,  1D8A,  1D9C,  1E24
1     9      GR9   19C8,  19DC,  19DC,  19E0,  1A2E,  1A38,  1A3C
                   1A3C,  1A40,  1A48,  1A48,  1A56,  1A5E,  1A5E
                   1A62,  1A66,  1A66,  1AA0,  1AA2,  1AA8,  1ABA
                   1AC4,  1AC4,  1ACC,  1AF0,  1B00,  1B0E,  1B1E
                   1B20,  1B2E,  1B38,  1B44,  1B76,  1D30,  1D34
                   1D40,  1D68,  1D68,  1D84,  1D8E
1     A      GRA   19A4,  19A8,  1A0C,  1C0E,  1C6A
1     B      GRB   19C4,  19D4,  19D8,  19EA,  19EE,  1A2A,  1AC0
                   1ADA,  1AEC,  1B0A,  1B72,  1B8C,  1BB6,  1C02
                   1C2A,  1C58,  1C7E,  1C88,  1C9C,  1CB2,  1CDE
                   1D2C,  1D46,  1D46,  1D4E,  1D5E,  1D8E,  1D92
1     C      GRC   1BE6,  1C26
1     D      GRD
1·    E      GRE
1     F      GRF
1     4      LOW   1D50
1     12E8   SIO   1C02,  1C2A,  1C58
4     1B7E   ·TMA  1A8C
4     1B82   BCON  1A90
1     2      BUSY
4     1C42   DCRR
4     17E4   ERNO  1B58,  1C6,  1BD8
8     1945   ERRX  1ABA,  1AE6,  1B38,  1B66,  1B6C,  1B8A
```

W.L.O.

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   READER TRANSLATOR FLT —ROUTINE OVERLAY 04—

```
 1    16EC   EXIT
 1    48     HCAW
13    1FD4   HCON    1D30
 1    40     HCSW
 1     2     HIGH    1AAE,  1AD2,  1B34
 1    78     HION
 1     C     LOEQ    1B06
16    1F66   MSG1    1C86,  1FD4
11    1FAF   MSG2    1C96
13    1FBA   MSG3    1CA0,  1CAC
11    1FC7   MSG4    1CA6
 2    1FD2   MSG5    1D20
16    1F67   MSG6    1CFC
 4    1E48   NINE    19CA,  1D86
 4    1A2E   PT06
 4    1954   RT00
 4    196E   RT01    1958,  1960
 4    197C   RT02    1972
 4    1988   RT03    1980
 4    19A4   RT04    1A04,  1C32,  1C60
 4    19C4   RT05    19BC
 4    1A08   RT06    19F0
 6    1964   RTOX    1E28
 6    1A10   RT10
 4    1A1E   RT20    1A16
 1    1004   SNSW    196E,  197C,  1AB2,  1ADE,  1C6C,  1E1C
 1    1231   UAPU
 1    122D   UARD
 1     8     ZERO
 1     1     ALLON   1B26,  1C0A,  1C32,  1C60
 1     5     ANYON
 1     8     AVAIL
 4    1E54   CDCNT   1BB8
 1    11FA   CSWAG
 1     4     CSWST
14    17E8   DRDAT   198C,  1CE4
 4    1E4C   EIGHT   19D0,  1D8A
 1     8     EQUAL   1958,  1960,  19F0,  1BBE,  1D60,  1DDA,  1DE6
                     1DF4
 1    1944   ERSW1   1A32,  1A94,  1B22
 1    1714   EXIT1   196A
 1    171C   EXIT2   1FED
 1     2     GZERO
16    1E58   INDAT   1988,  1CE0
 4    1C6C   LGOUT   1A1A,  1B6E,  1BD0,  1BE2
 1    1202   MESS1
 1     4     MIXED
 1     7     NZERO
 4    1A2A   PT051   1AD2
 4    1A32   PT061   1AD6,  1AF4
 4    1A40   PT062   1B06,  1B12
 4    1A50   PT063   1AF8
 4    1AC4   PT064   1AB6
 4    1ADA   PT065   1AAE
 4    1AF0   PT066   1AE2
 4    1AF8   PT067   1498,  1B16
 4    1B16   PT068   1882
 6    1B38   PT069   187A
 4    1B72   PT06A   1834
 4    188E   RDCRD   1A2A,  1ADA,  1B0A,  1B72
 1    1950   RTN04   1015
 3    1FED   SCRAD   1964
 1    1000   SECST   1000,  1000,  1000,  1000,  1000,  1000,  1000
                     1000,  1000,  1000,  1000,  1000,  1000,  1000
                     1000,  1000,  1000,  1000,  1000,  1000,  1000
                     1000,  1018,  1068,  1A28,  1B64,  1B66,  189A
                     1BA8,  1BAA,  1D12,  1D14,  1D7E,  1D80,  1DB4
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8051   READER TRANSLATOR FLT —ROUTINE OVERLAY 04—

```
                     1DB6,  1DC2,  1DC4,  1DD0,  1DD2
 1    11F7   SENSE   1C3C
 2    1E52   THRT2   1A7C
14    1F58   TITLE   197A
 4    17E0   TSTOR   19AC,  19AC,  19B2,  19C0,  19C4,  19D8,  19E0
 1    10E0   UNIT1
 1    10E4   UNIT2
 8    17D0   WKAR3   1A6A,  1A88,  1B3E,  1B3E,  1B44,  1B4A,  1B4A
                     1B50,  1B5C,  1B64,  1BA0,  1BA8,  1D08,  1D12
                     1D16,  1D16,  1D54,  1D54,  1D70,  1D74,  1D7E
                     1D92,  1D98,  1DA0,  1DA4,  1DB4,  1DB8,  1DC2
                     1DC6,  1DD0
 8    17D8   WKAR4   1BAA,  1BAC
 1     8     ALLOFF  1972,  1980,  19BC,  1C70,  1D3C,  1DA8,  1E20
 1     F     ALWAYS  196A,  1A04,  1A1A,  1AB6,  1AD6,  1AE2,  1AF4
                     1B12,  1B6E,  1B7A,  1B8C,  1BB6,  1BD0,  1BE2
                     1C0E,  1C6A,  1CB6,  1CDE,  1D6C,  1E28
 1    114C   CAWKEY
14    1890   CKRDAT  1994,  1CF0
16    18E4   COMDAT  199A,  199E,  199E,  19DC,  1A10,  1A50
 8    1E40   CRDCCW  1C42
 1    112C   CSWSAV
 7    1FF0   ERR140  1BCE
 7    1FF7   ERR141  1BE0
 1    16E6   EXITBY
 4    1CBA   LGOUT7  1C9C,  1CB2
 4    1CC4   LGOUT8  1C88
 2    1CD8   LGOUT9  1C7E
 4    1CFE   LGOUTA  1E16
 4    1D34   LGOUTB  1D6C
 4    1D46   LGOUTC  1D3C
 4    1D64   LGOUTD  1D50
 4    1D70   LGOUTE  1D38
 4    1D74   LGOUTF  1D60
 4    1DE2   LGOUTG  1DDA
 6    1DEE   LGOUTH  1DE6
 2    1DFC   LGOUTK  1DF4
 4    1CE0   LGOUTM  1CB6
 4    1E1C   LGOUTX  1C70
 4    1E28   LGOUTY  1E20
 1     C     MIXNON
 1     6     NEQUAL  1A16,  1A80,  1BB2
 1     9     NMIXED
 1     D     NOTBSY
 1     4     NOTZRO
16    1EFC   OUTDAT  1A10,  1D8E
 2    1886   PRCRES  1AC0,  1AEC
 4    1A88   PT0630  1A80
 4    1AA4   PT0631  1B26
 4    1BB8   RDCRD1  1065
 4    1BD4   RDCRD2  1BBE
 4    1BC2   RDCRDX  1BB2
 8    1E38   RRDCCW  1C1A
 8    1E30   RWRCCW  1BF6
 1    179C   SCHNUM  1954,  195C,  1A22
 1    1234   SCPDAT  1A28,  1A2E,  1AA4,  1AC8,  1AE6,  1AF0,  1AFC
                     1B0E,  182A,  1B76,  188E,  1B92,  1B92,  1B9A
                     1BAC,  1BEA,  1BF0,  1BF0,  1C10,  1C14,  1C14
                     1C36,  1C4E,  1C52,  1C52,  1C64,  1C74,  1C78
                     1C78,  1C8C,  1C90,  1C90,  1C96,  1CA0,  1CA6
                     1CAC,  1CBA,  1CBE,  1CBE,  1CC4,  1CC8,  1CCC
                     1CD0,  1CD4,  1CDC,  1CFE,  1D02,  1D02,  1D14
                     1D1C,  1D20,  1D26,  1D26,  1D80,  1DAC,  1DB6
                     1DC4,  1DD2,  1DD4,  1DD4,  1DDE,  1DEA,  1DEE
                     1DEE,  1DF8,  1E00,  1E30,  1E38,  1E40
 1    163E   SCPR00  1984,  1E24
14    183C   SENDAT  1990,  1CEC
 1    114D   SIOSW5
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8051 READER TRANSLATOR FLT -ROUTINE OVERLAY 04-

```
1   114D SIOSWS   1BFE, 1C06, 1C22, 1C2E, 1C4A, 1C5C
1   112C SIOVR3
1   1134 SIOVR4
1   11F8 STATSV
1   1060 SVRPSW   1964
1   10E2 UN1ADR   1C26
1   10E6 UN2ADR   1BE6
1   1000 XF8051
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

F804   2821 SCAN/2540 READER/PUNCH
F805 BUFFER ADDR FLT -ROUTINE OVERLAY 3-

PERIODS CORRESPOND TO BLANK COLUMNS.

```
COLS.   1 THROUGH 20      COLS.  21 THROUGH 40      COLS.  41 THROUGH 60      COLS.  61 THROUGH 80

BESD......AA..AAXF80      51..OAAA.AFC........      ..................840      261.125643..80510001
9        YQ  Y9          YQY Y8
         99  9           999 99

BTXT.AAN..AC..AAAJH.      ..................        ..................      ..........80510002
9    YQ9  Y9  Y9Y89
     99   9   9 99

BTXT.APO..A8..AAAAGA      GAGAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAA80510003
9    Y9-  Y9  Y9Y9Y      9Y9YYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYY
     9    9   9 99 9     9 999999999999999999      99999999999999999999      999999999999

BTXT.AQH..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAA80510004
9    Y99  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYY
     9    9   9 9999     99999999999999999999      99999999999999999999      999999999999

BTXT.AQ...A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAA80510005
9    Y9   Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYY
     9    9   9 9999     99999999999999999999      99999999999999999999      999999999999

BTXT.AQH..A8..AAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAAAAAAAAA      AAAAAAAAAAAAA80510006
9    Y9R  Y9  Y9YYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYYYYYYYYY      YYYYYYYYYYYYY
     9 0  9   9 9999     99999999999999999999      99999999999999999999      999999999999

BTXT.AQA..A8..AAAAAA      AAAAAAAAAAERR.051.DEV      ICE.000.DIAG.CK.RD.D      ATA.-.RESIDU80510007
9    Y9Q  Y9  Y9YYYY      YYYYYYYYYY
     9 0  9   9 9999     999999999

BTXT.AQY..A8..AAAL.C      OUNT.IS.0000.SHLD.BE      .0020AGACAGFEC7DGA9Q      G06MABODGA9W80510008
9    Y9   Y9  Y9                                   Y9Y9YQQ-O QZY 9          Z  Y-9 9ZY 9
     9    9   9                                    9 9 9ZZ                     9

BTXT.AJJ..A8..AABOAP      EBA.ODGA92EA66KA24EZ      K/2625AAEA&AOHHOOSBB      1EEA2YAO24GA80510009
9    Y8Y  Y9  Y98-Y8      QY- 9ZY 9ZY 8 9 9Q       9 9ZQQQ Q ZZ& -9          8ZQ  -& 9ZY
     999  9   9 9 9       Z9          9   Z            9ZO 9                   0

BTXT.AJH..A8..AA9&KB      2K2VBODS2BG092KA24EZ      K/2625EA2YAO24GA9KKL      7U24KG8H1BKA80510010
9    Y8R  Y9  Y9- 9      9 88-Z8 9Z 9 9 9Q        9 9ZQ  -& 9ZQ 8 Z         9 9Z Q 9
     99   9   9           99 9          Z           0      9                 Z

BTXT.AJA..A8..AA24EZ      K/2625HOOWBA1EEA2YAO      24GA9FKB2K21BODS2BGO      9FKA24EZK/2680510011
9    Y8Q  Y9  Y9 9Q      9 9Z& -Y 8ZQ -&          9ZY Q 9 9.98-Z8 9Z        Y 9 9Q  9
     99   9   9  Z           9  0                  0     9 9                 Z

BTXT.AJH..A8..AA25EA      2YAO24GA9OKL8&24KG8D      1BAA7UAJ8HEA9BAA8&AJ      8DAABONKGCKA80510012
9    Y8   Y9  Y9 9ZQ      -& 9ZQ Y Z  9 9 0       QZQ  ZY ZZQ QZQ  ZY       0ZQQ99990 Y
     99   9   9  0        9              -         Z9  9  ZZ9  9             - ZZ       9

BTXT.AKA..A8..AA24AA      DA24KAAA24AAAAGO9BEM      8GG-BOEM8CG-BBBA24KK      2524NL7U24GA80510013
9    Y8Y  Y9  Y9 9QY      -9 9 YQY 9ZQQ9Z Q-9      8Z QY-9 QZ QQ-Y 9 Z       9 9 Z  9ZY
     999  9   9  99       999    99    Z           Z9  O  ZZ 9

BTXT.AK8..A8..AABDNL      8&24GACBBJ8DGOCFNL8&      24G-BBBODAFCA.ODGABQ      EA66AJODGAB080510014
9    Y89  Y9  Y9Q8 Z      9ZYQ9-Y QZ Q8 Z         9Z QQ8-OQQO- 9ZYQZ        ZY 8-Y 9ZYQY
     99   9   9 Z         Z  9 O  Z9               ZZ9  9Z-.    Z            9 9    Z

BTXT.AKO..A8..AABEAK      GUB4KB8D2VKC7S8FEABF      BEAKH&B4KB8D21KC7S8B      EA8FBBA.ODGA80510015
9    Y8&  Y9  Y98QY8      9 999 Y 8 9  8ZQQQ       8QY89 99.9 Y 9 9  Q       ZQQQ8Q- 9ZY
     99-  9   9 999       9   9         ZZO        999      9     O           ZZ099

BTXT.AKQ..A8..AABDEA      66AJJLGA6MF.7DGO6MHA      7SFA7QBEACGEGPKC847Q      BOA.8EBOA42480510016
9    Y8O  Y9  Y9QYZY      8-YZOZQ Y- QZ  YRY        88Y  8QY99Q9 9            8-Y  8-Y8 9
     99   9   9 Z         9 9 99    9 9             9  999 9                  9    9 9
```

F804   2821 SCAN/2540 READER/PUNCH
F805 BUFFER ADDR FLT —ROUTINE OVERLAY 3—

BTXT.AKS..A8..AABOA4   2OBOA42MG3EM8CG-CBGO   CBB.8DGODBBA8DGODBBA   8DEACFBA24KK80510017
9   Y88   Y9   Y98-Y8   &8-Y8 Y9 -9 QZ Q8Z   Q9- QZ QY-Y QZ QY-Y   QZQQQ-Y 9 Z
  99   9   9 9 9   -9 9   0 Z9   Z 0 Z0 9 Z9 9   0 0Z0 9

BTXT.ALQ..A8..AA2524   BA2ENJ247UG-C6AAAAEJ   DDGODFAAALNAEH8FG-CF   NAEH8BG-CFEJ80510018
9   Y89 Y9   Y9 9 9   -9 Y 8 9 Z Q9ZQYOZY   QQZ QQZQYZ 9Q 8Z QR   9Q QZ QRZY
  99   9   9   Z 9   ZO Z 9 Z   Z   Z O Z

BTXT.AL&..A8..AADDGO   DFAJ8DGACBAAEH&AOHHO   OWBA1EEA2YAA1EGA9DBA   24KF2524AAE080510019
9   Y8   Y9   Y9QQZ   QQ-Y QZYQOZQQO Q ZZ&   -Y 8ZQ -9 8ZQ 8-Y   9 8 9 9ZQQ&
  99   9   9 ZO   Z 9 0 Z-9Z-9   9 0   9 9 9   9Z

BTXT.ALH..A8..AA&AOH   BB1EEA2YAA1EGA9DNG24   2YG-CBAAAFEJDDGODFAA   A2EJDDGODFAA80510020
9   Y8O Y9   Y9 Q Z   -9 8ZQ -9 8ZQ 8 8 9   Z QOZQYOZYQQZ QQZQ   Y9ZYQQZ QQZQ
  99   9   9 9   Z- 9 ZO Z   9 ZO Z 9

BTXT.ALO..A8..AAA3AA   A3AJFGAAFCA.ELNCGCBA   24KK2524NBG.D6A&FGNE   G-C8BA25GODB80510021
9   Y8& Y9   Y9Y9ZQ   Y9ZYQ8ZQQOZ QY9Z9Y-Y   9 Z 9 99ZZ Q9Z QR9Z   Z Q -9 9Z QZ
  99   9   9 9   9 9Z ZZ- Z9   9 Z ZO   Z 9

BTXT.AL8..A8..AAA&.B   A-.AAO24NFGADBAA-AGA   DSBAOAKHOAOAAAFCN.G-   DSBA2OAO0BA-80510022
9   Y8   Y9   Y9Z 8   Z YZ& 99RZYQZ-9 YZY   Q8-96Y 9&9&YZYQY9 Z   Q8-9 ZZ&&8Z
  99   9   9 9   9 - Z   Z9 -9 - -9 9Z   Z9   --9

BTXT.AMA..A8..AA-AGO   DDKA24.AKG2624AADFAA   AAAO8DGADBAA8DGAD&AA   AMAAABAO8&G080510023
9   Y8Q Y9   Y9 9Z   Q9 8 9 Y 8 8 9ZYQQZQ   QY-& QZYQR-Y QZQQ-ZY   Y9ZQQ9Z& Z
  99Z 9   9   Z 9 9 9 Z   99 0 ZO 0 9Z   -

BTXT.AMQ..A8..AADFAA   ABAAAAAO7UEJDDNBG.DB   NG25OAGODANG24OAGHAA   ACA-.BGOCKBO80510024
9   Y8Z Y9   Y9QRZY   Y8ZQQ9Z& ZYQQ9ZZ QY   8 9&YZ QQ 8 9&Y9OZQ   Q9Z 8Z Q 8-
  99   9   9 ZO   9   -   ZO   Z   -9 Z   -9 9   9 9Z 9

BTXT.AMJ..A8..AADG8E   GOBMBODG8EGOBMBODG8E   GOBMFA7QBEABGFHAGBEA   CFAAAXAAAXBA80510025
9   Y8Y Y9   Y9Z9 Q   Z Q88-Z9 QZ Q88-Z9 Q   Z Q88Q 8QY99Q9 9QZQ   QQZQY8ZQY8-9
  99   9   9 0   Z9   0 Z9 0   Z   999   Z 0   ZO 99   9

BTXT.AMQ..A8..AA24KK   2524EJEDAAABBA24BA25   EJEDAAADKA2624EJEDAA   AFKA2824EJED80510026
9   Y8   Y9   Y9 9 Z   9 9ZYQOZQQ9-Y 9-Y 9   ZYQOZQQ 9 9 9ZYQOZQ   Q9 9 9 9ZYQO
  99   9   9   9Z 9 9 9   9Z 9   9Z   9Z

BTXT.ANA..A8..AAAAAH   KO2224EJEDAAABKL2A24   EJEDAAADKK2524EJEDAA   AFBA24KF252480510027
9   Y8Q Y9   Y9ZQQ9   9 8 9ZYQOZQQ8 9 R 9   ZYQOZQQ8 Z 9 9ZYQOZQ   Q8-9 9 9 9
  999 9   9   9 9Z 9   9Z 99   9Z   99

BTXT.ANH..A8..AAEJED   BA24KK2524BA24AAALEJ   EDKG2524AAANEJEDAAAA   AA8DGOEQAAAA80510028
9   Y8Z Y9   Y9ZYQO   -9 9 Z 9 9-Y 9ZQQ9ZY   QO 9 9 9ZQQ9ZYQOZQQQ   -Y QZ QOZQQ9
  99   9   9 9Z   9 9 9   Z   9 9Z 99   0 Z

BTXT.ANA..A8..AAGOEQ   AODQA-7UAA8DGAEJAOOB   A-8&AAAANL24-AGKEJDD   G7AAFAK4JAAM80510029
9   Y8Y Y9   Y9Z QO   Z&QOZ -Y QZQQYZ&&8   Z ZQQ9 Z 9 9YZZYQQ   9 YY Y99YYYZ
  99   9   9 Z   -Z   0 9Z --9   9 ZO   99 9 999

BTXT.ANH..A8..AAAAKY   JAA&BAK4JAA&A22821.S   CAN/2540T.BUFFER.ADD   R.FLTAAAAAAA80510030
9   Y8O Y9   Y99Y9   YYY Y99YYY Y9   8   YYYY9YY
  99- 9   9 9   999 9 999 9   .9999 99

BTXT.ANO..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510031
9   Y8   Y9   Y99999   999Y99YYYY9Y9YY9Y9YY   9YY99Y99YYY9999YY9Y9YY   9YYYY99Y99YY
  99 9   9   9 99999 99 99   99 9 999 99 99   9999 9 99

BTXT.AOY..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510032
9   Y89 Y9   Y99999   9YY9Y9YYYY99Y99YY99   999YYY99YYYY999YY9Y   Y999YY99Y99Y
  99   9   9   99 9 99999 99   999 99999 99 9   9 99 9 9

BTXT.AO-..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510033
9   Y8   Y9   Y9YYY9   99Y9Y9Y9YYY99Y99YY9   YYYYYYYYYYYYYY99Y9YY   Y999YYYY99Y
  99   9   9 999   99 99 9999 9 99   99999999999 9 99   9 99999 9

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BTXT.AOH..AT..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAANO.ERRS.DETECTED. 80510034
9   Y8-   Y8   Y9YYYY   99YY9Y9Y99999Y9Y99YYY   YYY
  99   99   9 9999   99 99 9 999   999

BRLD.....AM...AAAA   ÂAANAANAAANIHANA.... 80510035
9   Y9   Y9Y9   8YQ98Y808Y809Y8
  9   9 9   999 999-999- 99

BEND................ 80510036
9

BDAT................ 80510037
9

....80510038

BDAT................ 80510039
9

BESÖ......AA..AAXF80   51.OAAA.AGF......... 80510040
9   YQ   Y9   YQY Y8Q
  99   9   999 99Z

BTXT.AAN..AC..AAAJ&. 80510041
9   YQ9   Y9   Y9Y8
  99   9   9 99

BTXT.AA-..AH..AAAAAA   GALH................ 80510042
9   YQ   Y9   Y99YYY   8Y80
  99   9   9 999   999-

BTXT.APO..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510043
9   Y9-   Y9   Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
  9   9   9 9999   99999999999999999999   99999999999999999999   999999999999

BTXT.AQH..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510044
9   Y99   Y9   Y9YYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
  9   9   9 9999   99999999999999999999   99999999999999999999   999999999999

BTXT.AQ-..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510045
9   Y9   Y9   Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
  9   9   9 9999   99999999999999999999   99999999999999999999   999999999999

BTXT.AQH..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510046
9   Y9R   Y9   Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
  9 0   9   9 9999   99999999999999999999   99999999999999999999   999999999999

BTXT.AQA..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510047
9   Y9Q   Y9   Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
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BTXT.AQY..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAA80510048
9   Y9   Y9   Y99YYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYY
  9   9   9 9999   99999999999999999999   99999999999999999999   999999999999

BTXT.AJJ..A8..AAAAAA   AAAAAAAAAAAAAAAAAAAA   AAAAAAAAAAAAAAAERR.XXX   XAGADAGFED7D80510049
9   Y8Y   Y9   Y9YYYY   YYYYYYYYYYYYYYYYYYYY   YYYYYYYYYYYYY   Y9Y9YQQ-O Q
  999   9   9 9999   99999999999999999999   9999999999   9 9 9ZZ

BTXT.AJH..A8..AAGA9W   EA7DGA9WKBONGNGO7MAB   ODGA94BOAFGHA.ODGA9H   EA66AAFHAJ7Y80510050
9   Y8R   Y9   Y9ZY 8   -Y QZY 8 9 ZQYZ 9-9   9ZY 88-Y8QR- 9ZY 0   ZY 8ZQQRZY
  99   9   9   9   Z9   9 9Z   9 9Z 9

BTXT.AJA..A8..AAAA84   A.8ALO8A8UKO8V8UEJCW   EJDAPC7S7SKA7SJAAHAA   GA9DBA7JHA7S80510051
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  99   9   9ZQ 9   9 9   Z   Z9   9 99 Z9   0

W.h.D.

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    99   9   9          Z 9  Z 090                  9    99  ZZ          99 99 ZZ

BTXT.AKA..A8..AAA..A    GO9MAAABEJCWNL8UFDG-    BOGODUAAADBD7DBCB4EA    CFAA24BA9DLS80510053
9   Y8Y  Y9  Y9Z 9      Z OZQQ9ZYQ 8 QQZ        Q8Z Q8ZQYR-0 Q8Q99ZQ    QYZQ 9-Y Z89
    999  9   9              99  Z  ZZ            Z9 Z 99  99 0           Z   9 9

BTXT.AK8..A8..AACJAA    AAAACAAAIAAQAAAAA.AD    A&8ULHCAAAAH&AAAAAC-    AAAAAA&J70LS80510054
9   Y89  Y9  Y9ZYQY     ZQQ9ZQQYOQY9ZQQ9Z Y9    Z  8OZYQYZR YZQQ9Z      QYZQQ9 Y -89
    99   9   9  9           Z 9 Z9                  9                    Z  9

BTXT.AKO..A8..AAAOAA    EJABHOJAAOFBG-BHAOA&    HJ70D-C6DOCBBG9DFJB8    F.BJODODAA2280510055
9   Y8&  Y9  Y9Z&YY     YYY90&YY8&QRZ QOZ&Y      RY -Z Q8Z&Q0-Q ZZYQ     Z QY8-8-ZY 8
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BTXT.AKQ..A8..AAAOAC    NHGJBBAAODGOBDKC9AAA    EACFAAADAA22AOAANHGJ    BSGOB2EACFAA80510056
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    99   9   9          Z     OZ       Z         Z       -  0 Z 0         Z     Z 9

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    99   9   9 Z        Z99 9   Z   9Z            0 9ZO

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    99   9   9          Z 9Z  Z  Z99 9           9 9  Z                     .9999

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9   Y8-  Y9  Y99YQY     QQ8989YY99Y8989Y9Y9       Y9YQY99999999Q9YY9989    0 QQQ8QQ8& 0
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    99   9   9          9 999 ZZOZ 09

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9   Y8R  Y9  Y9
    990  9   9

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9   Y8Q  Y9  Y9                                       YQ9999YQ           99990
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AKALJAAAA0311EGUAJ.L   A.AAAAAAAAAA0312A4BD   AA5AKAOLAMHGA/DAUJAA   AAAA0313...180510178
Y8Y8YYYY   98Q9 8   Q 9Y8QYYYYYY   8899   9Q9Q8Y 8Q8999889Y8YYY   YYYY
99 999999   9 9 9   9 9999999999   99   9Q9 999 9 99999   9999

FDAHU.HAA.AJ.6AAAAA0   315EDBBAHX.AA0JAAAAA   AA031664KAJJGJU.05AK   BVAA0318...180510179
9Y898 ZYQ Q9 9YYYYY   9Y99Y99 Q9&9QYYYY   YY   988Q8Y9Y8 9Q8   99QYY
9 9 9 Z   9999   9 9 Z   99999   99   99999 99 99   999

FG2D/B/.AX.07.AA6BADC   ADBATBSJAC.TAAAAA032   2B0UA/BQ86BCWJADBASJ   AC.GBAAAA..180510180
8Y99998Y9 &9 Q989899   Y989999YY8 89YYYY   8&9Y99998999YY9899Y   Y8 89YYYY
99   9   Z 9   9 9   999 9 9999   9   9 9   9 9   99 9 9999

0323C7BAAAGJ7.CA.J.L   JLAD5AV.3AAA0326LGAA   /B/.AX.C7.AAJ.LAA6B.A   ADGA.......180510181
88ZQYY9Y9 9Q 9 8   Y8Q0898 9QYY   9Y8Y   998Y9 9 Q99 8Q089 9   8999
99 99 9 9   9   999Z9 9 999   99   9   Z   9Z9

CADBATBSJAC.2DAAAAA03   27JG/D/BGJD.DJAU.5AQ   B4WBMHBHGAOBDVDUAFBA   QAAAAAAA...180510182
9Y989999YY8 89YYYY   .9Y89999Y8 8898 9Q9   9899899999&9999&Q99Y   99YYYYYY
 9 9   999 Z999   99   9 9 9   9 9   9   9   999999

0328FDWJ/BD.QBAWBVAA   AAAA0329H76AAA7.HADA.   J.5AH0331KD1H/B/AJA   0X.ABAAQB..180510183
9Y9Y998 99Y998YY   YYY   989YYY9 ZY8Q   9 8989   9Y99998Y89   9 Y9Q999
 9 9 9 9   999   9   99   9   9 9   9 9 9 9   9 Z

CWBGAWJAAATB/.VAJDAX   ADAAAAAA0332DDFB/BGJJ   ACQBWBGAAAA/.PHVD/DO   334........180510184
999999Y9YY999 8YY9Q9   Q8QYYYY   8Y99999YB   999999999YY9 899989
9   9 9Z   9999999   99   9 9   9

H7CAAA7.HACAALJAHB.0   336KD1H/B/AJAOX.ABAA   QBCWBGAWJAAATB/.VAJD   AXADAAAAA..180510185
988QYY9 ZY 9Q8Y998   9Y99998Y89 Y 9Q9   999999999Y9YY999 8YY9   Y9Q8QYYYY
 9 99   99   9   9 9999999   9 9999999

0337CDDA/BGJQBC6BADB   ASJAC.GB1HAA0338BDPH   /BD.U.AWBBHGAWJOM.FB   AAAA0339...180510186
8Y8Q999Y99989Y98   99YY8 8999YY   8Y89   998 8 Q9999999Y&8 99   YYYY
9999   9 9 9 9 9   99 9   9 9 Z   9 9   9999

H03B/BD.J.DQBWB.AWJO   340A7EDAAX.HADAALJLA   AH0B.AAAAAA0342DCJD/   BJAAB......180510187
9Y99998 9 89999 99Y   8889YY9 ZYY9Q8Y8Q   99&8 YYYYYY   8 Y99   989Y9
9 9 9   9 9 9   9 999999   99   9   9 9

AQBWBGAWJOAA/.VA1H03   43AGTA/B/AX.G7.AA5AM   HA6BADADBAATBSJC.2D0   344........180510188
Y9999999Y&9Y9 8Y99   QY89998Y9 Y9 Q99Q8   9Y8989Y989Q999Y8 99
9   9   9   999   9   9 Z 99   99   9 9 Z 99

```
A4A.AAX.U.G7.HA8J6AO    B.AAAAAA0348EDBHU.AA    KAAPHAAAAAA0349A72A/    AX.7.......180510189
888 YY9 8 Q9 ZY9Y8Q&    8 YYYYYY     98998 9Q   8Y89YYYYYY    Q8998     Y9 9
99 9  9Z    999         9 999999      9  9       9 99 999999    99 9

GAALAUJ6AD6BADAJBAGS    JBHAJCB0350F4AJHAAAK    AAUJAAAAAA0351FDLJU.    5AKA.......180510190
Q9Q8Q9Y8Q889Y98Y89Y9    YZ98Y89    98YYZY9Q8    YQ9Y8QYYYY    9Y8Y8     9Q8Y
Z 999 99999 9 999 9     9 9        999   99     Z 9999999     9999      99

AAHB.AAAA0353F0VA6BG    AADABAVDAAAA0354E0WA    JA6BADABAAAAAAA0355E    0FHGH6BAD..180510191
Q998 YYYY    9&99899    9Y9Y8999YYYY    9&89    8989Y9Y89YYYYY    9     Z98989Y9
Z 9 9999        9       9 99  9999     9        9 9 9 99 999999       999 9

ABAAAAAAA0356E0EABA6    BADABAAAAAA0357FDAB     HAAJ6BAADBAAAAA0358F    0JD.6BAD...180510192
Y89YYYYYY   9 ZQ998     9Y9Y89YYYYY    9Q89     ZYYY89YY989YYYY    9     ZY8 89Y9
99 999999    9  9       9 99 999999     Z9       999 99 9 9999         99 9 9

0BABAAAAA0359G73AAA/    AX.C7.A.J.5AG8JLJLA6    AD6BADBAAA0360GDLABA    /A6B.......180510193
&8Q89YYYY    889Q998    Y9 9 Q 9 9QY9Y8Y8Q8    Q889Y9ZQYY    9Y9Y8Y    8Y89
999 9999    999 9           9  99 999999       999 9 999    9 9        9 9

DADTBPHAA0362G0C.BA6    BADABASJGBAA0363G7AA    DAB.D.0ABCA/.AA0365B    AFDDAAAAA..180510194
8Y99999YY    9&8 8Y8     9Y9Q899Y89YY   989Y     9Q9 8 Y99Q9 YY   9     Q999QYYYY
99  99    9  9           9 Z9 99 99  9          9 9   9  9  99          Z 99999

0369H7AAHAAJLA0UA6.6    HUJ0372GGVH/AX.7.GAA    A.5A6AA6BAHADBADNBSJ    AJAA0373...180510195
988QZYYY8Q&9Q9 9        98Y 8Q998Y9 9 Y9Q       Q 9Q8QY8999Y989Q899Y    8YYY
999 9999 9             99 9Z 9  9 9            9 99999 9 9 Z9 9          999

C4A.AA7.AA0379H73AVJ    D.X.4QBTAAJYD0384DCL    AKAMHUA0386H7AAHAAJL    ACUA.6HUJ.180510196
989 YY9 YY   98999Y     8 9 8999QZY99   998      Q8Y899Q   988QZYYY8     Q 9Q9 998Y
9 9   9  9              9 9 9  999 999 9         999 9  999 999           9 9  99

0388FG3A/AX.7.3A.5AL    JLA06A6BADBAOSJAJAAA    A0390C7AJVJ/AX.07.6A    6BAD.......180510197
8Q9Y8Y9 9 9Q 9Q8        Y8Q&8Q98Y989 9Y8YYYY    Y    888Y9Y8Y9  9 8Q     89Y9
9Z 9  9   99            999 99999 9 9           9  99 99   99  99         9 9

ABASJXDAA0392G4B.AAH    ALJOLAAHA.AA0396E4AJ    HAAAKA0UJAAAAAA0398A    3AJAAJ.LA..180510198
Q899Y89YY   988 YYZ     Y8Y&8Q998 YY   98YY      ZY9Q8Y&9YYYYYYY    8     98Y9Q9 8Q
Z9 99 99 9 9           99 99 99 9 9              99 9999999   9

OUJ.A6.6H02AAAAAAA03    99MYXH/AX.7.GAA5ALAM    HO6A6BGAADDAJBASJPHG    BHM.AJ2A...180510199
9Y 99 99&99YYYYYY       98898Y9 9 Q9Q9Q8Q8       9&8Q8999Y9Y899Y898     Z98 8Y99
9 999999              999 9 Z 9 9999             999 9 9999 99 9          9 9

0400JDCD/AX.U.D7.HAA    ALJOLA6A6BAHCB.ADBAS    JOAJAAAAAA0402A3AJAA    J.LA.......180510200
9Q898Y9 8 Q9 ZY9        Q8Y 8Q8Q8999 8 Y9899     Y&8YYYYYYY    898Y9Q    9 8Q
Z 9 9Z                 999 9999 9 9 9            9 9999999    9           99

OUJ.A6.6HA2AAAAAAA04    03EDVA/AX.U.D7.5A6A6    BGADBAKASJOAJAAAAAA0    406........180510201
9Y 99 99Y99YYYYYY       8Q9Q8Y9 8 Q9 9Q8Q8       98Y9898Q9Y&8YYYYYYY
9 9 999999             9Z 99 9 Z 9999            99 9 9 9 9999999

EGWBAHD.DAO/.AAAAAA0    407BAB.DAAAAA0412D3Q    AGJU.5AGG8KAMHBHAGAH    AUA/D0414..180510202
9Y99Y98 ZY&9 YYYYYY     9Q9 9QYYYY    8 9        99Y8 9Q8998Y8999Y999     Y8Q89
9 9 9   999999         Z 99999   9               99 99 9 9 9              999

E3JAD.U.5ACQBKAWBMHO    BHGAUAQAOK.AAAAAA041    5A7BAVJ/AX.7U.5AFA5A    C6BADBAKA..180510203
8 9Y8 8 9Q9998Y9989&    99998Q99&9 YYYYYY        Q88Q9Y8Y9 88 9Q8989      989Y9898Q
9 9 9  9 9             99 999999                99 9 99  99  9             9 9 99

4TBKBSJC.0418AGAHAHX    .7.CHAAA7DAJAADAAAAA    A0419AGVDAHX.7.AAABB    ADGA.......180510204
899899Y8    8Y89Y99     9 ZYQ999YYY89YYYYY       Y  8Y99Y99 9 YQ999       8999
9 9 99  999 9         Z 999 99999               9  999 9   9Z

AVAAAAAAA0420DDDAAHD    .WB0421J43.JJ/AA.3J.    5ALJLA05A6A6BADGBATB    SJBA.......180510205
Y99YYYYY    9YZYY98     99  989 8Y8YQ 99         9Q8Y8Q 898Q89Y988999     9YZQ
9 999999    9 9         9  999 9               99999 9 999 9 99           9 9
```

```
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Y8 YYYYYY   9&Q 8 9     89   9Y99YYYYYY          9Y9YYYYYY    QY999     98Y9
99 999999    9  9       9   9  999999            9 999999    99         9

07.AA6BADCADBATBSJ4C    .TAAAAA0434EDQB/BGJK    AA/AAAAAAA0435F75AAA    GJ7........180510207
&9 Q989899Y989999Y88    898YQQ   9Y99999Y8       YY8QYYYYYY   9889Y9    9Y9
Z9  99   999           9 9 Z9 9   99            999999999    99 9       9

06A7HAAAA0438FDWJ/BD    .QBAWBVAAAAA0439D77A    AA.AX.D5A6BTAADDBATB    SJC.0443...180510208
9Y89YYYY   9Y9Y998      99Q998YYYYY    888Y      YY8Y9 Y89899QY988999     9Y8
9 9999   999 9         Z 9 9999    999          99 9 99 99 99 9           99

BOU.A.AAAA0448GGADAH    X.7.AAA7DAAAA0450DDW    BAHD.DA0451D47HJJ/AQ    BD5A6BTAAD.180510209
9&8 Q YYYY   9Y89Y9     9 9 YQ99989YY   9Y9      9Y98 ZY  88898Y8Y9       9Y89899QY9
9 9 9999    9 9        9Z 9  99   9              99 9   999 999           99 9 99

DBATBSJC.0452E7FAVJ7    .KBABAAAAAAA0456E76A    JJ/AGJATAAAAAA0462E     75AAAGJ7...180510210
889999Y8    98899Y9     89Y8QYYYYYY    988Q      8Y8Y9Y9QYYYYYY    9     889YY9Y9
99 99  9 9             9 9 999999    999        999 99 9999999           99 9 9

A6AAAAAAA0468AADAAAA    AAA0476DCA.U.J.XD048    0AAJJAAAAAA0482AAAAA    AAAAA0484..180510211
Y9YYYYYY   9Y9QYYY      YYY   9 Q 8 9 89         9Y8YYYYYYY    9YYYY     YYYYY
9 999999    9 9999     999 9 9                  999999999    99 9        99999

AAVJAAAAAA0486.......   ....................    ....................   ...........180510212
9Y9YYYYYY
9 9999999

BDAT................    ....................    ....................   ...........80510213
9
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8060   PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-

```
           8060    TITLE F8060   PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-
           *****************************************************************
           *                                                              *
           *        MODIFICATIONS                                         *
           *          1. PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-        *
           *             THIS IS A NEW ADDITION TO THIS PROGRAM PACKAGE.  *
           *                                                              *
           *        ENGINEERING CHANGE PREREQUISITES                      *
           *          1. HARDWARE                                         *
           *             2821 CONTROL UNIT WITH 2540 ATTACHMENT AT MINIMUM*
           *             E.C. LEVEL 124265                                *
           *          2. PROGRAM                                          *
           *             NONE                                            *
           *                                                              *
           *****************************************************************
                   XF8060 START 4096
001000             USING *,15
002000             USING *&4096,10
           *****************************************************************
           *                    FOURTH OVERLAY - ROUTINE 05              *
           *****************************************************************
           *        RESIDENT LABELS ADDRESSED BY OVERLAYS                 *
           *****************************************************************
001000     SECST   EQU    *
001004     SNSW    EQU    SECST&4
001040     CSW     EQU    SECST&64
001048     CAW     EQU    SECST&72
0010E0     UNIT1   EQU    SECST&224
0010E2     UN1ADR  EQU    SECST&226
0010E4     UNIT2   EQU    SECST&228
0010E6     UN2ADR  EQU    SECST&230
00112C     SIOVR3  EQU    SECST&300
001134     SIOVR4  EQU    SECST&308
00114D     SIOSW5  EQU    SECST&333
0011F8     STATSV  EQU    SECST&504
0011FA     CSWAG   EQU    SECST&506
001231     UAPU    EQU    SECST&561
00112C     CSWSAV  EQU    SECST&300
00114C     CAWKEY  EQU    SECST&332
0011F7     SENSE   EQU    SECST&503
00122D     UARD    EQU    SECST&557
0016EC     EXIT    EQU    SECST&1772
001714     EXIT1   EQU    SECST&1812
00171C     EXIT2   EQU    SECST&1820
001060     SVRPSW  EQU    SECST&96
0016E6     EXITBY  EQU    SECST&1766
00179C     SCHNUM  EQU    SECST&1948
001234     SCPDAT  EQU    SECST&564
00163E     SCPROO  EQU    SECST&1598
0012E8     SIO     EQU    SECST&744
000048     HCAW    EQU    72
000040     HCSW    EQU    64
001202     MESS1   EQU    SECST&514
00114D     SIOSWS  EQU    SECST&333
           *****************************************************************
001015             ORG    SECST&21
                   DC     AL3(RTN05)         INITIAL PSW STARTING ADDR FOR RTN 05
001060             ORG    SECST&96
           010000000F      DC     X'010000000F'     SVC RETURN PSW
001065     001DCA          DC     AL3(RDCRD1)
0017D0             ORG    SECST&2000
           *****************************************************************
           *             VARIABLES - DOUBLE WORD BOUNDARY                 *
           *****************************************************************
0017D0             CNOP   0,8
0017D0     0000000000000000  WKAR3  DC     XL8'00'
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8060   PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-

```
0017D8     0000000000000000  WKAR4  DC     XL8'00'
           *
           *             VARIABLES - WORD BOUNDARY
           *
0017E0             CNOP   0,4
0017E0     00000000          ERNO   DC     XL4'00'
           *****************************************************************
           *             VARIABLES - NO BOUNDARY                          *
           *****************************************************************
0017E4     000102030405060708  INDAT  DC     X'000102030405060708090A1011191A20'
0017ED     090A1011191A20
0017F4     2122292A3040414248          DC     X'2122292A3040414248494A5051585960'
0017FD     494A5051585960
001804     616263686A6B6E7072          DC     X'616263686A6B6E7072787A8081828889'
00180D     787A8081828889
001814     8B91A1A9COC1C2C8CA          DC     X'8B91A1A9COC1C2C8CAD0D2D8DAE0E1E2'
00181D     D0D2D8DAE0E1E2
001824     E3E8E9EAEBF0FA              DC     X'E3E8E9EAEBF0FA'
00182B                         WRSNS  DS     CL71
001872                         WRCKRD DS     CL71
0018B9                         RDAT   DS     CL71
001900                         RDSNS  DS     CL71
001947                         RDCKRD DS     CL71
00198E                         COMDAT DS     CL90
0019E8     00                  ERSW1  DC     X'00'
0019E9     C5D9D940E7E7E7E7E7   ERRX   DC     C'ERR XXXXX'
           *****************************************************************
           *             ROUTINE 05 PREFIX                                *
           *****************************************************************
0019F2             CNOP   0,4
0019F2     07 00           BCR    0,0
0019F4     05              RTN05  DC     XL1'05'            ROUTINE NUMBER
0019F5     00                     DC     XL1'00'            FLAGS
0019F6     FFFF                   DC     X'FFFF'            LAST ROUTINE
0019F8     95 85 F 79C     RT00   CLI    SCHNUM,X'85'       SEE IF SHOULD RUN THIS ROUTINE
0019FC     47 80 F A12            BC     EQUAL,RT01         ,, BRCH IF YES
001A00     95 00 F 79C            CLI    SCHNUM,X'00'       SEE IF SHOULD RUN THIS ROUTINE
001A04     47 80 F A12            BC     EQUAL,RT01         ,, BRCH IF YES
001A08     D2 02 F 065 F E70  RTOX  MVC    SVRPSW&5(3),SCRAD  SET UP RETURN SVC PSW ADDR
001A0E     47 F0 F 714            BC     ALWAYS,EXIT1       BYPASS DATA CARDS    ROUTINE EXIT
001A12     91 02 F 004     RT01   TM     SNSW,X'02'         SEE IF WANT TITLE PRINTOUT
001A16     47 80 F A20            BC     ALLOFF,RT02        ,, BRCH IF NO
001A1A     0A D0                  SVC    X'D0'              PRINT TITLE
001A1C     80                     DC     X'80'              ,, NORMAL OUTPUT
001A1D     OF                     DC     X'OF'              ,, 15 CHARACTERS
001A1E     F E73                  DC     S(TITLE)           ,, ADDRESS OF TITLE
001A20     91 40 F 004     RT02   TM     SNSW,X'40'         SEE IF WANT UTILITY ROUTINE
001A24     47 80 F A2C            BC     ALLOFF,RT03        ,, BRCH IF NO
001A28     45 80 F 63E            BAL    GR8,SCPROO         BRCH TO UTILITY ROUTINE
           *
           *        DATA COLLECTION ROUTINE
           *
001A2C     41 10 F 7E4     RT03   LA     GR1,INDAT          INITIALIZE
001A30     41 20 F 8B9            LA     GR2,RDAT           ,,
001A34     41 30 F 98E            LA     GR3,COMDAT         ,,
001A38     1B 66                  SR     GR6,GR6            ,,
001A3A     92 00 F 98E            MVI    COMDAT,X'00'       ,,
001A3E     D2 58 F 98F F 98E      MVC    COMDAT&1(89),COMDAT  ,,
001A44     45 A0 F D18     RT04   BAL    GRA,DWR            GO WRITE PUNCH BUFFER
001A48     D2 00 1 08E F 234      MVC    142(1,GR1),SCPDAT  SAVE WRITE CHECK READ DATA
001A4E     45 A0 F D4A            BAL    GRA,PRD            GO READ PUNCH BUFFER
001A52     D2 00 2 08E F 234      MVC    142(1,GR2),SCPDAT  SAVE READ CHECK READ DATA
001A58     D7 07 F 7D0 F 7D0      XC     WKAR3(8),WKAR3     COMBINE INV CD CODE   READ DATA
001A5E     D7 07 F 7D8 F 7D8      XC     WKAR4(8),WKAR4     ,,
001A64     D2 00 F 7D8 2 000      MVC    WKAR4(1),0(GR2)    ,,
001A6A     58 B0 F 7D8            L      GRB,WKAR4          ,,
001A6E     1B 00                  SR     GR0,GR0            ,,
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8060   PUNCH TRANSLATOR FLT —ROUTINE OVERLAY 05—

```
001A70   88 B0 0 001              SRL    GRB,1(GR0)              ,,
001A74   50 B0 F 7D0              ST     GRB,WKAR3              ,,
001A78   91 08 2 047              TM     71(GR2),X'08'          ,,
001A7C   47 80 F A84              BC     ALLOFF,RT05            ,,
001A80   96 80 F 7D0              OI     WKAR3,X'80'            ,,
001A84   58 B0 F 7D0       RT05   L      GRB,WKAR3             ,,
001A88   18 96                    LR     GR9,GR6               ,,
001A8A   5C 80 F E10              M      GR8,NINE              ,,
001A8E   1B 88                    SR     GR8,GR8               ,,
001A90   5D 80 F E14              D      GR8,EIGHT             ,,
001A94   88 B0 8 000              SRL    GRB,0(GR8)            ,,
001A98   50 B0 F 7D0              ST     GRB,WKAR3             ,,
001A9C   41 99 F 98E              LA     GR9,COMDAT(GR9)       ,,
001AA0   D6 03 9 000 F 7D0        OC     0(4,GR9),WKAR3         SEE IF END OF DATA COLLECTION
001AA6   41 B0 F 82B              LA     GRB,WRSNS             ,,
001AAA   41 10 1 001              LA     GR1,1(GR0,GR1)         ,,
001AAE   15 1B                    CLR    GR1,GRB               ,,
001AB0   47 80 F AC0              BC     EQUAL,RT10            ,, BRCH IF YES
001AB4   41 20 2 001              LA     GR2,1(GR0,GR2)         ,,
001AB8   41 60 6 001              LA     GR6,1(GR0,GR6)         ,,
001ABC   47 F0 F A44              BC     ALWAYS,RT04            CONTINUE COLLECTING DATA
                                  *
                                  *     ERROR DEFINITION ROUTINE
                                  *
001AC0   D5 4F F 98E F E20  RT10  CLC    COMDAT(80),OUTDAT      SEE IF GOT ANY ERRORS
001AC6   47 60 F AD4              BC     NEQUAL,RT20           ,, BRCH IF YES
001ACA   0A D0                    SVC    X'D0'                  PRINT NO ERRORS DETECTED
001ACC   80                       DC     X'80'                 ,, NORMAL OUTPUT
001ACD   10                       DC     X'10'                 ,, 16 CHARACTERS
001ACE   F E82                    DC     S(NERDET)             ,, ADDRESS OF MESSAGE
001AD0   47 F0 F C4E              BC     ALWAYS,LGOUT           GO SEE IF WANT LOG OUT
001AD4   41 10 0 01E       RT20   LA     GR1,30(GR0,GR0)        INITIALIZE DATA RECORD COUNT
001AD8   45 B0 F DA0       PT051  BAL    GRB,RDCRD              GO READ A DATA CARD
001ADC   41 90 F 234       PT06   LA     GR9,SCPDAT             SET UP CURRENT DATA ADDRESS
001AE0   92 00 F 9E8       PT061  MVI    ERSW1,X'00'            RESET ERR SW 1
001AE4   1B 22                    SR     GR2,GR2               SET COUNT OF MASKS IN GR2
001AE6   43 20 9 000              IC     GR2,0(GR0,GR9)        ,,
001AEA   41 90 9 001              LA     GR9,1(GR0,GR9)         UPDATE CURRENT ADDR BY 1
001AEE   43 30 9 000       PT062  IC     GR3,0(GR0,GR9)        SET CC IN GR 3
001AF2   89 30 0 018              SLL    GR3,24                ,,
001AF6   41 90 9 001              LA     GR9,1(GR0,GR9)         UPDATE CURRENT ADDR BY 1
001AFA   41 40 0 004              LA     GR4,4(GR0,GR0)        SET 4 IN GR 4
001AFE   41 50 F 98E       PT063  LA     GR5,COMDAT            SET TEST DATA ADDR
001B02   1B 88                    SR     GR8,GR8               SET UP TEST ADDRESS
001B04   43 80 9 000              IC     GR8,0(GR0,GR9)        ,,
001B08   41 58 5 000              LA     GR5,0(GR8,GR5)        ,,
001B0C   41 90 9 001              LA     GR9,1(GR0,GR9)         UPDATE CURRENT ADDR BY 1
001B10   43 60 9 000              IC     GR6,0(GR0,GR9)        SET UP MASK
001B14   41 90 9 001              LA     GR9,1(GR0,GR9)         UPDATE CURRENT ADDR BY 1
001B18   50 20 F 7D0              ST     GR2,WKAR3             CONVERT CC
001B1C   1B 22                    SR     GR2,GR2               ,,
001B1E   41 70 0 080              LA     GR7,128               ,,
001B22   8D 20 0 002              SLDL   GR2,2                 ,,
001B26   88 70 2 000              SRL    GR7,0(GR2)            ,,
001B2A   49 70 F E1E              CH     GR7,THRT2             IS CC 2
001B2E   47 60 F B36              BC     NEQUAL,PT0630         ,, BRCH IF NO
001B32   41 70 0 050              LA     GR7,80                SET CC FOR ANY OR ALL
001B36   58 20 F 7D0       PT0630 L      GR2,WKAR3             RESTORE GR 2
001B3A   44 60 F C3E              EX     GR6,TMA               TEST DATA
001B3E   44 70 F C42              EX     GR7,BCON              BRCH IF ERROR RESULT
001B42   92 FF F 9E8              MVI    ERSW1,X'FF'           TURN ON ERR SW 1
001B46   46 20 F BA6              BCT    GR2,PT067             BRCH IF NOT END OF MASKS FOR THIS CC
001B4A   46 40 F B4E              BCT    GR4,*&4               UPDATE CURRENT ADDR
001B4E   1E 94                    ALR    GR9,GR4               ,,
001B50   1E 94                    ALR    GR9,GR4               ,,
001B52   41 80 F 27A       PT0631 LA     GR8,SCPDAT&70         DOES THIS CARD CONTAIN NEXT DATA FLD
001B56   41 70 9 003              LA     GR7,3(GR0,GR9)        ,,
001B5A   15 78                    CLR    GR7,GR8               ,,
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* F8041   2821 SCAN/2540 READER/PUNCH
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001B5C   47 20 F B88              BC     HIGH,PT065            ,, BRCH IF NO
001B60   91 10 F 004              TM     SNSW,X'10'            PRINT CORRECT RESULTS
001B64   47 F0 F B72              BC     ALWAYS,PT064          ,, BRCH IF NO
001B68   D2 03 F 9ED 9 000        MVC    ERRX&4(4),0(GR9)      SET FAULT NO. IN MESSAGE
001B6E   45 B0 F C46              BAL    GRB,PRCRES            GO PRINT FAULT NO.
001B72   41 90 9 004       PT064  LA     GR9,4(GR0,GR9)        UPDATE CURRENT ADDR BY 4
001B76   41 80 F 27A              LA     GR8,SCPDAT&70         DOES THIS CARD CONTAIN NEXT DATA FLD
001B7A   41 70 9 009              LA     GR7,9(GR0,GR9)        ,,
001B7E   15 78                    CLR    GR7,GR8               ,,
001B80   47 20 F AD8              BC     HIGH,PT051            ,, BRCH IF NO
001B84   47 F0 F AE0              BC     ALWAYS,PT061          CONTINUE
001B88   45 B0 F DA0       PT065  BAL    GRB,RDCRD             READ A DATA CARD
001B8C   91 10 F 004              TM     SNSW,X'10'            PRINT CORRECT RESULTS
001B90   47 F0 F B9E              BC     ALWAYS,PT066          ,, BRCH IF NO
001B94   D2 03 F 9ED F 234        MVC    ERRX&4(4),SCPDAT      SET FAULT NO. IN MESSAGE
001B9A   45 B0 F C46              BAL    GRB,PRCRES            GO PRINT FAULT NO.
001B9E   41 90 F 238       PT066  LA     GR9,SCPDAT&4          SET CURRENT ADDRESS
001BA2   47 F0 F AE0              BC     ALWAYS,PT061          CONTINUE
001BA6   46 40 F AFE       PT067  BCT    GR4,PT063             BRCH IF DID NOT USE 4 MASKS
001BAA   41 80 F 27A              LA     GR8,SCPDAT&70         DOES THIS CARD CONTAIN NEXT DATA FLD
001BAE   41 70 9 008              LA     GR7,8(GR0,GR9)        ,,
001BB2   15 78                    CLR    GR7,GR8               ,,
001BB4   47 C0 F AEE              BC     LOEQ,PT062            ,, BRCH IF YES
001BB8   45 B0 F DA0              BAL    GRB,RDCRD             READ A DATA CARD
001BBC   41 90 F 234              LA     GR9,SCPDAT            SET CURRENT ADDRESS
001BC0   47 F0 F AEE              BC     ALWAYS,PT062          CONTINUE
001BC4   46 20 F BA6       PT068  BCT    GR2,PT067             BRCH IF NOT LAST MASK
001BC8   46 40 F BCC              BCT    GR4,*&4               UPDATE CURRENT ADDRESS
001BCC   1E 94                    ALR    GR9,GR4               ,,
001BCE   1E 94                    ALR    GR9,GR4               ,,
001BD0   91 FF F 9E8              TM     ERSW1,X'FF'           SEE IF ERR SW 1 ON
001BD4   47 10 F B52              BC     ALLON,PT0631          ,, BRCH IF YES
001BD8   41 80 F 27A              LA     GR8,SCPDAT&70         DOES THIS CARD CONTAIN NEXT DATA FLD
001BDC   41 70 9 003              LA     GR7,3(GR0,GR9)        ,,
001BE0   15 78                    CLR    GR7,GR8               ,,
001BE2   47 20 F C32              BC     HIGH,PT06A            ,, BRCH IF NO
001BE6   D2 02 F 9ED 9 001 PT069  MVC    ERRX&4(3),1(GR9)      MOVE ERROR NO. TO ERROR MESSAGE
001BEC   D7 07 F 7D0 F 7D0        XC     WKAR3(8),WKAR3        CONVERT ERROR NO. TO BINARY   SAVE
001BF2   D2 02 F 7D5 9 001        MVC    WKAR3&5(3),1(GR9)     ,,
001BF8   F2 22 F 7D5 F 7D5        PACK   WKAR3&5(3),WKAR3&5(3) ,,
001BFE   4F 80 F 7D0              CVB    GR8,WKAR3             ,,
001C02   41 80 8 28A              LA     GR8,650(GR0,GR8)      ,,
001C06   50 80 F 7E0              ST     GR8,ERNO              ,,
001C0A   4E 80 F 7D0              CVD    GR8,WKAR3             CONVERT ERROR NO. TO PRINTABLE
001C0E   0A DD                    SVC    X'DD'                 ,,
001C10   0003                     DC     AL2(3)                ,,
001C12   07D5                     DC     AL2(WKAR3&5-SECST)    ,,
001C14   07D8                     DC     AL2(WKAR4-SECST)      ,,
001C16   D2 03 F 9ED F 7D9        MVC    ERRX&4(4),WKAR4&1     SET ERROR NO. IN ERROR MESSAGE
001C1C   95 F0 F 9ED              CLI    ERRX&4,X'F0'          SEE IF FIRST CHAR IS 0
001C20   47 60 F C28              BC     NEQUAL,PT06X          ,, BRCH IF NO
001C24   92 40 F 9ED              MVI    ERRX&4,X'40'          BLANK OUT 0
001C28   0A D0             PT06X  SVC    X'D0'                 ERR XXX - SEE ERNO   PGM DESCRIPTION
001C2A   44                       DC     X'44'                 ,, ERROR OUTPUT
001C2B   08                       DC     X'08'                 ,, 8 CHARACTERS
001C2C   F 9E9                    DC     S(ERRX)               ,, MESSAGE ADDRESS
001C2E   47 F0 F C4E              BC     ALWAYS,LGOUT          GO SEE IF WANT LOG OUT
001C32   45 B0 F DA0       PT06A  BAL    GRB,RDCRD             READ A DATA CARD
001C36   41 90 F 234              LA     GR9,SCPDAT            SET CURRENT ADDRESS
001C3A   47 F0 F BE6              BC     ALWAYS,PT069          CONTINUE
001C3E   91 00 5 000       TMA    TM     0(GR5),X'00'          TEST DATA
001C42   47 00 F BC4       BCON   BC     NA,PT068             
                                  *
                                  *     ROUTINE TO PRINT FAULT NUMBERS
                                  *
001C46   0A D0             PRCRES SVC    X'D0'                 PRINT FAULT NO.
001C48   80                       DC     X'80'                 ,, NORMAL OUTPUT
001C49   08                       DC     X'08'                 ,, 8 CHARACTERS
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001C4A  F 9E9                    DC   S(ERRX)              ,, MESSAGE ADDRESS
001C4C  07 FB                    BCR  ALLOFF,GRB           RETURN TO MAIN PROGRAM
                                 *
                                 *   LOG OUT ROUTINE
                                 *
001C4E  91 20 F 004      LGOUT   TM   SNSW,X'20'           SEE IF WANT LOG OUT
001C52  47 80 F D08              BC   ALLOFF,LGOUTX        ,, BRCH IF NO
001C56  41 10 F 7E4              LA   GR1,INDAT            INITIALIZE LOG OUT ROUTINE
001C5A  41 20 F 8B9              LA   GR2,RDAT             ,,
001C5E  92 40 F 235      LGOUT1  MVI  SCPDAT,X'40'         CLEAR PRINT FIELD
001C62  D2 7C F 235 F 234        MVC  SCPDAT&1(125),SCPDAT ,,
001C68  D2 00 F 7D0 1 000        MVC  WKAR3(1),0(GR1)      SET UP TO PRINT WRITE DATA
001C6E  0A DD                    SVC  X'DD'                ,,
001C70  0001                     DC   AL2(1)               ,,
001C72  07D0                     DC   AL2(WKAR3-SECST)     ,,
001C74  0237                     DC   AL2(SCPDAT&3-SECST)  ,,
001C76  D2 00 F 7D0 1 047        MVC  WKAR3(1),71(GR1)     SET UP TO PRINT WRITE SENSE DATA
001C7C  0A DD                    SVC  X'DD'                ,,
001C7E  0001                     DC   AL2(1)               ,,
001C80  07D0                     DC   AL2(WKAR3-SECST)     ,,
001C82  023A                     DC   AL2(SCPDAT&6-SECST)  ,,
001C84  D2 00 F 7D0 1 08E        MVC  WKAR3(1),142(GR1)    SET UP TO PRINT WRITE CK READ DATA
001C8A  0A DD                    SVC  X'DD'                ,,
001C8C  0001                     DC   AL2(1)               ,,
001C8E  07D0                     DC   AL2(WKAR3-SECST)     ,,
001C90  023D                     DC   AL2(SCPDAT&9-SECST)  ,,
001C92  D2 00 F 7D0 2 000        MVC  WKAR3(1),0(GR2)      SET UP TO PRINT READ DATA
001C98  0A DD                    SVC  X'DD'                ,,
001C9A  0001                     DC   AL2(1)               ,,
001C9C  07D0                     DC   AL2(WKAR3-SECST)     ,,
001C9E  0240                     DC   AL2(SCPDAT&12-SECST) ,,
001CA0  D2 00 F 7D0 2 047        MVC  WKAR3(1),71(GR2)     SET UP TO PRINT READ SENSE DATA
001CA6  0A DD                    SVC  X'DD'                ,,
001CA8  0001                     DC   AL2(1)               ,,
001CAA  07D0                     DC   AL2(WKAR3-SECST)     ,,
001CAC  0243                     DC   AL2(SCPDAT&15-SECST) ,,
001CAE  D2 00 F 7D0 2 08E        MVC  WKAR3(1),142(GR2)    SET UP TO PRINT READ CK RD DATA
001CB4  0A DD                    SVC  X'DD'                ,,
001CB6  0001                     DC   AL2(1)               ,,
001CB8  07D0                     DC   AL2(WKAR3-SECST)     ,,
001CBA  0246                     DC   AL2(SCPDAT&18-SECST) ,,
001CBC  92 5C F 235              MVI  SCPDAT&1,C'*'        SET ERROR FLAG
001CC0  D5 01 F 237 F 240        CLC  SCPDAT&3(2),SCPDAT&12  SEE IF READ DATA OK
001CC6  47 60 F CEE              BC   NEQUAL,LGOUTA        ,, BRCH IF NO
001CCA  95 00 1 047              CLI  71(GR1),X'00'        SEE IF ANY WRITE SENSE DATA
001CCE  47 60 F CEE              BC   NEQUAL,LGOUTA        ,, BRCH IF YES
001CD2  95 00 1 08E              CLI  142(GR1),X'00'       SEE IF ANY WRITE CK READ DATA
001CD6  47 60 F CEE              BC   NEQUAL,LGOUTA        ,, BRCH IF YES
001CDA  95 00 2 047              CLI  71(GR2),X'00'        SEE IF ANY READ SENSE DATA
001CDE  47 60 F CEE              BC   NEQUAL,LGOUTA        ,, BRCH IF YES
001CE2  95 00 2 08E              CLI  142(GR2),X'00'       SEE IF ANY READ CK READ DATA
001CE6  47 60 F CEE              BC   NEQUAL,LGOUTA        ,, BRCH IF YES
001CEA  92 40 F 235              MVI  SCPDAT&1,X'40'       REMOVE ERROR FLAG
001CEE  0A DO            LGOUTA  SVC  X'DO'                PRINT LOG OUT DATA
001CF0  80                       DC   X'80'                ,,
001CF1  14                       DC   X'14'                ,,
001CF2  F 234                    DC   S(SCPDAT)            ,,
001CF4  41 90 F 82B              LA   GR9,WRSNS            SEE IF END OF LOG OUT
001CF8  41 10 1 001              LA   GR1,1(GR0,GR1)       ,,
001CFC  41 20 2 001              LA   GR2,1(GR0,GR2)       ,,
001D00  15 19                    CLR  GR1,GR9              ,,
001D02  47 60 F C5E              BC   NEQUAL,LGOUT1        ,, BRCH IF NO
001D06  0A DA                    SVC  X'DA'                HALT - WAIT FOR ACTION
001D08  91 40 F 004      LGOUTX  TM   SNSW,X'40'           SEE IF WANT UTILITY ROUTINE
001D0C  47 80 F D14              BC   ALLOFF,LGOUTY        ,, BRCH IF NO
001D10  45 80 F 63E              BAL  GR8,SCPROO           BRCH TO UTILITY ROUTINE
001D14  47 F0 F A08      LGOUTY  BC   ALWAYS,RTOX          ROUTINE EXIT
                                 *
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* F8041   2821 SCAN/2540 READER/PUNCH
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                                 *   ROUTINE TO WRITE PUNCH BUFFER
001D18  48 C0 F 0E6      DWR     LH   GRC,UN2ADR           SET PUNCH I/O ADDR IN GR 12
001D1C  D2 00 F 234 1 000        MVC  SCPDAT(1),0(GR1)     LOAD WRITE DATA
001D22  D2 4E F 235 F 234        MVC  SCPDAT&1(79),SCPDAT  ,,
001D28  41 00 F DF8              LA   GR0,PWRCCW           LOAD ADDR OF PUNCH WRITE CCW
001D2C  50 00 F 048              ST   GR0,CAW              ,,
001D30  92 00 F 14D              MVI  SIOSWS,X'00'         RESET SIO SWITCHES -USE PUNCH ADDR-
001D34  45 B0 F 2E8              BAL  GRB,SIO              BRCH TO SIO ROUTINE
001D38  91 01 F 14D              TM   SIOSWS,X'01'         SEE IF INTERVENTION REQ SW ON
001D3C  47 10 F D18              BC   ALLON,DWR            ,, REPEAT WRITE IF YES
001D40  D2 00 1 047 F 1F7        MVC  71(1,GR1),SENSE      SAVE WRITE SENSE DATA
001D46  47 F0 F D7C              BC   ALWAYS,DCK           GO DO DIAGNOSTIC CHECK READ
                                 *
                                 *   ROUTINE TO PERFORM PUNCH DIAGNOSTIC READ
                                 *
001D4A  92 00 F 14D      PRD     MVI  SIOSWS,X'00'         RESET SIO SWITCHES -USE PUNCH ADDR-
001D4E  41 00 F E00              LA   GR0,PRDCCW           LOAD ADDR OF PUNCH READ CCW
001D52  50 00 F 048              ST   GR0,CAW              ,,
001D56  92 00 F 234              MVI  SCPDAT,X'00'         CLEAR READ FIELD
001D5A  D2 4E F 235 F 234        MVC  SCPDAT&1(79),SCPDAT  ,,
001D60  45 B0 F 2E8              BAL  GRB,SIO              BRCH TO SIO ROUTINE
001D64  91 01 F 14D              TM   SIOSWS,X'01'         SEE IF INTERVENTION REQ SW ON
001D68  47 10 F A44              BC   ALLON,RT04           ,, RE-RUN WRITE  READ IF YES
001D6C  D2 00 2 000 F 234        MVC  0(1,GR2),SCPDAT      SAVE READ DATA
001D72  D2 00 2 047 F 1F7        MVC  71(1,GR2),SENSE      SAVE READ SENSE DATA
001D78  47 F0 F D7C              BC   ALWAYS,DCK           GO DO DIAGNOSTIC CHECK READ
                                 *
                                 *   ROUTINE TO PERFORM DIAGNOSTIC CHECK READ
                                 *
001D7C  41 00 F E08      DCK     LA   GR0,CRDCCW           LOAD ADDR OF DIAG CK RD CCW
001D80  50 00 F 048              ST   GR0,CAW              ,,
001D84  92 00 F 14D              MVI  SIOSWS,X'00'         RESET SIO SWITCHES -USE PUNCH ADDR-
001D88  92 00 F 234              MVI  SCPDAT,X'00'         CLEAR READ FIELD
001D8C  D2 4E F 235 F 234        MVC  SCPDAT&1(79),SCPDAT  ,,
001D92  45 B0 F 2E8              BAL  GRB,SIO              BRCH TO SIO ROUTINE
001D96  91 01 F 14D              TM   SIOSWS,X'01'         SEE IF INTERVENTION REQ SW ON
001D9A  47 10 F A44              BC   ALLON,RT04           ,, RE-RUN WRITE  READ IF YES
001D9E  07 FA                    BCR  ALWAYS,GRA           RETURN TO MAIN PROGRAM
                                 *
                                 *   ROUTINE TO READ DATA CARDS
                                 *
001DA0  92 00 F 234      RDCRD   MVI  SCPDAT,X'00'         CLEAR READ FIELD
001DA4  D2 4E F 235 F 234        MVC  SCPDAT&1(79),SCPDAT  ,,
001DAA  0A DB                    SVC  X'DB'                READ A DATA CARD
001DAC  0234                     DC   AL2(SCPDAT-SECST)    READ DATA FIELD ADDRESS
001DAE  41 10 1 001              LA   GR1,1(GR0,GR1)       INCREASE CARD COUNT
001DB2  4E 10 F 7D0              CVD  GR1,WKAR3            CONVERT CARD NO TO PRINTABLE
001DB6  0A DD                    SVC  X'DD'                ,,
001DB8  0002                     DC   AL2(2)               ,,
001DBA  07D6                     DC   AL2(WKAR3&6-SECST)   ,,
001DBC  07D8                     DC   AL2(WKAR4-SECST)     ,,
001DBE  D5 02 F 7D8 F 281        CLC  WKAR4(3),SCPDAT&77   SEE IF DATA CARD SEQUENCE OK
001DC4  47 60 F DD4              BC   NEQUAL,RDCRDX        ,, BRCH IF NO
001DC8  07 FB                    BCR  ALWAYS,GRB           RETURN TO MAIN PROGRAM
001DCA  58 20 F E18      RDCRD1  L    GR2,CDCNT            SEE IF CORRECT NO. DATA CARDS READ
001DCE  15 21                    CLR  GR2,GR1              ,,
001DD0  47 80 F DE6              BC   EQUAL,RDCRD2         ,, BRCH IF YES
001DD4  41 30 0 28A      RDCRDX  LA   GR3,650(GR0,GR0)     SET UP ERROR NO.
001DD8  50 30 F 7E0              ST   GR3,ERNO             ,,
001DDC  0A DO                    SVC  X'DO'                ERROR 650 - MISSING DATA RECORDS OR
001DDE  44                       DC   X'44'                ,, DATA RECORDS OUT OF SEQUENCE
001DDF  07                       DC   X'07'                ,, 7 CHARACTERS
001DE0  F E92                    DC   S(ERR650)            ,, MESSAGE ADDRESS
001DE2  47 F0 F C4E              BC   ALWAYS,LGOUT         GO SEE IF WANT LOG OUT
001DE6  41 30 0 28B      RDCRD2  LA   GR3,651(GR0,GR0)     SET UP ERROR NO.
001DEA  50 30 F 7E0              ST   GR3,ERNO             ,,
001DEE  0A DO                    SVC  X'DO'                ERROR 651 - CAN NOT ISOLATE FAILURE
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* F8041   2821 SCAN/2540 READER/PUNCH
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001DF0   44                      DC    X'44'              ,, ERROR MESSAGE
001DF1   07                      DC    X'07'              ,, 7 CHARACTERS
001DF2   F E99                   DC    S(ERR651)          ,, MESSAGE ADDRESS
001DF4   47 F0 F C4E             BC    ALWAYS,LGOUT       GO SEE IF WANT LOG OUT
                         *
                         *    CCW'S - DOUBLE WORD BOUNDARY
                         *
001DF8   01 001234 2000 0050   PWRCCW CCW  X'01',SCPDAT,X'20',80   WRITE PUNCH BUFFER -SLI ON
001E00   C2 001234 2000 0050   PRDCCW CCW  X'C2',SCPDAT,X'20',80   READ PUNCH BUFFER -SLI ON-
001E08   C6 001234 2000 0050   CRDCCW CCW  X'C6',SCPDAT,X'20',80   DIAGNOSTIC CHECK READ -SLI ON-
                         *
                         *    CONSTANTS - WORD BOUNDARY
                         *
001E10   00000009            NINE   DC    XL4'09'
001E14   00000008            EIGHT  DC    XL4'08'
001E18   000000A5            CDCNT  DC    XL4'A5'
001E1C   0000                THRT2  DC    XL2'00'
001E1E   0020                THRT2  DC    XL2'20'
                         *
                         *    CONSTANTS - NO BOUNDARY
                         *
001E20   000040403020140C07  OUTDAT DC    X'000040403020140C0704024141008864'
001E29   04024141008864
001E30   342010888522A18100         DC    X'342010888522A18100824224124 12494502'
001E39   8242241 2494502
001E40   8960B26030988C6683         DC    X'8960B26030988C668351ACDC70391E0F'
001E49   51ACDC70391E0F
001E50   48040A09108945A454         DC    X'48040A09108945A4542A96030584C865'
001E59   2A96030584C865
001E60   341A4086D381C2E271         DC    X'341A4086D381C2E271BA1D2EA75BC1F4'
001E69   BA1D2EA75BC1F4
001E70   -00171C             SCRAD  DC    AL3(EXIT2)
001E73   D7E4D5C3C840E7D3C1  TITLE  DC    C'PUNCH XLATE FLT'
001E7C   E3C540C6D3E3
001E82   D5D640C5D9D9E240C4  NERDET DC    C'NO ERRS DETECTED'
001E8B   C5E3C5C3E3C5C4

                         ***********************************************************
                         *            GENERAL REGISTER EQUATES                     *
                         ***********************************************************
         000000          GR0    EQU   0
         000001          GR1    EQU   1
         000002          GR2    EQU   2
         000003          GR3    EQU   3
         000004          GR4    EQU   4
         000005          GR5    EQU   5
         000006          GR6    EQU   6
         000007          GR7    EQU   7
         000008          GR8    EQU   8
         000009          GR9    EQU   9
         00000A          GRA    EQU   10
         00000B          GRB    EQU   11
         00000C          GRC    EQU   12
         00000D          GRD    EQU   13
         00000E          GRE    EQU   14
         00000F          GRF    EQU   15
                         ***********************************************************
                         *            CONDITION CODE EQUATES                       *
                         ***********************************************************
         000078          HION   EQU   120              HARDWARE I/O NEW PSW LOCATION
         000008          ALLOFF EQU   8          1  ALLOFF        0
         000005          ANYON  EQU   5             ANY ON          1
         000001          ALLON  EQU   1             ALLON               3
         000004          MIXED  EQU   4             MIXED         1
         000009          NMIXED EQU   9             NOT MIXED     0     3
         000008          EQUAL  EQU   8             EQUAL         0
         000006          NEQUAL EQU   6             NOT EQUAL       1 2
         000004          LOW    EQU   4             LOW             1
         000002          HIGH   EQU   2             HIGH              2
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         000008          ZERO   EQU   8                ZERO          0
         000002          GZERO  EQU   2                GREATER ZERO        2
         000008          AVAIL  EQU   8                AVAILABLE     0
         000004          CSWST  EQU   4                CSW STORED        1
         000002          BUSY   EQU   2                BUSY                2
         00000F          ALWAYS EQU   15               UNCONDITIONAL 0 1 2 3
         00000D          NOTBSY EQU   13               NOT BUSY      0 1   3
         000007          NZERO  EQU   7                NOT CC 0        1 2 3
         000004          NOTZRO EQU   4                NOT ZERO -AND-      1
         00000C          MIXNON EQU   12               MIXED OR NONE 0 1
         00000C          LOEQ   EQU   12               LOW & EQUAL   0 1
         000000          NA     EQU   0
                         ***********************************************************
                         *
                         *          ERROR NUMBER DEFINITION
                         *
001E92   C5D9D940F6F5F0   ERR650 DC    C'ERR 650'    DATA RECORDS MISSING OR OUT OF SEQ
001E99   C5D9D940F6F5F1   ERR651 DC    C'ERR 651'    CAN NOT ISOLATE PCH XLATE FAILURE
                          END
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POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
1    0     NA    1C42
1    1048  CAW   1D2C, 1D52, 1D80
1    1040  CSW
4    1D7C  DCK   1D46, 1D78
4    1D18  DWR   1A44, 1D3C
1    0     GR0   1A6E, 1A6E, 1A70, 1AAA, 1AB4, 1AB8, 1AD4
                 1AD4, 1AE6, 1AEA, 1AEE, 1AF6, 1AFA, 1AFA
                 1B04, 1B0C, 1B10, 1B14, 1B56, 1B72, 1B7A
                 1BAE, 1BDC, 1C02, 1CF8, 1CFC, 1D28, 1D2C
                 1D4E, 1D52, 1D7C, 1D80, 1DAE, 1DD4, 1DD4
                 1DE6, 1DE6
1    1     GR1   1A2C, 1A48, 1AAA, 1AAA, 1AAE, 1AD4, 1C56
                 1C68, 1C76, 1C84, 1CCA, 1CD2, 1CF8, 1CF8
                 1D00, 1D1C, 1D40, 1DAE, 1DAE, 1DB2, 1DCE
1    2     GR2   1A30, 1A52, 1A64, 1A78, 1AB4, 1AB4, 1AE4
                 1AE4, 1AE6, 1B18, 1B1C, 1B1C, 1B22, 1B26
                 1B36, 1B46, 1BC4, 1C5A, 1C92, 1CA0, 1CAE
                 1CDA, 1CE2, 1CFC, 1CFC, 1D6C, 1D72, 1DCA
                 1DCE
1    3     GR3   1A34, 1AEE, 1AF2, 1DD4, 1DD8, 1DE6, 1DEA
1    4     GR4   1AFA, 1B4A, 1B4E, 1B50, 1BA6, 1BC8, 1BCC
                 1BCE
1    5     GR5   1AFE, 1B08, 1B08, 1C3E
1    6     GR6   1A38, 1A38, 1A88, 1A88, 1B10, 1B3A
1    7     GR7   1B1E, 1B26, 1B2A, 1B32, 1B3E, 1B56, 1B5A
                 1B7A, 1B7E, 1BAE, 1BB2, 1BDC, 1BE0
1    8     GR8   1A28, 1A8A, 1A8E, 1A8E, 1A90, 1A94, 1B02
                 1B02, 1B04, 1B08, 1B52, 1B5A, 1B76, 1B7E
                 1BAA, 1BB2, 1BD8, 1BE0, 1BFE, 1C02, 1C02
                 1C06, 1C0A, 1D10
1    9     GR9   1A88, 1A9C, 1A9C, 1AA0, 1ADC, 1AE6, 1AEA
                 1AEA, 1AEE, 1AF6, 1AF6, 1B04, 1B0C, 1B0C
                 1B10, 1B14, 1B14, 1B4E, 1B50, 1B56, 1B68
                 1B72, 1B72, 1B7A, 1B9E, 1BAE, 1BBC, 1BCC
                 1BCE, 1BDC, 1BE6, 1BF2, 1C36, 1CF4, 1D00
1    A     GRA   1A44, 1A4E, 1D9E
1    B     GRB   1A6A, 1A70, 1A74, 1A84, 1A94, 1A98, 1AA6
                 1AAE, 1AD8, 1B6E, 1B88, 1B9A, 1BB8, 1C32
                 1C4C, 1D34, 1D60, 1D92, 1DC8
1    C     GRC   1D18
1    D     GRD
1    E     GRE
1    F     GRF
1    4     LOW
4    1D4A  PRD   1A4E
1    12E8  SIO   1D34, 1D60, 1D92
4    1C3E  TMA   1B3A
4    1C42  BCON  1B3E
1    2     BUSY
4    17E0  ERNO  1C06, 1DD8, 1DEA
9    19E9  ERRX  1B68, 1B94, 1BE6, 1C16, 1C1C, 1C24, 1C2C
                 1C4A
1    16EC  EXIT
1    48    HCAW
1    40    HCSW
1    2     HIGH  1B5C, 1B80, 1BE2
1    78    HION
1    C     LOEQ  1BB4
4    1E10  NINE  1A8A
4    1ADC  PTO6
71   18B9  RDAT  1A30, 1C5A
```

* F8041   2821 SCAN/2540 READER/PUNCH
F8060   PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-

```
4    19F8  RT00
4    1A12  RT01  19FC, 1A04
4    1A20  RT02  1A16
4    1A2C  RT03  1A24
4    1A44  RT04  1ABC, 1D68, 1D9A
4    1A84  RT05  1A7C
6    1A08  RTOX  1D14
6    1AC0  RT10  1AB0
4    1AD4  RT20  1AC6
1    1004  SNSW  1A12, 1A20, 1B60, 1B8C, 1C4E, 1D08
1    1231  UAPU
1    122D  UARD
1    8     ZERO
1    1     ALLON 1BD4, 1D3C, 1D68, 1D9A
1    5     ANYON
1    8     AVAIL
4    1E18  CDCNT 1DCA
1    11FA  CSWAG
1    4     CSWST
4    1E14  EIGHT 1A90
1    8     EQUAL 19FC, 1A04, 1AB0, 1DD0
1    19E8  ERSW1 1AE0, 1B42, 1BD0
1    1714  EXIT1 1A0E
1    171C  EXIT2 1E70
1    2     GZERO
16   17E4  INDAT 1A2C, 1C56
4    1C4E  LGOUT 1AD0, 1C2E, 1DE2, 1DF4
1    1202  MESS1
1    4     MIXED
1    7     NZERO
4    1AD8  PTO51 1B80
4    1AE0  PTO61 1B84, 1BA2
4    1AEE  PTO62 1BB4, 1BC0
4    1AFE  PTO63 1BA6
4    1B72  PTO64 1B64
4    1B88  PTO65 1B5C
4    1B9E  PTO66 1B90
4    1BA6  PTO67 1B46, 1BC4
4    1BC4  PTO68 1C42
6    1BE6  PTO69 1C3A
4    1C32  PTO6A 1BE2
2    1C28  PTO6X 1C20
4    1DA0  RDCRD 1AD8, 1B88, 1BB8, 1C32
71   1900  RDSNS
1    19F4  RTN05 1015
3    1E70  SCRAD 1A08
1    1000  SECST 1000, 1000, 1000, 1000, 1000, 1000, 1000
                 1000, 1000, 1000, 1000, 1000, 1000, 1000
                 1000, 1000, 1000, 1000, 1000, 1000, 1000
                 1000, 1000, 1000, 1000, 1000, 1000, 1000
                 1000, 1018, 1068, 1C12, 1C14, 1C72, 1C74
                 1C80, 1C82, 1C8E, 1C90, 1C9C, 1C9E, 1CAA
                 1CAC, 1CB8, 1CBA, 1DAC, 1DBA, 1DBC
1    11F7  SENSE 1D40, 1D72
2    1E1E  THRT2 1B2A
15   1E73  TITLE 1A1E
1    10E0  UNIT1
1    10E4  UNIT2
8    17D0  WKAR3 1A58, 1A58, 1A74, 1A80, 1A84, 1A98, 1AA0
                 1B18, 1B36, 1BEC, 1BEC, 1BF2, 1BF8, 1BF8
                 1BFE, 1C0A, 1C12, 1C68, 1C72, 1C76, 1C80
                 1C84, 1C8E, 1C92, 1C9C, 1CA0, 1CAA, 1CAE
                 1CB8, 1DB2, 1DBA
8    17D8  WKAR4 1A5E, 1A5E, 1A64, 1A6A, 1C14, 1C16, 1DBC
                 1DBE
71   182B  WRSNS 1AA6, 1CF4
1    8     ALLOFF 1A16, 1A24, 1A7C, 1C52, 1D0C
1    F     ALWAYS 1A0E, 1ABC, 1AD0, 1B64, 1B84, 1B90, 1BA2
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* F8041 2821 SCAN/2540 READER/PUNCH
F8060 PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 05-

```
                    1BC0,  1C2E,  1C3A,  1C4C,  1D14,  1D46,  1D78
                    1D9E,  1DC8,  1DE2,  1DF4
       1   114C CAWKEY
      90   198E COMDAT   1A34,  1A3A,  1A3E,  1A3E,  1A9C,  1AC0,  1AFE
       8   1E08 CRDCCW   1D7C
       1   112C CSWSAV
       7   1E92 ERR650   1DE0
       7   1E99 ERR651   1DF2
       1   16E6 EXITBY
       4   1C5E LGOUT1   1D02
       2   1CEE LGOUTA   1CC6,  1CCE,  1CD6,  1CDE,  1CE6
       4   1D08 LGOUTX   1C52
       4   1D14 LGOUTY   1D0C
       1      C NIXNON
       1      6 NEQUAL   1AC6,  1B2E,  1C20,  1CC6,  1CCE,  1CD6,  1CDE
                         1CE6,  1D02,  1DC4
      16   1E82 NERDET   1ACE
       1      9 NMIXED
       1      D NOTBSY
       1      4 NOTZRD
      16   1E20 OUTDAT   1AC0
       2   1C46 PRCRES   1B6E,  1B9A
       8   1E00 PRDCCW   1D4E
       4   1836 PTO630   1B2E
       4   1852 PTO631   1BD4
       8   1DF8 PWRCCW   1D28
      71   1947 RDCKRD
       4   1DCA RDCRD1   1065
       4   1DE6 RDCRD2   1DD0
       4   1DD4 RDCRDX   1DC4
       1   179C SCHNUM   19F8,  1A00
       1   1234 SCPDAT   1A48,  1A52,  1ADC,  1852,  1B76,  1B94,  1B9E
                         1BAA,  1BBC,  1BD8,  1C36,  1C5E,  1C62,  1C62
                         1C74,  1C82,  1C90,  1C9E,  1CAC,  1CBA,  1CBC
                         1CC0,  1CC0,  1CEA,  1CF2,  1D1C,  1D22,  1D22
                         1D56,  1D5A,  1D5A,  1D6C,  1D88,  1D8C,  1D8C
                         1DA0,  1DA4,  1DA4,  1DAC,  1DBE,  1DF8,  1E00
                         1E08
       1   163E SCPR00   1A28,  1D10
       1   114D SIOSW5
       1   114D SIOSWS   1D30,  1D38,  1D4A,  1D64,  1D84,  1D96
       1   112C SIOVR3
       1   1134 SIOVR4
       1   11F8 STATSV
       1   1060 SVRPSW   1A08
       1   10E2 UN1ADR
       1   10E6 UN2ADR   1D18
      71   1872 WRCKRD
       1   1000 XF8060
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

F804 2821 SCAN/2540 READER/PUNCH
F806 PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 5-

PERIODS CORRESPOND TO BLANK COLUMNS.

COLS. 1 THROUGH 20	COLS. 21 THROUGH 40	COLS. 41 THROUGH 60	COLS. 61 THROUGH 80
BESD......AA..AAXF80	60..0AAA.AFJ.........	840	475.125643..80600001
9 YQ Y9	YQY Y8Y		
99 9	999 99		
BTXT.AAN..AC..AAAJ4.	....	....	80600002
9 YQ9 Y9 Y9Y8			
99 9 9 99			
BTXT.AA-..AH..AAAAAA	GANB...............	....	80600003
9 YQ Y9 Y99YYY	8Y8Y		
99 9 9 999	9999		
BTXT.APO..A8..AAAAAA	AAAAAAAAAAAAAAAAABC	DEFGHABAJJKJ/S/SA.AB	HAB&AHJ-/KLQ80600004
9 Y9- Y9 Y9YYYY	YYYYYYYYYYYYYYYY999	9999988Q988Y9988Q ZZ	Z88 RR8 ZZZ
9 .9 9 9999	99999999999999999	999 999 99Z	
BTXT.AQH..AT..AA&TWO	BH2AABHICAJROABHBOKQ	BSJSTYZKLOB.........	80600005
9 Y99 Y9 Y9-88&	RR8Y0000Y-00& Y-	Q8Z YY Q	
9 9 9 -	00 9	9 99 Z	
BTXT.AJY..A8..AAAERR	.XXXXXGAEAGGEE7DGABK	EA7DGABKKBONFOGO7MAB	ODGABJBOAGFC80600006
9 Y8 Y9 Y9Y	9Y9YQQ-0 QZYQ9	-Y QZYQ9 9 ZQ&Z 9-9	9ZYQY8-Y8QR
99 9 9	9 9ZZ Z	9 Z Z-	Z99 9Z0
BTXT.AKJ..A8..AAA.OD	GABUEA66AA7UAJ8IAA9F	LOBA9FKH9G9FEJEQKAAF	24EJEBKAJF2480600007
9 Y8Y Y9 Y9- 9	ZYQ8ZY 8ZQ ZY OZQ Y	8Z-Y Y R Y YZYQ9 YQY	9ZYQ8 YYY 9
999 9 9	Z9 99 9 - Z	9 9 Z 99	Z 99
BTXT.AKH..A8..AAPG70	70PG7Q7QKA7QJAHA7QLA	HAAA&A70AHJGGABDFA70	HA70QFMAFALH80600008
9 Y8R Y9 Y9 9 -	- 9 Y YYRQ 8Y	0QY9 Q --9YZZYQ0-Y -	RQ -9-8YQQ80
99 9 9	9 990 99	09 0 9 Z	0 Z99
BTXT.AKA..A8..AANAFM	HAAA&A70AI9FOCAA70AA	8TAAAANLGABOAJJAA--A	GOBDNG9FFJG-80600009
9 Y8Q Y9 Y98YQ9	0QYY Q -Z- Y 9QY -ZQ	8ZQQ998ZYQ&ZYY9Z 9	Z QZ 8 YQYZ
99 9 9 Z	0 90 9 0	9 999 Z 99	Z Z9
BTXT.AKH..A8..AABMB0	AAFBGODFAAADEAEJAA24	BA9YLSCJAAAAAACAAAIA	AQAAAAA.ADA&80600010
9 Y8 Y9 Y9Q 8-	YQQOZ Q8ZQY8ZQQYZQ 9	-Y 89ZYQYZQQ9ZQQYOQ	Y9ZQQ9Z Y9Z
99 .9 9 Z 9	9Z Z 999 OZ	9 9 9 9 Z 9 Z	9 9
BTXT.ALA..A8..AA9FLH	CAAAAH&AAAAAC-AAAAAA	&J7OLSAOAAEJABH0JAAO	FOG-C6A0A&HJ80600011
9 Y8Y Y9 Y9 Y80	ZYQYZR YZQQ9Z QYZQQ9	Y -89Z&YYYYY90&YY8&	Q8Z Q9Z&Y RY
999 .9 9 9	9 9 9 9	9 9 -9 990 -99 -	Z9 Z -9 9
BTXT.AL8..A8..AA70D-	D6D0DBBG9YFJCOF.CFOD	ODAA22A0ACNHGJCHAAOD	GOCBKC9NAAEA80600012
9 Y8Y Y9 Y9 -Z	Q8Z&QZ-Q ZYQOZ Q88-	8-ZY 8Z&Q99RZYQ0-Q 9	Z QR 9 YQYZQ
99 9 9	Z9 -Z Z 9Z Z 9	9 - 0.9Z 9	ZO 9 9 0
BTXT.ALO..A8..AADFAA	ADAA22A0AANHGJBQGOBS	EAEJAAODGOCFKC9N24EA	DFAA28G0BSF.80600013
9 Y8& Y9 Y9QZZQ	Q9ZY 8Z&Q89RZYQ Z Q8	ZQQY-Q 9Z QQ 9 Y 9ZQ	QZZQ 9Z Q8Z
99- .9 9 Z	- 9 0 9Z .Z	0Z 9 Z - 9 0	Z Z
BTXT.ALQ..A8..AABFAA	22A0AHNHGOBDEAEJAA24	G0B0FJCOF.COD0ODAG9Y	GACBAA22A0AC80600014
9 Y80 Y9 Y9QQZY	8Z&Q99RZ&QYZQQYZQ 9	Z QYZYQOZ QY8-8--Q	ZQQRZY 8Z&Q9
9 .9 9 ZZ	- 0 Z9 0Z	Z9 9Z Z99 9 Z	9Z -
BTXT.ALS..A8..AANHGJ	D2KB9NAAPG707OKB7NAA	2S7N7NGA7OAABB&A7SFA	70BEACGNGQKC80600015
9 Y88 Y9 Y99RZY	Q9 9 YQ9 9 - - 9 Q9	9 8Y -ZYOY Y 88Y	-8QY99 9 9
99 .9 9 0 9	Z 9		999
BTXT.AMQ..A8..AA9N7R	E09NG-DYB.9NB0DH9ZG0	DFEAEJAA24GOCWAA&AGA	CDB0AH9ZGCAJ80600016
9 Y89 Y9 Y9 Y	- YZ Q9- Y8-Z9 Z	Q8ZQQYZQ 9Z Q -Y YZY	Q 8-Y9 9Q-Y
99 9 9 9	9 Z 99	Z OZ Z 999	Z9 Z 9

F804   2821 SCAN/2540 READER/PUNCH
F806 PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 5-

BTXT.AM&..A8..AAODGA   EHAA7UAJ8IB.24K42524   KA70AABEAAGOB7KA70AG   BEAAGOB2KA7080600017
9   Y8   Y9   Y9 9ZY   Q9ZQ ZY 0- 9.899   Y -QY8QY99-99 Y -QZ   8QY99-98 Y -
     99   9   9 -   Z 9 9 -   9 99999   9   9   999   9 9

BTXT.AMH..A8..AAAFBE   AAGOB5KA70JABEAAGOB.   KA70JGBEAAGOBCKA70JF   BEAAGOBFBM2580600018
9   Y80 Y9   Y9QY8Q   Y99-98 Y -YY8QY99-9   Y -YZ8QY99-9Z Y -YY   8QY99-9Z-8 9
     9 9 9 99 99   9 9 9999   9 99 9999 9   9   999

BTXT.AMO..A8..AANA27   2.G-DOEAAGG-DOEAAFG-   DDEAJGG-DOEAJFG-DOB.   2580AM24AA8T80600019
9   Y8& Y9   Y9 9 9   Z QY-YQZZ QY-YQYZ   QY-YYZZ QY-YYYZ QY-   98-Y9 9ZQ 8
     99   9   9 99   Z9 99 Z9 99   Z9 99   Z9 99   Z9   9   9

BTXT.AM8..A8..AAAAAAA   AJJANJG-DOBBA.ODGAEM   EA66GOBHHOOWKA24AAKF   2524AAE8&AOH80600020
9   Y8   Y9   Y9ZQQ9   ZYY998Z Q88Q- 9ZYQ9   ZY 8Z Q9Z&   Y 9QY 8   9 9ZYQ Y Z
     9   9   9 99   99 9 Z 99   Z   9 Z   9 99   9Z 9

BTXT.ANA..A8..AABA1E   EA2YAA1EGAEQKAAG17GO   E4BA1EAAFA&AOHBA24KF   2524EA2YAA1E80600021
9   Y8Q Y9   Y9-Y 8   ZQ -9 8ZQQ9 YQZ Z   Q8-Y 8ZYQY Y Z-Y 9 8   9 9ZQ -9 8
     99Z 9   9   0   9Z 99   Z 9 9Z9 9 9   0

BTXT.ANQ..A8..AAGABD   KAJA24KAJG17GOE4AAFH   &AOHBA1EBA24KF2524EA   2YAA1EGABDGB80600022
9   Y8Z Y9   Y9ZQQZ   YYY 9 YYZ Z Q8ZYQ9   Y Z-Y 8-Y 9 8 9 9ZQ   -9 8ZQQZ9Q
     99   9   9 9Z   999 99   Z 9Z   9 9 9   0   9Z Z

BTXT.ANJ..A8..AABA24   KF2524BCB4AAAAFA70BE   ABGOGQNB7Q2AG-EMGCHJ   FQN/GAEWAABB80600023
9   Y8Y Y9   Y9-Y 9   8 9 98Q99ZQQ98Q -8Q   Y99 9 9 0Z Q 9QRY   Q999ZYQ ZQ9Y
     99   9   9 9   99   99 9 99   9   Z Z 9   Z   Z Z

BTXT.ANQ..A8..AA&A7S   BODGFBGODFAABC&A7SBO   DGFIGODFAAK4JAA&BAK4   JAA&FAK4JAA&80600024
9   Y8   Y9   Y9 Q 8   8-Z9Q-Z Q89Y99YYYY Y 88-   Z9Q-Z Q89Y99YYY Y99   YYY Y99YYY
     99   9   9 Z   9 Z Z 2ZY   Z 9   Z Z 9 999 9   999 9 999

BTXT.AOA..A8..AAAAAAA   AAAAHAAANAAAJAA..AJMD   GDBAAAHM4JAHESJAABBU   KAEBI-B-AHD080600025
9   Y8Q Y9   Y9QYYY8   YYY9YYYOYYYYYY QY98   999ZZYOZ9YQOO900YOZ9   98Z90 0 Q-YZ
     999 9   9 9999   999 9 999 999999 Z9 9   9   99   9 9   - Z

BTXT.AOH..A8..AACAMD   01OGHDBAAIEMDSFCEDHN   4KEFLABSABNWPLA4APMP   UNCH.XLATE.F80600026
9   Y8Z Y9   Y9ORYQ   &888Z988QOZOR8-990 Z   9880 O RQ8808 Y98
     99   9   9 99   -999 999   999   9   0099   9 9

BTXT.AOA..AJ..AALTNO   .ERRS.DETECTEDERR.65   OERR.651............. 80600027
9   Y8Y YY   Y9
     99   99 9

BRLD......AM....AAAA   AAANAAANAAN9AAOAAAOA   HAOO................. 80600028
9   Y8   Y9Y9   8YQ98YQZ8Y8 8Y898Y88   9Y8&
         99   9 9   999 999 999 999 9999   99-

BEND.............. 80600029
9

BDAT.............. 80600030
9

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99999QZY89Y998YYYYY   9 8Y9 YYYY   9Y8   98YYYYY   9 8Q9Q8 9   YY9 YYYYYY
     9   9 99999   99999   999 9   9-   99999   99 99   9 9999999

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     Z 9 99   Z   9 99 Z9 9 9999   Z9 99 99   9   9 99

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Z9 9 99   99   9999   Z 9 9 9   999999   9 9   99 999999

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9 99 999   9   99   99 9999   9   9999 99   9

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999 99 9 999   9   9 99999   99   99 99   9   99999

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9Q898YYYY   989Y9Q   8Q9 Z999YYYY   989   99Q89ZY&8Q9QYYYY   9Y89999YYY
Z 99999   9 9   Z   9999   9   9   99 99999   99   99

0029COLDDAKHAA0030FC   5./ANDBDOCDEAAAAA003   1E7DADAFADAAUAAAAAAA   0032......180600038
 9 998999YY   9   8 9Y8999 8989YYYY   98ZY9Q8Y99Y8QYYYYYY
     99   9 9   9 9 9999   9 99 999999999

D07HKH/AKA0033DGGABJ   FA/A0034EDND/AWD5.OB   DAAAAAA0035C4ADDAYAA   A0036......180600039
9&89999Y9Q   9Y898Y   8Y9Y   9Y899Y998 &9   9YYYYYY   98899Q9YY   Y
99   9 9Z   9   9   9   999999   99 9   9   9

BOGH2.AAAA0037F41BDA   DAA.ABBABAAAA0038D7G   ADA2BVB0039E0DDBJA.B   A0EJAAAAA.180600040
9&Z99 YYYY   98899Q   898 Y8989YYYY   98Z   Y9Q9999   9&998Y8 8   Y&9YYYYYYY
    9999   99 9   9   99 9999   9   9   999   9999999

0040F7DJDAJBGHOGDPAA   AAA0041EAEJDABAFAAGD   AAAAAA0042FCABYJ4BAA   OAASBAAAA.180600041
    989Y9Q8999&9999Y   YYY   9Q9Y98Y9QY99   YYYYYY   9 Y99Y9999   &Y89YYYYY
    9 9 99   999   Z 9 9 99   999999   9 9   9 9 9999

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    989Y9Q9Y9Y899YY   YYY   9&8Y9YYYYY   989Y9Q8999   9Y9Y9   Y9QYY
    9 9 9 999 99   999   99999   9   9 99   9   9 999

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Z 99999   9 9   99 99 99999   Z9   999   99 99

EOLHADKH7HOWDAAAAAAO   064E0JJB.KH7HOWDAAAA   AA0065DDDBDAFAA.D7HB   AEJBA......180600044
9 89899989&99YYYYYY   9 8Y9 9989&99YYYY   YY   8Q999Q8Y8 8898   Y9Y8Q
9 9 9   999999   99   9   9999   99   9Z 99.9 99   999

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    9999   9   999   9   9   9 999999 9 99   9 9 99

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 9 9  9Z9 999999            99 9 9   99999            9  9   9  9,Z            9

03A3A5.AA7CAAHBA.J06      .AAAAAAO276E4WHDADAB      AGDAMAOASA4S.XBVAWDA      /.AAAAAA...180600114
&9998Q8 ZY88QZ9Z9 Y&8       YYYYYY    888990899       YQZY9Y998Y88 998Q89Y       8 YYYYYY
 999  998      9 9         999999     999  9          Z    9  99  ,999 9        9 999999

0278NCWHBJGHEAGDAA.J      BDJOPAWDDBCAGDAGAOAG      JA3D8ATBKAOVAAAAAAAO      279.......180600115
 99998YZ989Y898 8          99Y 999989Z9QZYZY998       YQ999Q998Y&8QYYYYYY
  99  9 9                   9  9 Z  9                 9Z  9 9  99999999

F3GAFA/ADAA5.EAAAAAO      280MD/BBJB.A.CCAGALD      JBGYJ7HDJHAD1BMASAS.      AFDSJOBND..180600116
9 8Y8Y9ZYY8 89YYYY         9Y898Y9 8 898999          8989Y899YZQY898Y8Y8        QZ98Y8999
 9 9 9 9  999999           9 99     9                9 9 9   9 999  9 9         Z  999

0282G3EAFA/ADAA5.A.8      AAAO283C7VADADADAGCB      OAVHG.DVHWHUJAAO284G      7OADADADA..180600117
9 898Y9ZYQ8 Q 9            QYY   888Q9Q89ZY089         99998 889899YYY    9      8999Q89ZY
 9 9 9 99  9              999         9 9  Z&         9 9  9                    9 9

OUA8APAAAO285FONDDAA      .GACLD7HBAWDGHAGJJJN      BAOBXDAAAAO287F7DADA      FAOA......180600118
8Q9Q9YYY    8 999Q8        89999898Q99QZQZY9Y9        9Q8989YYYY    98ZY9Q       8Y99
 99 99   9                 9   9 99 Z 9 9             Z9 9 9999     9 9          9
```

W.L. D.

F804   2821 SCAN/2540 READER/PUNCH
F806 PUNCH TRANSLATOR FLT —ROUTINE OVERLAY 5—

OUAEAAAAA0288C7VADAD   ADAGCBOAVHG.4VHWHWHA   A0289J7/.DAADFAOYALD   YJ4B.......180600119
£8Q89YYYY   888Q9Q8   9ZYQ8999998 8898999Y   Y   888 90898Y 9Y89   9Y99
 999 9999   9999 9   Z   99 9   9   9   999 99 9   9   9

OWD.AABCA7ND1BDAMA7F   HOA8AVAGXAXDWHYBAYAA   AAAAAO290E4WHDADABAG   DAMAOASA...180600120
£99 YY99Y88989ZY9Y88   9999Q8Q89899999Y99Y   YYYYY   888990899YQ   ZY9Y998Y
 9   999   9   999Z9 9 9   9 9   99999   999 9   Z   9

4S.XBVAWDO/.AAAAAO2   91G4XDDADAGAALD7HHD3   JDDAGJMA5.DUJNDXBAAO   292.......180600121
88 998Q89£8 YYYYYY   88899Q8989Y9989Z99   YQZYZY9Y8 Y8Y9989YY
99 999 9 999999   999 9 9 9 9   9Z 9 9 999 9 99

H78ADA2BDADDAEAG.JHO   294F3EAFA/ADAA5.A.AA   AA0296MDUJBJEAKHCGA7   HBADJ......180600122
989Q9Q99ZYY99898 99   9 898Y9ZYY8 Q YY   YY   989Y8Y89999898   98Y9Y
 999 9   999   99 9   99 9 9 999 9   9

GPAJA2BHA3DBGJTB.J3Q   JVA8HU.0298Q31DDA4JA   DODAYAA.YJA4BBAABAA7   BA4A1BDA...180600123
Y998Q99ZQ9898Y99 Y99   Y8Q999   9 899Q8Y8   9 899Y8 9YY998Q9Y998   9Y9Q89ZY
 9 99 9999 9   999   9   9999   9 99 999 9   99

0JJDAFJEA7GA8A1HBA03   01JGXDBJEADADYAA.LDB   AOPAWDBADBD1BDAMAMA3   OAGJLHSA...180600124
9Y998Y8988Y9Q8989   Y8998Y8989Y9Y8 898   Y 99999Y89Q89ZY9Y8Y   998Y898Y
 9   99 99 98   99 99 9   9   9 Z9 9   999 9

3S.8ATBSJGXBFAVADAOX   DWHJHJB0302M7DDDAADD   A4A.CAJBHDGDJ2BDAMAC   OAGA3D6D...180600125
98 9Q998YQ998Y8QZ9 8   98999Y9   98899Q898   988 8989Z9Q9Y99ZY9Y   998Y9999
 9 9 99Z   99 9   9   9 99   99 9 9   9

G8AG.SAEA0303BDS.FAS   J/AOWDDA5.EAO/.GAAAA   A0304MGBH4JEAADGYAGA   JBVA.......180600126
Q9Q8 9YZ9   8Q9 8Y9   Y9Y 99ZY8 89£9 8YYYY   Y 98898Y8989Y9Y89   899Y
 Z 9   9Z 9   9 9   9 9 999   9   9 99 9 9   9

CYJ4B7H2B0HAABAABAG1   BFJ1HBA0305B7G.DADAD   AGCBOA8AVAAGJCHAAAAO   307.......180600127
99Y998999£ZQY9999Y8   98Y8989   888 9Q89Z   YQ89999Q8Q08Y89YYYY
 9   9   9 9   99   99   9   Z   999Z 9 9999

F7OADADADAAUAUBAAAAO   309C4FADADAGA3LDVA7H   DJDEJGA2DAA0311B7VAD   ADADA.....180600128
98999Q89ZYY8Q89YYYY   888Y9Q89899999Y89   9YQ9YZY89YY   888Q9   Q89ZY
 9   9   9999 9999   99   9   9   9Z 9 9   9   9999   9

GCBOAVHG.OVHWHAAAAO3   12D0KHDA7HAD0313G7OA   DADADADUA8APAAAO314E   76.DADA2B..180600129
Q8999998 £8989YYYYY   9 99898989   9899   9Q89ZYQ8Q9Q9YYY   8   89 9Q8999
Z   9 9 9999   9   Z99 9 99   9   9 Z99 9 9   9

4NDCBMA5.C6J3DAD7J04   AAAAAAA0315HDCABJFA7   H3BAWD3ABA0317A7G.DA   DADA......180600130
889899Y8 98Y99Q98Y£9   YYYYYYY   9Y8Q8Y8Y8   998Q998QZ9   888 9Q   89ZY
99 9 99 Z 99   9   999999 9   99 99   9   9

GCBOA8AVAOGJAAAAAA03   18H4F.DADAKH7LDJBVAH   A0319D4FADADAGA3LDVA   7HDJ.......180600131
Q89999Q8Q£8YYYYYYY   98Z 9Q8999899899YZ   Q   888Y9Q89899999Y   899Y
Z   999 9999999   9 9 9 9 9   9 9 9 9 9   9

3EJGA2DDA0320B7VADAD   ADAGCBOAVHG.OVHWHAAA   A0321EG5AGHEAFAD7HHD   2B3J.......180600132
9YZY89Z9   888Q9Q8   9ZYQ8999998 8989YYY   Y   888YZ9898Y889Z9   999Y
 9 9   9999 9   Z   9 9 99   9   99 9 9 9   9

OGA3AAACAOBAAAAAAA03   23E4WHDADABAGDAMAOAS   A7S.XBVAWDO4AAAAAAAO   324.......180600133
£ZY8QZY8Q£Z9YYYYYYY   88899Q899YQZY9Y998   Y88 998Q89£9YYYYYYY
 99 99 999999   999 9   Z   9   99 999 9 999999

FOADDAKHA.A7H6HAAAAO   327D7BADAADFA7A.6H1B   DAC3A5.CAGA0329C0MBD   AKHAA0330..180600134
9 8989998 Q8989YYYY   88Z99Q898Y88 8989   ZY98Q8 8Q8Y   9 998   999YY
9   Z9 9 9999   99   99 9 9 9   999 99   9

E4WHDADABAGDAMAOASA7   S.XBVAWDA4AAAAAAA033   1E76.DADA2B4NDCBMA5.   C6J3DAD7J..180600135
88899Q899YQZY998Y8   8 998Q89Y9YYYYYYY   889 9Q8999889899Y8   98Y99Q98Y
999 9   Z   99   9   999 9 999999   99 9   99   9   99 Z 99

F804   2821 SCAN/2540 READER/PUNCH
F806 PUNCH TRANSLATOR FLT —ROUTINE OVERLAY 5—

A4AAAAAAA0332A7MBDAB   .AD3FASJA.CA47H6H1BM   A33AGJFDXD0334E7CBDA   DA2B.......180600136
Y9YYYYYYY   Q8899Q9   89 8Y9Y8 8988989898   Y98Q8YZ989   98899Q   8999
9 999999   999 9   9 9 99 99 99 999   9999 9   9 9

03AAAAAAA0335D0NADAK   HLD0336HDS.B.DAKHGLD   MBWDSJ0337F7XADAEAAD   GFAA.CA6H..180600137
£99YYYYYY   9 99899   999   9Q8 9 8999899   99998Y   88899Q8989   Y8Y8 8989
  999999   Z9   9   9   9 999   9   99 9 9

CDAMA5.NAOUJ/.AAAA03   38D7BADAADYACA.YJ4B2   BCABAABA1B0340DDEDB.   YAYJ.......180600138
ZY8Y8 89£8Y8 YYYY   88899Q899Y98 9Y999   99Y9999Y89   8Q999   9Y9Y
 9 9 999 9999   99   9   9 9   99 9 9   9Z

AABBAFHDDC3D/DDHGA03   41FDEDYALDYJA4BPAAAA   A0342DCFA2.GHVA0343D   7YADAAD6A..180600139
YY9Y99999999899999   90Z99Y899YQ9999YYY   Y   9 ZQ9 Z99Y   9   89Y9Q8989
99   9   Z 9 9Z   999   9   9   9 9   9 9 9

0344D4YADAAD6A0345H0   /DYAYJ4BDABD.MA3D034   6C3GDDABJFAGFAGAJBVA   ABADJJAAA..180600140
989Y98989   9   899Y9Y998Y99 9Y99   89899Q8Y8Y8ZQ89899Y   Q8Y9Y8QYY
 9   999   9 9   9   9   9 9 9999 99 9   Z   99

0348GD3DYALDYJD4B.A6   DAA0350F74ADAADYAAA.   6HAAAA0351DOP.2.GHFA   DVAYJDJBA..180600141
90999Y899Y9 Y9   9YY   989Q9Q899YQ8   89YYYY   8£9 9 Z9ZQ   Y9Y9Y9Y8Q
 Z   9 99   99   99 9999 Z9   9 9999   9 9   9 9 99

CJADB0BVH0353A7DJDAD   JEJG2BJJMA7AADAAAAAA   A0355H7O.DADJEJ3MA5D   5.7A0356...180600142
98Q898989   888Y9Q9   Y9Y9999Y9Y89Y8QYYYY   Y   988 9Q9Y9Y 9Y89   8 89
999 9   9999   9 9Z   9 9 9 999999   9 99   99 9 9   9 9

GCVB2.4JDJDEJGAMAAAO   357Q7/.DAADFAOYALDYJ   4BOWD.AABCA7ND1BDAMA   7FHOA8AVA..180600143
9 999 8Y9Y9ZY9YYY   988 90898Y 9Y899Y   99£99 YY99Y88989ZY9Y   889999Q8Q
  99 9Z 9 99   99 99 9 9   99 9 99 9 9   9 999

DXAXDWHYB0359E75DDAD   JEJOMAAAAAAAO361DCFH   YJBA/.0363E46HDAADA.   A7DAAAAAA..180600144
Q89898999   98899Q9   Y9Y£9YYYYYYY   9 89   9Y8Y8   98899Q898   Y89YYYYYY
Z9 9   9   9   9 9 9   9 9   9 9 9   999999

0384C0PHA.YJ4B3DJEJD   BJJAP.FAJAAAO385NQEH   DAA.GAOLDYJ7HBAG2B6H   HACB.......180600145
8£998 9Y99 9Y9Y8   99YQ9 8Y9YYY   9 Z9   898 89£899Y898YQ9989   ZQ89
 9 9 9 9 9   9   9 9 9 9   9 9 9 9 9 99 9   9

DJJ3ADBDAGFAOBBADAAP   HAAAAAAO386A0FJ2.4JG   HGEA2BCB3AAQJAAAAAAO   388.......180600146
Q9Y999Z98QY8Y9Z9Z9Y9   9YYYYYY   8£8Y9 8YZ   9Q89998999Y9YYYYYYY
Z9   9 9   999999 9   9 ,99   Z   9 9999999

E46HDAADA.07DAAAAAAO   389H7GJDAADFAAA.CAGA   TB0390H76DDAADYA4A.C   AMA3D0391..180600147
98899Q898 £89YYYYYY   988Y9Q898YQ8 8989   99   989990899Y88 8   99Y99
99 9 99 9   999 99 9 Z9 9   99   9 99 9

BA1HDA4JYJA4B2BABAAA   BAFJAAAAO393E4DADAAD   A.OCAAAAAAAO394H4NAD   AADA.......180600148
8Q899Q8Y9YQ9999Y999Y   9Y8YYYYY   988Y9Q89   8 £89YYYYYY   98899   Q898
9Z9   99Z 9 9   9   99 9   9 9 999999 ,   99   99 9

OCA6HMA5.0395B7SJDAB   .ADAA.CAYJMAOSAS.AAA   A0396JCYBBJ4JEADYALD   LDYJ.......180600149
 89898Y8   888Y9Q9   8Q8 899Y8Y£8Y8 YYY   Y   Y9998Y8Y89Y9Y99   899Y
 9 9 9   9 9999 9   9 Z9 9 99 9 ,999   9   9   999£ 9   9 9

C4B7HHDDJC2B3J.AHACA   BCADB1BOMAT.FHFJCGJT   BQJVAGXASAXHY.0398CA   7JDAGHFA..180600150
99989Z99Y 999Y YZQ9Y   99Y8989 9Y9 898Y 8Y9   99Y8QQ899Y898   8Q   9Y9Q9Z9ZQ
 9   9 9   9 9   9 9   99   9 ,99   999Z9 9 ,9   9Z   9 9 9

DVABADJJAQ2BGA8HAAO3   99E73ADA2BCB0DBAAAAA   A0400KGSABJEAB.DADFA   SJGA.......180600151
Y9Y8Y.9Y8QQ99ZY99YY   98999Q9989£Z9YYYYY   Y   989Y8Y899 Q898Y   9Y89
9   999Z, 99   9999 9989 9 99999   9   9 99 5, Z9 9   99

7ADPA2B1B0GJGJABQJOX   DXHAAAA0401KD6JDA.AB   AC2BDBNDCBOJJMA5.6J3   3DVAADXH...180600152
8Q9999989 ZY8Y999Y 8   989YYYY   9Q9Y9Q 98   Q 99898989   9Y9Y8 9Y9   998QQ989
9Z   9 ,999   9 9999   Z 9 ,9 9   9 9999   9   99 9 99   99Z 9
                                                              9

W.L.P.

F804   2821 SCAN/2540 READER/PUNCH
F806 PUNCH TRANSLATOR FLT -ROUTINE OVERLAY 5-

```
06.8HAAAA0402F41BDAD     AA.ABBABAAAA0404GAH.     DA4JHD02BGA3DAA0405L     DUJBJEAKH..180600153
&9 99YYYY    9889990B     98 Q8989YYYY    9QZ     9Q8YZ9 99ZY99YY    9     89Y8Y8999
    9999      99 9        9 Z    9999     Z       999          99           9 999

CGA7HBADJGPAJA2BHA3D     BGJTB.J4QJVA8HAA0406     EA3BDA4JFA3JBVABADJ4     JA2BGA5....180600154
989898Y9YY998Q99ZQ98     98Y99 Y89Y8Q99YY         8Q899Q8YZQ 899Y8Y9Y8     8Q99ZY8
 9 9    99 99   9 9       99    99 999  99        9Z9 999 9 9      99       99    9

07JAAAAAA0407H7DBDAD     ALDG2BCBJJ3A0408KCFA     4JGHEA0B.DAKHFACA.LD     HD2B.......180600155
&9YYYYYYY    98Z9998      989Q99899Y99   89ZY     8YZ989 9 8999Z098 99     Z999
  9999999     9  9         9 Z    9      9        99           9 9

GHA1BDAGADOA5.F.ABG8     AAABA.JOSAEAAAAO410      G0QJ2.4JGH3EADJJA2BD     GACB3AFJ...180600156
QZQ89ZYZYY998 Z 99Y9     QZYZ9 Y 9YZ9YYYY         8&9Y9 8YZ9 899Y8Q99Q     ZY89998Y
Z 99     9 9    9        9     9    9999           9 9 99    999 Z            9

OVH.JTAAA0411MDUJBJE     AKHCGA7HBADJGPAJA2BH     A3DBGJTB.JAQJVA8HU.O     412........180600157
 99 Y99YY    989Y8Y8     99998989BY9YY998Q99Z     Q9898Y99 YQ9Y8Q999
    9 99     9 999         99 99   99 99         9 9 99  9Z 999

CA7JDAGHFADVABADJJAO     2BGA8HAA0413D0QABJGH     FA4A.JBVABADDJJA1B3A     0416.......180600158
8Q9Y9QZ9ZQY9Y8Y9Y8Q     99ZY99YY    8&998YZ9     ZQ88 899Y8YY9Y8Q898Q
9Z 9 9   99     999      99ZY99YY    8&998YZ9      999 9    9 9999 99

E73ADA2BCBADBAAAAAA0     417LGSABJEAB.DADFASJ     GA7HDPA2B1B0GJGJABQJ     DXDXHEAAA..180600159
9899909989YZ9YYYYYY      989Y8Y899 Q898Y9Y        898Z9999989 ZY8Y999Y     Y8989Z9YY
 9 9    9 9 999999        9 99    Z9 9            9 9     9  999   9        99 9   99

0418GDJBBJADA.GYJ4BD     JEJD6HAB1BMADFADAXDA     A0420F4GJDADAGAALDHA     AAAA0425...180600160
  8YY98Y898 89Y999       Y9YY89Y9898YQ8YZ989Y     Y   98ZY9Q89890990ZQ     YYYY
  999 999 9 9            9.999 9 9 Z    9 9        9    9 9 9 9Z  9          9999

CCOBBJ7HEJG/ADBT.GJA     P.TBDAAA0431FC7HKH/A     KAAJJFAAAAA0435HDCAB     JFA7H......180600161
8 898Y899Y89Y899 8YY     9 99Z9YY    9 89999Y     9QY8Y8YYYY    9Y8Q8      Y8Y89
 9 9 999  99 9   999            99      9         9999 9999     9999       99 9

ABAWD3ABA0440C4SJDAF     AAAA0446D0FA2.GHVAO45    1D0FHYJBA/.0455A0FJ2     .4JGH......180600162
Q8Q998QZ9    989Y9Q8     YYY    9&ZQ9 Z99Y        9&899Y8Y8    8&8Y9       8YZ9
Z99 99      9 9 9         99      9                9 9   9 9  9 9           99

GEA2BCB3A0QJAAAAAA04     61E41BDADAA.0BBAAAAA     A0466DDA.BJCACH0472C     4FADAGAAA..180600163
Q89998999&9YYYYYYY       98899Q898 &89YYYYY       Y   .9Y8 8Y8999    9     88Y9Q89YY
Z       9999999           99 9  9       99999     9.    99 999              99  99 99

0477C0YJ4BBAAA0484B0     4J2.AAAA0488DGA.BJCA     CHO492DDGABJFA/A0495     EC7HKH/AKA.180600164
    9&9Y998YYY    9&     8Y9 YYYY    9Y8 8Y89     99    9Y898Y8Y9Y         9 89999Y9Q
      9    9 99          99  9999    99 999             99 999              9    9

OJJAAAAAA0499.......     ...................      ...................      ...........180600165
&8YYYYYYY
 99999999

BLDT...............     ...................      ...................      ...........80600166
9
```

-- LAST PAGE --

1403 UCS SCAN
DESCRIPTION

1. PURPOSE

    1.1 INTENT

        TO ISOLATE A SOLID DATA PATH FAILURE WITHIN THE 2821/1403
        UNIVERSAL CHARACTER SET ATTACHMENT.

2. PREREQUISITES

    2.1 PROGRAM REQUIREMENTS

        THE PROGRAM IS RUN WITH A DIAGNOSTIC MONITOR.
        THE PROGRAM ASSUMES THAT THE CPU & CHANNEL ARE OPERABLE.
        THE PROGRAM IS RELOCATABLE.

        THE UNIT DEFINITION TABLE-UDT-ENTRY MUST BE PUNCHED AS FOLLOWS.

* UNIT CODE	*		*		*
	* OPTIONAL FEATURE DIGIT 1*	OPTIONAL FEATURE DIGIT 2	*		
* UNIT	*ZZ*BIT 0* BIT 1* BIT 2*	BIT 3* BIT 4* BIT 5*	BIT 6* BIT 7 *		
*	* *HEX 8* HEX 4* HEX 2*	HEX 1* HEX 8* HEX 4*	HEX 2* HEX 1 *		
* 1403 PRINTER*83*ASCII*SEL *	*UNIV. * HI- * 120 *	* 2821 *		
* OR * *	*TAPE *	*CHAR. *SPEED *PRINT *	*2 CHNL *	
* 1404 PRINTER* *	*LISTER*	*BUFF. *PTR. *POS. *	*SWITCH *	
* CONTINUOUS * *	*	*	* * * *	*	
* FORMS * *	*	*	* * * *	*	

    2.2 EQUIPMENT REQUIREMENTS

        PROGRAM LOADING DEVICE
        HARD COPY OUTPUT DEVICE *
        CPU - OPERABLE
        CHANNEL - OPERABLE
        8K MINIMUM STORAGE
        2821 INTEGRATED CONTROL UNIT

        * THE OUTPUT DEVICE CANNOT BE THE DEVICE UNDER TEST.

2.3 2821 REQUIREMENTS

    CONTROL CIRCUITS FUNCTION PROPERLY.
    ERROR CHECKING CIRCUITS FUNCTION PROPERLY.
    PRINTER CAN BE MADE READY.
    DATA MODE SWITCH MUST BE SET TO BYTE MODE.

2.4 PROGRAM IDENTIFICATION NUMBERS

    TO MINIMIZE MAINTENANCE COSTS FOR FUTURE PROGRAM REVISIONS
    DUE TO ENGINEERING CHANGE ACTIVITY, THE FOLLOWING ID NUMBERS
    HAVE BEEN ASSIGNED TO VARIOUS PORTIONS OF THIS PROGRAM PACKAGE.

ID NUMBER	ASSIGNMENT
F80C*	DESCRIPTION OF COMPLETE PROGRAM WHICH INCLUDES ALL ROUTINE OVERLAYS.
F80C	OBJECT DECKS AND ASSEMBLER PROGRAM LISTINGS FOR ROUTINE OVERLAYS 01 AND 02.
F80D	OBJECT DECKS AND ASSEMBLER PROGRAM LISTINGS FOR ROUTINE OVERLAYS 03 AND 04.

    NOTE THE SEARCH NUMBER FOR THIS PROGRAM IS 80C--
              80D CAN NOT BE USED.

3. USE PROCEDURE

    3.1 LOADING

        STANDARD VIA DM AS DESCRIBED IN THE USERS GUIDE.

        SINCE THIS PROGRAM PACKAGE UTILIZES THE PROGRAM OVERLAY
        CONCEPT, ALL ROUTINES MUST BE LOADED AND RUN IN ID NUMBER
        SEQUENCE.

    3.2 OPERATING

        3.2.1 GENERAL OPERATING

            THE PRINTER MUST BE MADE READY BEFORE RUNNING PROGRAM.

        IMPORTANT THE ORIGINAL CONTENTS OF THE UCS BUFFER ARE
                       DESTROYED BY F80C AND F80D. THESE PROGRAMS NO
                       LONGER PROVIDE THE FACILITY TO RESTORE THE UCS
                       BUFFER--THEREFORE, DO NOT ADD ANY CHAIN
                       CONFIGURATION DATA CARDS TO F80C OR
                       F80D. USE PROGRAM F837 TO RESTORE
                       UCS BUFFERS.

3.2.2 SENSE SWITCH USAGE --COMMON TO ALL ROUTINES--

THE SENSE SWITCHES SHOWN BELOW ARE IN THE SENSE SWITCH BYTE
OF THEIR RESPECTIVE SECTION PREFACE. THE CHARACTER X REPRESENTS
THE RELOCATION FACTOR CONTAINED IN REGISTER 15 DURING RUN TIME.
THE SWITCH BITS ARE ZERO WHEN OFF, AND ONE WHEN ON.

SENSE SW. #	FUNCTION	SECTION OR ROUTINE	BYTE AND BIT
0	OFF--PROCEED NORMALLY	ENTIRE	X004
	ON--SHORT LOOP ON START I/O - TEST I/O	SECTION	0
1	OFF--PROCEED NORMALLY		X004
	ON--ENTER UTILITY SCOPE ROUTINE	,,	1
	REFER TO SECTION 3.2.3 FOR DETAILS		
2	OFF--PROCEED NORMALLY		X004
	ON--LOG OUT DATA ACCUMULATION TABLE	,,	2
	REFER TO SECTION 4.4 FOR DETAILS		
6	OFF--PROCEED NORMALLY		X004
	ON--PRINT SECTION TITLE	,,	6

3.2.3 UTILITY ROUTINE SET-UP PROCEDURES

THIS IS A RESIDENT ROUTINE. IT CAN ONLY BE ENTERED AT
THE BEGINNING OF EACH ROUTINE OR AFTER THE ANALYSIS
RESULTS AND LOG OUT PRINTOUT OF EACH ROUTINE. THIS
ROUTINE WILL BE ENTERED AT THESE TIMES IF SECTION
SENSE SWITCH 01 IS SET TO 1.

WHEN THIS ROUTINE IS ENTERED, AN OUTPUT MESSAGE WILL
INFORM THE C.E. TO PRESS CONSOLE STOP, THEN ENTER THE
SCOPING DATA. THIS DATA IS TO BE ENTERED, IN HEX, VIA
THE CONSOLE SWITCHES AS INDICATED BELOW.

```
BYTE 0        1        2        3
BIT  01234567 01234567 01234567 01234567
     --------------------------------
     I                I        I         I
GRA  I                I-OP CODEI  <      I  <--SLI FLAG, BIT 2
     I                I SEE I   *       I  *--SKIP FLAG, BIT 3
     I                I 6.1 I            I
     I----------------I--------I--------I
     I                                  I
GRB  I-------CONTENTS OF DATA FIELD-----I
     I                                  I
     I----------------I----I------------I
     I                I    I            I
GRC  I----CCW COUNT----I   II/O ADDRESS-I
     I                I    I            I
     --------------------------------
```

NOTES-- THE FOUR BYTES OF DATA ENTERED IN GRB WILL BE
        RIPPLED THROUGHOUT THE CCW DATA FIELD.
     -- IF THE CCW COUNT EXCEEDS 250 BYTES, THE ROUTINE
        WILL FORCE IT TO 250.

     -- THE MAIN STORAGE LOCATIONS OF PERTINENT FIELDS
        USED BY THIS ROUTINE ARE LISTED BELOW. X DENOTES
        THE RELOCATION FACTOR CONTAINED IN
        REGISTER 15 DURING RUN TIME.

        SIO INSTRUCTION -- X700 THRU X703

        CAW -- X048 THRU X04B
        CCW -- X570 THRU X577
        DATA FIELD -- X57C THRU X675

AFTER THE ABOVE DATA HAS BEEN ENTERED, THE C.E. COULD
SET UP ONE OF THE FOLLOWING OPTIONS BEFORE PRESSING CONSOLE
START.

1. SET SECTION SENSE SWITCH 0 TO 1 TO PUT THE SELECTED
   OP IN A TIGHT START I/O - TEST I/O LOOP.

2. SET SECTION SENSE SWITCH 0 TO 0 TO PERFORM THE
   SELECTED OP ONCE. IN THIS CASE THE UTILITY ROUTINE
   WILL PERFORM THE SELECTED OP ONCE, THEN REQUEST NEW
   SCOPING DATA.

3. SET SECTION SENSE SWITCHES 0 AND 1 TO ZERO. IN
   THIS CASE, THE SELECTED OP WILL NOT BE PERFORMED,
   AND A BRANCH BACK TO THE MAIN PROGRAM WILL OCCUR.

THE C.E. CAN EXIT FROM THE UTILITY ROUTINE BY PRESSING
CONSOLE STOP AT ANY TIME, SET SECTION SENSE SWITCHES 0
AND 1 TO ZERO, THEN PRESS CONSOLE START.

3.3 HALTS

3.3.1 NORMAL HALTS

NONE

3.3.2 ERROR HALTS --COMMON TO ALL ROUTINES--

THE PROGRAM WILL NOT STOP ON ANY ERROR HALTS UNLESS THE
HALT ON ERROR SENSE SWITCH IS ON IN THE DIAGNOSTIC MONITOR.

3.3.3 SPECIAL HALTS --COMMON TO ALL ROUTINES--

THE PROGRAM WILL ONLY HALT ON THE SPECIAL HALTS
IF THE CORRESPONDING SENSE SWITCHES ARE SET.

HALT AFTER LOG OUT OF THE DATA ACCUMULATION TABLE.

IF THE OPERATOR REQUESTS THE LOG OUT OF THE DATA
TABLE, THE PROGRAM WILL HALT AFTER THE LOG OUT.
IN ORDER TO CONTINUE, THE INTERRUPT KEY ON THE
CONSOLE MUST BE DEPRESSED.

HALT TO SET UP INFORMATION FOR UTILITY ROUTINE.

IF THE OPERATOR REQUESTS TO USE THE BUILT IN UTILITY
ROUTINE, THE PROGRAM WILL HALT TO ALLOW THE ENTERING
OF NECESSARY INFORMATION. AFTER THE INFORMATION IS
ENTERED, THE CONSOLE START KEY MUST BE DEPRESSED TO
CONTINUE.

3.4 TERMINATION

THE PROGRAM RETURNS CONTROL OF THE SYSTEM TO MONITOR VIA
MONITOR CALL SVC D6.

4. PRINTOUTS

4.1 TITLE PRINTOUTS

THE FOLLOWING TITLE PRINTOUTS WILL OCCUR ONLY IF SECTION SENSE
SWITCH 06 IS SET TO 1.

-2821 SCAN/1403 UCS, CONTROL PROG-

ABOVE PRINTOUT IS THE TITLE FOR ROUTINES 01 AND 02.

-2821 SCAN/1403 UCS, PRINT BUFFER DATA REG FLT-

ABOVE PRINTOUT IS ROUTINE 03 TITLE.

-2821 SCAN/1403 UCS, UCB DATA REG FLT-

ABOVE PRINTOUT IS ROUTINE 04 TITLE.

4.2 INSTRUCTIONS TO THE OPERATOR --COMMON TO ALL ROUTINES--

-NOTE-DO NOT USE DEVICE UNDER TEST FOR OUTPUT-

ABOVE MESSAGE IS PRINTED TO REMIND THE C.E. NOT TO USE THE
DEVICE UNDER TEST AS THE OUTPUT DEVICE. THIS IS NECESSARY
BECAUSE THE TEST PROGRAM DESTROYS THE ORIGINAL DATA IN THE
UCS BUFFER.

-I/O ADDR XXX CAW YYYYYYYY GOT CC1 CSW STATUS 0200 SNS 40
 MAKE PRINTER RDY-

ABOVE MESSAGE WILL BE PRINTED IF INTERVENTION REQUIRED IS
ENCOUNTERED WHEN TRYING TO EXECUTE AN I/O OPERATION.
XXX DEFINES THE UNIT ADDRESS AND Y--Y DEFINES THE CHANNEL
ADDRESS WORD DATA. THE PROGRAM WILL LOOP FOR 20 SECONDS TO
ALLOW THE UNIT TO BE MADE READY. THE MESSAGE WILL BE REPEATED
EVERY 20 SECONDS IF THE CONDITION IS NOT RECTIFIED.

-ORIGINAL CONTENTS OF UCS BUFFER FOR PRINTER-
-XXX DESTROYED, RESTORE WITH PROGRAM F837   -

ABOVE MESSAGE IS INDICATED BY ROUTINE OVERLAY 04. XXX
INDICATES THE ADDRESS OF THE PRINTER WHICH REQUIRES ITS
UCS BUFFER TO BE RESTORED. THIS MESSAGE IS INDICATED FOR
EACH PRINTER TESTED BY F80C AND F80D.

4.3 ERROR MESSAGES

4.3.1 ERROR MESSAGES COMMON TO ALL ROUTINES.

-BYPASSED-UCS NOT DEFINED-

ABOVE MESSAGE WILL BE PRINTED IF THE TESTS ARE NOT RUN. THIS
WILL OCCUR IF THE UDT ENTRY FOR THE PRINTER DOES NOT SPECIFY UCS.

-I/O ADDR XXX CAW YYYYYYYY GOT CC 0 BUT NO INTERRUPT-

ABOVE MESSAGE WILL BE PRINTED IF NO INTERRUPT OCCURS WITHIN
10 SECONDS OF RECEIVING CONDITION CODE 0 TO AN I/O OPERATION.
XXX DEFINES THE UNIT ADDRESS AND Y--Y DEFINES THE CHANNEL
ADDRESS WORD DATA. THE PROGRAM WILL RETRY THE I/O OPERATION.

-I/O ADDR XXX CAW YYYYYYYY GOT CC U CSW STATUS VVVV SNS ZZ-

ABOVE MESSAGE WILL BE PRINTED WHEN CONDITION CODES 1, 2, OR 3
ARE RECEIVED IN RESPONSE TO AN I/O OPERATION. XXX DEFINES THE
UNIT ADDRESS, Y--Y DEFINES THE CHANNEL ADDRESS WORD DATA,
U DEFINES THE CONDITION CODE --1, 2, OR 3--, VVVV DEFINES THE
DEVICE AND CHANNEL STATUS, AND ZZ DEFINES THE SENSE DATA.
THE PROGRAM WILL RETRY THE I/O OPERATION.

4.3.2 ERROR MESSAGES COMMON ONLY TO ROUTINE 01 --CONTROL PROGRAM--

-ERR 001-

SYNC CHECK PROBLEM - PROBABLY AN ADVANCE BY 2 PROBLEM OR A
                     BAR UNITS ENCODE ADVANCE BY 3 PROBLEM

-ERR 002-
WRONG CSW RESIDUAL COUNT - PROBABLY A BAR ADVANCE BY 1 PROBLEM

-ERR 003-
*** RESERVED ***

-ERR 004-
PRINT BUFFER DATA REGISTER OR ASSOCIATED PARITY CIRCUITS PROBLEM

-ERR 005-
FALSE UNIT CHECK - COULD BE HAMMER CHECK ON SOLID

-ERR 006-
PRINT BUFFER PROBLEM

-ERR 007-
FALSE PRINT CHECK - COULD BE COMPARE CIRCUITS

-ERR 008-
FALSE EQUIPMENT CHECK

-ERR 009-
*** RESERVED ***

-ERR 010-
INTERMITTENT BUS-IN PROBLEM

-ERR 011-
BUS-IN --1-- BIT PROBLEM

-ERR 012-
BUS-IN CIRCUITS PROBLEM - PICKED UP BITS

-ERR 013-
FALSE DATA CHECKS

-ERR 014-
PROBLEM SETTING PLC BITS FOR BLANK CHARACTERS

-ERR 015-
PRINT DATA REGISTER - LOST BITS

-ERR 016-
PRINT BUFFER - LOST BITS

-ERR 017-
BUS-IN CIRCUITS PROBLEM - LOST BITS

-ERR 018-
INTERMITTANT HOT BITS OCCURRING

-ERR 019-
PRINT BUFFER PROBLEM ABOVE POSITION 1

-ERR 020-
PRINT BUFFER INSERT BLANK PROBLEM

4.3.3 ERROR MESSAGES COMMON ONLY TO ROUTINE 02 --CONTROL PROGRAM--

-ERR 021-
FALSE UNUSUAL COMMAND SEQUENCE

-ERR 022-
UCS DATA REGISTER OR ASSOCIATED PARITY CIRCUITS PROBLEM

-ERR 023-
UCS BUFFER PROBLEM

-ERR 024-
INTERMITTANT PRINT BUFFER PARITY ERROR

-ERR 025-
COMPARE PROBLEMS AND ASSOCIATED SET PLC CIRCUITS

-ERR 026-
UNDEFINED INTERMITTANT ERROR -COULD BE FALSE UNIT CHECK

-ERR 027-
INTERMITTENT UCB DATA REGISTER PROBLEM, OR INTERMITTENT
UCB PARITY CHECK CIRCUITS PROBLEM

-ERR 028-
INTERMITTANT OR FALSE ERROR

-ERR 029-
INTERMITTANT OR FALSE PARITY CHECK

-ERR 030-
HAMMER FIRE PROBLEM

-ERR 031-
BAD UCS BUFFER CORE ABOVE POSITION 81

-ERR 032-
FALSE DATA CHECK

-ERR 033-
FALSE UNIT CHECK

-ERR 034-
FALSE PRINT CHECK

-ERR 035-
FALSE EQUIPMENT CHECK

-ERR 036-
WRONG CCW RESIDUAL COUNT - PROBABLE BAR ADVANCE PROBLEM - UCB

-ERR 037-
SYNC CHECK PROBLEM - PROBABLE ADVANCE BY 2 PROBLEM OR
              BAR UNITS ENCODE ADVANCE BY 3 PROBLEM

-ERR 038-
PLC INHIBIT CIRCUITS PROBLEM

4.3.4 ERROR MESSAGES COMMON ONLY TO ROUTINE 03 -- PRINT BUFFER
        DATA REG FLT--

-NO DATA TRANSFERRED BY DIAGNOSTIC CHECK READ FOR DEVICE XXX-

THE ABOVE PRINTOUT INDICATES A DIAGNOSTIC CHECK READ FAILURE.
XXX WILL INDICATE THE DEVICE I/O ADDRESS.

-ERR 050-
ALL PRINT BUFFER DATA REG TRIGGERS NEVER ACTIVE - PROBLEM MAY
BE IN FOLLOWING AREAS.
   1. PRINT BUFFER DATA REG RESET ALWAYS ACTIVE, CLOCK 0-2.
      LOGIC PAGE 33.33.44.1
      CIRCUITS - A4C09, A4C11, A4C06, A4E19
   2. BUFFER ENTRY ON LINE NEVER ACTIVE.
      LOGIC PAGE 33.33.44.1
      CIRCUITS - A4C10, A4C06

-ERR 051-
ALL PRINT BUFFER DATA REG TRIGGERS ALWAYS ACTIVE -- PRINT BUFFER
DATA REG RESET NEVER ACTIVE, CLOCK 0-2.
LOGIC PAGE 33.33.44.1
CIRCUITS - A4C09, A4C11, A4C06

-ERR 052-
PRINT BUFFER DATA REG 0 TRIGGER NEVER ACTIVE --BUS OUT 0--
LOGIC PAGE 43.34.18.1
CIRCUITS - A4F02, A4G01, A4F01

-ERR 053-
PRINT BUFFER DATA REG 0 TRIGGER ALWAYS ACTIVE --BUS OUT 0--
LOGIC PAGE 43.34.18.1
CIRCUITS - A4F02, A4G01, A4F01, A4H02

-ERR 054-
PRINT BUFFER DATA REG 1 TRIGGER NEVER ACTIVE --BUS OUT 1--
LOGIC PAGE 43.34.18.1
CIRCUITS - A4G02, A4G01, A4F01

-ERR 055-
PRINT BUFFER DATA REG 1 TRIGGER ALWAYS ACTIVE --BUS OUT 1--
LOGIC PAGE 43.34.18.1
CIRCUITS - A4G02, A4G01, A4F01, A4H02

-ERR 056-
PRINT BUFFER DATA REG B TRIGGER NEVER ACTIVE --BUS OUT 2--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E07, A4G06, A4F09, A4F11
LOGIC PAGE 31.11.37.1
CIRCUITS - A1F13, A1H12

-ERR 057-
PRINT BUFFER DATA REG B TRIGGER ALWAYS ACTIVE --BUS OUT 2--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E07, A4G06, A4F09, A4F11, A4H06
LOGIC PAGE 31.11.37.1
CIRCUITS - A1F13, A1H12

-ERR 058-
PRINT BUFFER DATA REG A TRIGGER NEVER ACTIVE --BUS OUT 3--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E08, A4F06, A4F09, A4F11
LOGIC PAGE 31.11.37.1
CIRCUITS - A1F14, A1H15, A1H12

-ERR 059-
PRINT BUFFER DATA REG A TRIGGER ALWAYS ACTIVE --BUS OUT 3--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E08, A4F06, A4F09, A4F11, A4H06
LOGIC PAGE 31.11.37.1
CIRCUITS - A1F14, A1H15, A1H12

-ERR 060-
PRINT BUFFER DATA REG 8 TRIGGER NEVER ACTIVE --BUS OUT 4--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E08, A4G07, A4F10, A4F11

-ERR 061-
PRINT BUFFER DATA REG 8 TRIGGER ALWAYS ACTIVE --BUS OUT 4--
LOGIC PAGE 33.23.06.1
CIRCUITS - A4E08, A4G07, A4F10, A4F11, A4H07

-ERR 062-
PRINT BUFFER DATA REG 4 TRIGGER NEVER ACTIVE --BUS OUT 5--
LOGIC PAGE 33.23.05.1
CIRCUITS - A4E09, A4F07, A4F10, A4F11

```
            LOGIC PAGE 31.11.32.1
            CIRCUITS - A1F14, A1F13

          -ERR 063-
            PRINT BUFFER DATA REG 4 TRIGGER ALWAYS ACTIVE --BUS OUT 5--
            LOGIC PAGE 33.23.05.1
            CIRCUITS - A4E09, A4F07, A4F10, A4F11, A4H07
            LOGIC PAGE 31.11.32.1
            CIRCUITS - A1F14, A1F13

          -ERR 064-
            PRINT BUFFER DATA REG 2 TRIGGER NEVER ACTIVE --BUS OUT 6--
            LOGIC PAGE 33.23.05.1
            CIRCUITS - A4E09, A4G08, A4F10, A4F12

          -ERR 065-
            PRINT BUFFER DATA REG 2 TRIGGER ALWAYS ACTIVE --BUS OUT 6--
            LOGIC PAGE 33.23.05.1
            CIRCUITS - A4E09, A4G08, A4F10, A4F12, A4H08

          -ERR 066-
            PRINT BUFFER DATA REG 1 TRIGGER NEVER ACTIVE --BUS OUT 7--
            LOGIC PAGE 33.23.05.1
            CIRCUITS - A4E10, A4F08, A4F10, A4F12
            LOGIC PAGE 31.11.33.1
            CIRCUITS - A1F13, A1H14, A1H13

          -ERR 067-
            PRINT BUFFER DATA REG 1 TRIGGER ALWAYS ACTIVE --BUS OUT 7--
            LOGIC PAGE 33.23.05.1
            CIRCUITS - A4E10, A4F08, A4F10, A4F12, A4H08
            LOGIC PAGE 31.11.33.1
            CIRCUITS - A1F13, A1H14, A1H13

          -ERR 068-
            PRINT BUFFER DATA REG C TRIGGER NEVER ACTIVE --BUS OUT P--
            LOGIC PAGE 33.23.07.1
            CIRCUITS - A4E07, A4F05, A4F09, A4F12, A4C11
            LOGIC PAGE 33.33.44.1
            CIRCUITS - A4C05, A4C08
            LOGIC PAGE 31.11.33.1
            CIRCUITS - A1B18, A1G14, A1H14

          -ERR 069-
            PRINT BUFFER DATA REG C TRIGGER ALWAYS ACTIVE -- BUS OUT P--
            LOGIC PAGE 33.23.07.1
            CIRCUITS - A4E07, A4F05, A4F09, A4F12, A4C11, A4H05
            LOGIC PAGE 33.33.44.1
            CIRCUITS - A4C05, A4C08
            LOGIC PAGE 31.11.33.1
            CIRCUITS - A1B18, A1G14, A1H14

          -ERR 070-
            FALSE PRINT BUFFER DATA REG PARITY ERRORS
            LOGIC PAGE 33.23.10.1
            CIRCUITS - ALL ON ABOVE LOGIC PAGE
            LOGIC PAGE 43.34.18.1
            CIRCUITS - A4B09, A4A10, A4B08

          4.3.5  ERROR MESSAGES COMMON ONLY TO ROUTINE 04 --UCB DATA REG FLT--

          -NO DATA TRANSFERRED BY DIAGNOSTIC CHECK READ FOR DEVICE XXX-

          THE ABOVE PRINTOUT INDICATES A DIAGNOSTIC CHECK READ FAILURE.
          XXX WILL INDICATE THE DEVICE I/O ADDRESS.

          -ERR 080-
            FALSE UCB DATA REG PARITY ERRORS
```

```
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D06, A2D08, A2D07
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2D16, A2H22, A2F24, A2D08, A2E22

          -ERR 081-
            UCB DATA REG PARITY BIT ALWAYS ACTIVE
            LOGIC PAGE 43.34.33.1
            CIRCUITS - A2G05, A2E05, A2H05

          -ERR 082-
            UCB DATA REG PARITY BIT NEVER ACTIVE
            LOGIC PAGE 43.34.33.1
            CIRCUITS - A2G05, A2E05

          -ERR 083-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 0 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 084-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 2 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 085-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 3 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 086-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 4 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 087-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 5 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 088-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 6 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 089-
            FALSE UCB PARITY ERROR WITH UCB DATA REG 7 BIT ACTIVE
            LOGIC PAGE 43.34.36.1
            CIRCUITS - A2D07, A2D08, A2D06
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22

          -ERR 090-
            FALSE UCB PARITY ERROR WITH UCB DATA REG P BIT ACTIVE
            LOGIC PAGE 43.34.37.1
            CIRCUITS - A2D05, A2E22
```

-ERR 091-
FALSE UCB PARITY ERROR WITH UCB DATA REG 1 BIT ACTIVE
LOGIC PAGE 43.34.36.1
CIRCUITS - A2D07, A2D08, A2D06
LOGIC PAGE 43.34.37.1
CIRCUITS - A2D05, A2E22

-ERR 092-
NEVER GETTING UCB DATA REG RESET
LOGIC PAGE 43.34.11.1
CIRCUITS - A2G21, A2E22, A2E23
LOGIC PAGE 43.34.12.1
CIRCUITS - A2D21

-ERR 093-
UCB DATA REG 0 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2G04, A2E08, A2H04

-ERR 094-
UCB DATA REG 1 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2F04, A2E08, A2H04

-ERR 095-
UCB DATA REG 2 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2G03, A2E07, A2H03

-ERR 096-
UCB DATA REG 3 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2F03, A2E07, A2H03

-ERR 097-
UCB DATA REG 4 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2G02, A2E06, A2H02

-ERR 098-
UCB DATA REG 5 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2F02, A2E06, A2H02

-ERR 099-
UCB DATA REG 6 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.33.1
CIRCUITS - A2G01, A2E05, A2H01

-ERR 100-
UCB DATA REG 7 BIT ALWAYS ACTIVE
LOGIC PAGE 43.34.33.1
CIRCUITS - A2F01, A2E19, A2H01

-ERR 101-
NOT GETTING UCB DATA REG SET OR UCB DATA REG RESET ALWAYS ACTIVE
LOGIC PAGE 43.34.33.1
CIRCUITS - A2G21, A2F24, A2G24, A2E24
LOGIC PAGE 43.34.11.1
CIRCUITS - A2G21, A2E22, A2E23

-ERR 102-
UCB DATA REG 0 BIT NEVER ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2G04, A2E08

-ERR 103-

UCB DATA REG 2 BIT NEVER ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2G03, A2E07

-ERR 104-
UCB DATA REG 3 BIT NEVER ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2F03, A2E07

-ERR 105-
UCB DATA REG 4 BIT NEVER ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2G02, A2E06

-ERR 106-
UCB DATA REG 5 BIT NEVER ACTIVE
LOGIC PAGE 43.34.34.1
CIRCUITS - A2F02, A2E06

-ERR 107-
UCB DATA REG 6 BIT NEVER ACTIVE
LOGIC PAGE 43.34.33.1
CIRCUITS - A2G01, A2E05

-ERR 108-
UCB DATA REG 7 BIT NEVER ACTIVE
LOGIC PAGE 43.34.33.1
CIRCUITS - A2F01, A2E05, A2E19

-ERR 109-
UCB DATA REG 1 BIT NEVER ACTIVE
LOGIC PAGE 43.34.35.1
CIRCUITS - A2F04, A2E08

-ERR 110-
PLC OR COMPARE PROBLEM - PRESS INTERRUPT TO SELECT REQUIRED FLT

-ERR 111-
FALSE UCB PARITY ERROR WITH ALL UCB DATA REG BITS ACTIVE
LOGIC PAGE 43.34.36.1
CIRCUITS - A2D06, A2D08, A2D07
LOGIC PAGE 43.34.37.1
CIRCUITS - A2D05, A2D16, A2H22, A2F24, A2D08, A2E22

4.4   LOG OUT OF ACCUMULATED DATA BY ROUTINE

4.4.1   ROUTINES 01 AND 02--CONTROL PROGRAM--

LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION. THE
DATA IS PRESENTED IN HEX FORM, 4 BITS PER CHARACTER. THIS
SAMPLE REPRESENTS THE DATA ACCUMULATED WITH A HOT DATA
REG 6 BIT.

THE FIRST FOUR ROWS SHOW THE DATA IN THE WRITE AREA-ALL NULLS.
THE FIFTH ROW SHOWS THE CHANNEL END STATUS, DEVICE END
STATUS, COMBINATION OF CHANNEL END AND DEVICE END STATUS,
AND THE SENSE DATA. ROWS 6,7,8, & 9 SHOW THE CHECK READ DATA.
THE 7 BITS --01-- SHOW ALL PARITY ERRORS OCCURRED. THE LAST
FOUR LINES SHOW DATA READ BACK FROM BUFFER --ALL 6 BITS--.

```
000000000000000000000000000000000000000000000000000000000000000000
000000000000000000000000000000000000000000000000000000000000000000
000000000000000000000000000000000000000000000000000000000000000000
000000000000000000000000000000000000000000000000000000000000000000
0A161E10
010101010101010101010101010101010101010101010101010101010101010101
010101010101010101010101010101010101010101010101010101010101010101
010101010101010101010101010101010101010101010101010101010101010101
```

```
0101010101010101010101010101010101010101010101010101010101010101
0202020202020202020202020202020202020202020202020202020202020202
0202020202020202020202020202020202020202020202020202020202020202
0202020202020202020202020202020202020202020202020202020202020202
0202020202020202020202020202020202020202020202020202020202020202
```

NOTE AT TIMES LINES 6 THRU 13 OF THE ABOVE LOG OUT
WILL NOT BE PRINTED. THIS OCCURS BECAUSE
THIS DATA HAS NOT BEEN COLLECTED.

4.4.2 ROUTINE 03--PRINT BUFFER DATA REG FLT--

LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION FOR
ROUTINE 03. THE DATA IS PRESENTED IN HEX FORM, 4 BITS
PER CHARACTER. THIS SAMPLE REPRESENTS THE DATA
ACCUMULATED FOR ERROR 062 -- PRINT BUFFER DATA REG TRIG
4, BUS OUT 5 BIT, NEVER ACTIVE --.

```
COL   1  2  3  4  5  6  7  8  9

      80 08 14 00 00 80 0C 00 00
      40 08 14 00 04 40 0C 00 04
      20 08 14 00 00 20 0C 00 00
      10 08 14 00 00 10 0C 00 00
      08 08 14 00 00 08 0C 00 00
      04 0A 16 10 05 00 0E 10 05  -- ERROR DETECTED THIS ROW --
      02 08 14 00 00 02 0C 00 00
      01 08 14 00 00 01 0C 00 00
      00 08 14 00 04 00 0C 00 04
      FF 0A 16 10 01 FB 0E 10 01
```

THE ABOVE TABLE IS DEFINED BELOW.
COLUMN 1 - DATA WRITTEN BY DIAGNOSTIC WRITE
COLUMN 2 - DIAGNOSTIC WRITE CHANNEL-END DEVICE STATUS
COLUMN 3 - DIAGNOSTIC WRITE DEVICE-END DEVICE STATUS
COLUMN 4 - SENSE DATA AFTER DIAGNOSTIC WRITE
COLUMN 5 - FIRST BYTE OF SECOND DIAGNOSTIC CHECK READ
           DATA - OBTAINED AFTER DIAGNOSTIC WRITE
COLUMN 6 - FIRST BYTE OF DIAGNOSTIC READ DATA
COLUMN 7 - DIAGNOSTIC READ DEVICE-END DEVICE STATUS
COLUMN 8 - SENSE DATA AFTER DIAGNOSTIC READ
COLUMN 9 - FIRST BYTE OF SECOND DIAGNOSTIC CHECK READ
           DATA - OBTAINED AFTER DIAGNOSTIC READ

4.4.3 ROUTINE 04--UCB DATA REG FLT--

LISTED BELOW IS A SAMPLE OF THE LOG OUT INFORMATION FOR
ROUTINE 04. THE DATA IS PRESENTED IN HEX FORM, 4 BITS
PER CHARACTER. THIS DATA REPRESENTS THE DATA ACCUMULATED
TO DETECT ERROR 097 --UCB DATA REG 4 BIT ALWAYS ACTIVE--.

```
COL   1  2  3  4  5  6  7  8  9

      80 1E 14 04 80 08 16 14 00
      20 1E 14 00 20 08 16 14 00
      10 1E 14 00 10 08 16 14 00
      08 1C 00 00 08 08 14 00 04  -- ERROR DETECTED THIS ROW --
      04 1E 14 04 04 08 16 14 00
      02 1E 14 00 02 08 16 14 00
      01 1E 14 00 01 08 16 14 00
      00 1E 14 00 08 08 16 14 04
      48 1C 00 00 48 08 14 00 04
      FF 1C 00 FF 08 14 00 04
```

THE ABOVE TABLE IS DEFINED BELOW.
COLUMN 1 - DATA WRITTEN BY LOAD UCB COMMAND
COLUMN 2 - LOAD UCB COMMAND DEVICE-END DEVICE STATUS
COLUMN 3 - SENSE DATA AFTER LOAD UCB COMMAND

COLUMN 4 - FIRST BYTE OF SECOND DIAGNOSTIC CHECK READ
           DATA - OBTAINED AFTER LOAD UCB COMMAND
COLUMN 5 - DATA WRITTEN BY DIAGNOSTIC WRITE
COLUMN 6 - DIAGNOSTIC WRITE CHANNEL-END DEVICE STATUS
COLUMN 7 - DIAGNOSTIC WRITE DEVICE-END DEVICE STATUS
COLUMN 8 - SENSE DATA AFTER DIAGNOSTIC WRITE
COLUMN 9 - FIRST BYTE OF SECOND DIAGNOSTIC CHECK READ
           DATA - OBTAINED AFTER DIAGNOSTIC WRITE

5. COMMENTS

5.1 PROGRAM PHILOSOPHY AND ASSOCIATED COMMENTS

THE BASIC PHILOSOPHY EMPLOYED BY THIS PROGRAM IS TO --FIRST--
AREA ISOLATE A SOLID DATA PATH FAILURE WITHIN THE 2821/1403 UCS
ATTACHMENT, AND --SECOND-- FURTHER ISOLATE THE FAILURE TO
PARTICULAR CIRCUIT-S-. IN ORDER TO UTILIZE THIS PHILOSOPHY WITH
THE EXISTING MAIN STORAGE SIZE LIMITATIONS, IT WAS NECESSARY TO
EMPLOY THE PROGRAM OVERLAY CONCEPT. EACH OVERLAY --ROUTINE--
IS DESCRIBED IN DETAIL BELOW

5.2 DESCRIPTION -- ROUTINES 01 AND 02, CONTROL PROGRAM. --

THE PRIMARY OBJECTIVE OF THESE ROUTINES IS TO AREA ISOLATE A
SOLID FAILURE IN THE 1403 UNIVERSAL CHARACTER SET DATA PATHS
WITHIN THE 2821. THESE AREAS ARE DEFINED BELOW--

    1.   PRINT BUFFER DATA REGISTER
    2.   PRINT BUFFER
    3.   PRINT BUFFER ADDRESS REGISTER
    4.   UCS BUFFER DATA REGISTER
    5.   UCS BUFFER
    6.   UCS BUFFER ADDRESS REGISTER
    7.   COMPARE CIRCUITS
    8.   PLC CIRCUITS
    9.   ERROR CHECKING CIRCUITS WHEN FALSE

ROUTINE 01 IS CONCERNED WITH AREA ISOLATING FAILURES ASSOCIATED
WITH THE PRINT BUFFER. THIS OBJECTIVE IS ACCOMPLISHED
BY INVESTIGATING THE NINE COMMON DATA LINES --P, 0, 1, 2, 3, 4,
5, 6, 7-- IN THE 1403 UNIVERSAL CHARACTER SET DATA PATH, WITHOUT
ATTEMPTING TO USE THE UNIVERSAL CHARACTER BUFFER. WITH EACH OF
THESE LINES MADE ACTIVE, THE FOLLOWING SEQUENCE OF OPERATIONS
IS PERFORMED--

    1.   WRITE PRINT BUFFER
         A.   SAVE STATUS
         B.   SAVE SENSE DATA
    2.   DIAGNOSTIC CHECK READ
    3.   READ PRINT BUFFER

THE DATA IS INTERROGATED AS ACCUMULATED BY AN ANALYSIS ROUTINE.
AN OUTPUT MESSAGE WILL INDICATE THE RESULTS OF THIS ANALYSIS
AS AN ERROR NUMBER OR NO ERRORS FOUND. IF AN ERROR NUMBER IS
INDICATED, THE C.E. MUST REFER TO EITHER THE PROGRAM DESCRIPTION,
OR THE PROGRAM LISTING TO DETERMINE THE ANALYSIS RESULTS.
IF THE CORRESPONDING CARD ISOLATION OVERLAY IS AVAILABLE, THE
PROGRAM WILL AUTOMATICALLY SEARCH FOR IT AND EXECUTE IT IN
ORDER TO OBTAIN FURTHER ISOLATION.

ROUTINE 02 IS CONCERNED WITH AREA ISOLATING FAILURES ASSOCIATED
WITH THE UNIVERSAL CHARACTER BUFFER. THIS OBJECTIVE IS
ACCOMPLISHED BY INVESTIGATING THE 9 COMMON DATA LINES -- P, 0,
1, 2, 3, 4, 5, 6, 7-- IN THE UCS BUFFER, ASSUMING THE PRINT DATA
BUFFER CIRCUITS ARE OPERATIONAL. WITH EACH OF THESE LINES
MADE ACTIVE, THE FOLLOWING SEQUENCE OF OPERATIONS IS PERFORMED--

    1.   LOAD UCS BUFFER

```
            A.  SAVE STATUS
            B.  SAVE SENSE DATA
        2.  DIAGNOSTIC WRITE
            A.  SAVE STATUS
            B.  SAVE SENSE DATA
        3.  DIAGNOSTIC CHECK READ
```

THE DATA IS INTERROGATED AS ACCUMULATED BY AN ANALYSIS ROUTINE.
AN OUTPUT MESSAGE WILL INDICATE THE RESULTS OF THIS ANALYSIS
AS AN ERROR NUMBER OR NO ERRORS FOUND. IF AN ERROR NUMBER IS
INDICATED, THE C.E. MUST REFER TO EITHER THE PROGRAM DESCRIPTION,
OR THE PROGRAM LISTING TO DETERMINE THE ANALYSIS RESULTS.
IF THE CORRESPONDING CARD ISOLATION OVERLAY IS AVAILABLE, THE
PROGRAM WILL AUTOMATICALLY SEARCH FOR IT AND EXECUTE IT IN
ORDER TO OBTAIN FURTHER ISOLATION. IT IS TO BE NOTED THAT IF
ROUTINE 01 DETECTS A SOLID FAILURE IN THE PRINT BUFFER AND
ASSOCIATED CIRCUITS, ROUTINE 02 WILL BE BYPASSED -- ROUTINE 02
WILL BE RUN ONLY WHEN NO FAILURES ARE DETECTED BY ROUTINE 01.

IN ADDITION TO THE PRINTOUT OF THE RESULTS OF THE ANALYSIS, A
PRINTOUT OF THE ACCUMULATED DATA LAST USED CAN BE MADE BY SETTING
SECTION SENSE SWITCH 02 TO 1 PRIOR TO RUNNING THE ROUTINE OR
AFTER THE ANALYSIS PRINTOUT. THIS OPTION IS ONLY AVAILABLE WHEN
AN ERROR IS DETECTED BY THE ROUTINE.

5.3 DESCRIPTION -- ROUTINE 03, PRINT BUFFER DATA REG FLT --

    *** NOTE *** THIS ROUTINE WILL BE RUN ONLY WHEN ROUTINE 01
                  DETECTS A FAILURE WITHIN THE PRINT BUFFER DATA
                  REGISTER AREA --OTHERWISE, IT WILL BE BYPASSED.

THE OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A SOLID
FAILURE WITHIN THE PRINT BUFFER DATA REGISTER COMPLEX -- 2821
UCS ATTACHMENT --. THIS OBJECTIVE IS ACCOMPLISHED BY ATTEMPTING
TO SEPARATELY ACTIVATE EACH OF THE DATA REGISTER TRIGGERS -- P,
0,1,2 THROUGH 9 --. THIS IS DONE BY USING THE APPROPRIATE
WRITE DATA --I.E, HEX WRITE DATA 00 IS USED TO ACTIVATE ONLY THE
P TRIGGER, HEX WRITE DATA 80 IS USED TO ACTIVATE ONLY THE 0
TRIGGER --ETC. FOR EACH PRINT BUFFER DATA REGISTER TRIGGER,
THE FOLLOWING SEQUENCE OF OPERATIONS IS PERFORMED, AND ALL
ASSOCIATED DATA IS SAVED IN MAIN STORAGE.

        1. DIAGNOSTIC WRITE - CCW COUNT EQUAL TWO
            A. SENSE I/O IF GOT UNIT CHECK
        2. TWO SUCCESSIVE DIAGNOSTIC CHECK READS - FIRST BYTE
            OF SECOND READ ONLY IS SAVED
        3. DIAGNOSTIC READ OF PRINT BUFFER - CCW COUNT EQUAL ONE
            A. SENSE I/O IF GOT UNIT CHECK
        4. TWO SUCCESSIVE DIAGNOSTIC CHECK READS - FIRST BYTE
            OF SECOND READ ONLY IS SAVED

AFTER ALL DATA HAS BEEN ACCUMULATED, IT IS INTERROGATED BY AN
ANALYSIS ROUTINE. THIS ROUTINE IDENTIFIES A FAILURE WITHIN THE
PRINT BUFFER DATA REGISTER CIRCUITS WHEN THE FOLLOWING CONDITIONS
EXIST.

        1. GOT UNIT CHECK WITH CHANNEL END FOR DIAGNOSTIC WRITE.
        2. GOT PRINT BUFFER DATA REG PARITY FOR DIAGNOSTIC CHECK
            READ AFTER DIAGNOSTIC WRITE.
        3. GOT ADDITIONAL BITS OR MISSING BITS WITH
            DIAGNOSTIC READ.

AN OUTPUT MESSAGE WILL INDICATE THE RESULTS OF THE ANALYSIS
ROUTINE AS AN ERROR NUMBER OR NO ERRORS DETECTED. IF AN ERROR
NUMBER IS INDICATED, THE C.E. MUST REFER TO THE PRINTOUT
SECTION OF THIS DESCRIPTION TO DETERMINE THE ANALYSIS RESULTS.

IN ADDITION TO THE PRINTOUT OF THE RESULTS OF THE ANALYSIS, A

PRINTOUT OF THE ACCUMULATED DATA CAN BE MADE BY SETTING
SECTION SENSE SWITCH 02 TO 1 PRIOR TO RUNNING THE ROUTINE OR
AFTER THE ANALYSIS PRINTOUT.

5.4 DESCRIPTION -- ROUTINE 04, UCB DATA REG FLT --

    *** NOTE *** THIS ROUTINE WILL BE RUN ONLY WHEN ROUTINE 02
                  DETECTS A FAILURE WITHIN THE UCB DATA REGISTER
                  AREA --OTHERWISE, IT WILL BE BYPASSED.

THE OBJECTIVE OF THIS ROUTINE IS TO CIRCUIT ISOLATE A SOLID
FAILURE WITHIN THE UCB DATA REGISTER AREA. THIS OBJECTIVE IS
ACCOMPLISHED BY ATTEMPTING TO SEPARATELY ACTIVATE EACH UCB DATA
REGISTER TRIGGER --THEN, PERFORM A DIAGNOSTIC WRITE TO DETERMINE
THE STATE --ON OR OFF-- OF THE TRIGGER. THE ATTEMPT TO
ACTIVATE EACH TRIGGER IS ACCOMPLISHED BY PERFORMING A LOAD UCB
COMMAND WITH THE APPROPRIATE WRITE DATA --IE, HEX WRITE DATA 00
IS USED TO ACTIVATE ONLY THE P TRIGGER, HEX WRITE DATA 80 IS
USED TO ACTIVATE ONLY THE 0 TRIGGER --ETC. FOR EACH UCB DATA
REGISTER TRIGGER THE FOLLOWING SEQUENCE OF OPERATIONS IS
PERFORMED, AND ALL ASSOCIATED DATA IS SAVED IN MAIN STORAGE.

        1. GATE UCS LOAD CCW COMMAND-CHAINED TO A LOAD UCB CCW
            A. SENSE I/O IF GOT UNIT CHECK
        2. TWO SUCCESSIVE DIAGNOSTIC CHECK READS - FIRST BYTE
            OF SECOND READ ONLY IS SAVED
        3. DIAGNOSTIC WRITE
            A. SENSE I/O IF GOT UNIT CHECK
        4. TWO SUCCESSIVE DIAGNOSTIC CHECK READS - FIRST BYTE OF
            SECOND READ ONLY IS SAVED

AFTER ALL DATA HAS BEEN ACCUMULATED, IT IS INTERROGATED BY AN
ANALYSIS ROUTINE. THIS ROUTINE IDENTIFIES A FAILURE WITHIN THE
UCB DATA REGISTER CIRCUITS WHEN THE FOLLOWING CONDITIONS EXIST.

        1. GOT UNIT CHECK WITH CHANNEL END FOR LOAD UCB CCW
        2. GOT UCB PARITY DURING LOAD UCB COMMAND
        3. DID NOT GET PLC DURING DIAGNOSTIC WRITE

AN OUTPUT MESSAGE WILL INDICATE THE RESULTS OF THE ANALYSIS
ROUTINE AS AN ERROR NUMBER OR AS NO ERRORS DETECTED. IF AN
ERROR NUMBER IS INDICATED, THE C.E. MUST REFER TO THE PRINTOUT
SECTION OF THIS DESCRIPTION TO DETERMINE THE ANALYSIS RESULTS.

IN ADDITION TO THE PRINTOUT OF THE RESULTS OF THE ANALYSIS, A
PRINTOUT OF THE ACCUMULATED DATA CAN BE MADE BY SETTING SECTION
SENSE SWITCH 02 TO 1 PRIOR TO RUNNING THE ROUTINE OR AFTER THE
ANALYSIS PRINTOUT.

6. APPENDIX

    6.1 UCS PRINTER COMMAND CODES

```
    ***********************************************************************
    *
    *  VALID COMMANDS TO THE UCS PRINTER.  NOT SHOWING SPACE, SKIP,
    *  OR OTHER VARIOUS OPTIONS THAT ARE AVAILABLE.
    *
    *  FUNCTION              COMMAND CODE BITS        HEX CODE
    *                        0 1 2 3  4 5 6 7
    *  TEST I/O . . . . . . . . 0 0 0 0  0 0 0 0 . . . . . . . 00
    *  SENSE  . . . . . . . . . 0 0 0 0  0 1 0 0 . . . . . . . 04
    *  WRITE  . . . . . . . . . 0 0 0 0  0 0 0 1 . . . . . . . 01
    *  GATE UCS LOAD  . . . . . 1 1 1 0  1 0 1 1 . . . . . . . EB
    *  LOAD UCS NO FOLDING  . . 1 1 1 1  1 0 1 1 . . . . . . . FB
    *  LOAD UCS WITH FOLDING  . 1 1 1 1  0 0 1 1 . . . . . . . F3
    *  DIAGNOSTIC WRITE . . . . - - - -  1 0 1 . . . . . . . . 05
    *  DIAGNOSTIC READ  . . . . 0 0 0 0  0 0 1 0 . . . . . . . 02
```

```
*   DIAGNOSTIC CHECK READ  . 0 0 0 0  0 1 1 0 . . . . . . 06
*
*   WHERE  -  FORMS VARIATIONS ON MODIFIERS WHICH MAY BE COMBINED.
*
**************************************************************************
```

6.2 SENSE BYTE INFORMATION

```
**************************************************************************
*
*   ONE SENSE BYTE
*
*   BIT   MEANING
*
*    0    COMMAND REJECT              -------I
*    1    INTERVENTION REQUIRED              I
*    2    BUSS OUT CHECK                     I
*    3    EQUIPMENT CHECK                    I---UNIT CHECK IN STATUS
*    4    DATA CHECK                         I
*    5    UCB PARITY CHECK                   I
*    6    UNUSUAL COMMAND SEQUENCE           I
*    7    CHANNEL 9 HOLE SENSED      -------I
*
**************************************************************************
```

6.3 DIAGNOSTIC CHECK READ INFORMATION

```
**************************************************************************
*
*   THE DIAGNOSTIC CHECK READ COMMAND TRANSFERS CHECK INFORMATION
*   TO THE CPU.  ONE BYTE OF DATA IS TRANSFERRED FOR EACH PRINT
*   BUFFER POSITION.  THE SIGNALS RETURNED ARE AS FOLLOWS--
*
*   BIT   SIGNAL
*
*    0    NOT USED
*    1    NOT USED
*    2    NOT USED
*    3    NOT USED
*    4    NOT USED
*    5    PRINT LINE COMPLETE
*    6    PRINT CHECK
*    7    PRINT BUFFER PARITY CHECK
*
**************************************************************************
```

```
                    80C5   TITLE F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1
                    ***********************************************************************
                    *                                                                     *
                    *        MODIFICATIONS                                                *
                    *                                                                     *
                    *        REVISION LEVEL 5.  THIS REVISION DIFFERS FROM VERSION 4 AS   *
                    *        FOLLOWS...                                                    *
                    *                                                                     *
                    *             1. CONTROL PROGRAM -ROUTINE OVERLAY 01-                 *
                    *                THIS ROUTINE WAS NOT MODIFIED.                        *
                    *             2. CONTROL PROGRAM -ROUTINE OVERLAY 02-                  *
                    *                DESCRIPTIONS OF ERROR NUMBERS 027 AND 038 WERE MODIFIED.*
                    *                                                                     *
                    *        ENGINEERING CHANGE PREREQUISITES                             *
                    *             1. MACHINE                                              *
                    *                2821 CONTROL UNIT WITH 1403 UCS ATTACHMENT AT MINIMUM *
                    *                E.C. LEVEL 125655                                     *
                    *             2. PROGRAM                                              *
                    *                NONE                                                 *
                    *                                                                     *
                    *        USE DESCRIPTION F80C* AT E.C. 125655, DATED 15NOV 66 OR LATER *
                    *                                                                     *
                    ***********************************************************************
                    *                                                                     *
                    *        REVISION LEVEL 4.  THIS REVISION DIFFERS FROM VERSION 3 AS   *
                    *        FOLLOWS...                                                    *
                    *                                                                     *
                    *             1. CONTROL PROGRAM - ROUTINE OVERLAY 01                 *
                    *                THIS ROUTINE WAS MODIFIED TO TURN OFF THE DATA CHECK  *
                    *                LATCH -ALLOW DATA CHECKS- DURING THE FIRST START I/O  *
                    *                ISSUED BY THE ROUTINE.  THIS LATCH REMAINS IN THE -OFF-*
                    *                STATE FOR ALL REMAINING ROUTINE OVERLAYS IN F80C AND  *
                    *                F80D.                                                 *
                    *             2. CONTROL PROGRAM -ROUTINE OVERLAY 02-                  *
                    *                THIS ROUTINE WAS NOT MODIFIED                         *
                    *                                                                     *
                    *        ENGINEERING CHANGE PREREQUISITES                             *
                    *             1. MACHINE                                              *
                    *                2821 CONTROL UNIT WITH 1403 UCS ATTACHMENT AT MINIMUM *
                    *                E.C. LEVEL 125632                                     *
                    *             2. PROGRAM                                              *
                    *                NONE                                                 *
                    *                                                                     *
                    *        USE DESCRIPTION F80C* AT E.C. 125632, DATED 15 MAR 66 OR LATER *
                    *                                                                     *
                    ***********************************************************************
XF80C5 START 4096
        001000      USING *,15
                    *                                                                     *
                    *        SECTION SENSE SWITCH USAGE                                   *
                    *                                                                     *
                    *        SSW  0, LOC X004, BIT 0 - LOOP ON START I/O                  *
                    *        SSW  1, LOC X004, BIT 1 - USE UTILITY SCOPE ROUTINE          *
                    *        SSW  2, LOC X004, BIT 2 - LOG OUT DATA TABLE                 *
                    *        SSW  6, LOC X004, BIT 6 - PRINT TITLE                        *
                    *                                                                     *
                    ***********************************************************************
                    *                  SECTION PREFACE                                   *
                    ***********************************************************************
001000  F80C50      SECNO  DC   X'F80C50'           PROGRAM AND SECTION NUMBER
001003  00                 DC   X'00'               CURRENT ROUTINE NUMBER
001004  00000000     SNSW  DC   XL4'00'             SECTION SENSE SWITCHES
001008  0000               DC   XL2'00'             NOT USED
00100A  0000         ICM   DC   XL2'00'             INTERRUPTION CONDITION MASK
00100C  00                 DC   X'00'               SECTION DM FLAGS
```

```
00100D  01          NUTE   DC   XL1'01'             NUMBER OF UNIT TABLE ENTRIES
00100E  90          FLAG1  DC   XL1'90'             FLAG BITS SET BY SECTION FOR DM
00100F  00          FLAG2  DC   XL1'00'             INTERRUPT HANDLING FLAGS
001010  010400000F  INPSW  DC   XL5'010400000F'     INITIAL PSW
001015  001A60             DC   AL3(RTNO1)
001018  0000000000000000  EXOPSW DC  XL8'00'        EXTERNAL OLD PSW
001020  0000000000000000  SVOPSW DC  XL8'00'        SUPERVISOR CALL OLD PSW
001028  0000000000000000  PGOPSW DC  XL8'00'        PROGRAM OLD PSW
001030  0000000000000000  MCOPSW DC  XL8'00'        MACHINE CHECK OLD PSW
001038  0000000000000000  IOOPSW DC  XL8'00'        I/O OLD PSW
001040  0000000000000000  CSW    DC  XL8'00'        CHANNEL STATUS WORD
001048  00000000    CAW    DC   XL4'00'             COMMAND ADDRESS WORD
00104C  000000000000000000 DC   XL12'00'            RESERVED FOR DM USE
001055  000000
001058  010400000F  EXNPSW DC   XL5'010400000F'     EXTERNAL NEW PSW
00105D  00175C      EXNADR DC   AL3(BREX)
001060  0000000000000000  SVNPSW DC  XL8'00'        SUPERVISOR CALL NEW PSW
001068  0000000000000000  PGNPSW DC  XL8'00'        PROGRAM NEW PSW
001070  0000000000000000  MCNPSW DC  XL8'00'        MACHINE CHECK NEW PSW
001078  010400000F  IONPSW DC   XL5'010400000F'     I/O NEW PSW
00107D  00138A      IONADR DC   AL3(SIOINT)
001080              REGDMP DS   24CL4               SECTION REGISTER SAVE AREA - DM USE
                    ****************************************************************************
                    *                  SECTION PREFACE UNIT TABLE                               *
                    ****************************************************************************
0010E0  83          UNIT1  DC   XL1'83'             UNIT TYPE - 1403 PRINTER
0010E1  00          U1OP   DC   X'00'               OPTIONAL FEATURE BYTE
0010E2  8000        U1ADDR DC   X'8000'             FLAGS AND CHAN/UNIT ADDRESS
                    *         VARIABLES FOR START I/O ROUTINE - WORD BOUNDARY               *
                    ****************************************************************************
0010E4              CNOP   0,4                      ALIGN ON WORD BOUNDARY
0010E4  00000000    SIOVR1 DC   9F'00'              R1 THRU R9 SAVED HERE BY SIO
0010E8  00000000
0010EC  00000000
0010F0  00000000
0010F4  00000000
0010F8  00000000
0010FC  00000000
001100  00000000
001104  00000000
001108  00000000    SIOVR4 DC   F'00'               CC SAVED HERE FOR ORIG SIO
00110C  00000000    SIOVR9 DC   F'00'               100 MILLI-SEC CONSTANT SAVED HERE
001110  00000000    SIOVR7 DC   F'00'               CC SAVED HERE FOR SENSE SIO
                    ****************************************************************************
                    *         VARIABLES FOR SIO ROUTINE - NO BOUNDARY                      *
                    ****************************************************************************
001114  00000000    SIOVR2 DC   F'00'               SEC PREF CAW SAVED HERE BY SIO
001118  00000000    SIOVR3 DC   2F'00'              CSW SAVE AREA FOR ORIG SIO
00111C  00000000
001120  00          SENSE  DC   X'00'               SENSE DATA STORED HERE
001121  00          CAWKEY DC   X'00'               CAW KEY STORED HERE
001122  00          SIOSWS DC   X'00'               SIO SWITCHES
001123  C961D640C1C4C4D940 SIOMS1 DC C'I/O ADDR XXX CAW'  CCO BUT NO INTERRUPT MESSAGE
00112C  E7E7E740C3C1E6
001133  40E7E7E7E7E7E7E7E7    DC   C' XXXXXXXX GOT CC'
00113C  40C7D6E340C3C3
001143  F040C2E4E340D5D640    DC   C'O BUT NO INTERRU'
00114C  C9D5E3C5D9D9E4
001153  D7E3                  DC   C'PT'
001155  00          SIOVR6 DC   X'00'
001156  C961D640C1C4C4D940 SIOMS2 DC C'I/O ADDR XXX CAW'
00115F  E7E7E740C3C1E6
001166  40E7E7E7E7E7E7E7E7    DC   C' XXXXXXXX GOT CC'
00116F  40C7D6E340C3C3
001176  F140C3E2E640E2E3C1    DC   C'1 CSW STATUS XXX'
00117F  E3E4E240E7E7E7
001186  E740E2D5E240E7E740    DC   C'X SNS XX '
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
00118F  D4C1D2C540D7D9C9D5              DC      C'MAKE PRINTER RDY'
001198  E3C5D940D9C4E8
00119F  0000                  STATSV   DC      X'0000'                 2ND STATUS SAVE AREA
0011A4  00000000              CSWAG    DC      2F'00'                  AGGREGATE CSW SAVED HERE
0011A8  00000000
0011AC  C961D640C1C4C4D940    SIOMS3   DC      C'I/O ADDR XXX CAW'
0011B5  E7E7E740C3C1E6
0011BC  40E7E7E7E7E7E7E7E7             DC      C' XXXXXXXX GOT CC'
0011C5  40C7D6E340C3C3
0011CC  F040C3E2E640E7E7E7             DC      C'0 CSW XXXXXXXXXX'
0011D5  E7E7E7E7E7E7E7
0011DC  E7E7E7E7E7E7E740E2D5           DC      C'XXXXXX SNS XX '
0011E5  E240E7E740
0011EA  C961D640C1C4C4D940    SIOMS4   DC      C'I/O ADDR XXX CAW'
0011F3  E7E7E740C3C1E6
0011FA  40E7E7E7E7E7E7E7E7             DC      C' XXXXXXXX GOT CC'
001203  40C7D6E340C3C3
00120A  F040C3E2E640E7E7E7             DC      C'0 CSW XXXXXXXXXX'
001213  E7E7E7E7E7E7E7
00121A  E7E7E7E7E7E7                   DC      C'XXXXXX'
001220  0000000000000000      SIOVR8   DC      XL8'00'                 SENSE CSW SAVED HERE
        ***********************************************************************
        *            1403 START I/O ROUTINE                                   *
        ***********************************************************************
001228                                 CNOP    0,4                     ALIGN ON WORD BOUNDARY
001228  90 19 F 0E4           SIO      STM     R1,R9,SIOVR1            SAVE R1 THRU R9
00122C  D2 03 F 114 F 048              MVC     SIOVR2(4),CAW           SAVE CAW
001232  D7 07 F 118 F 118     SIDA00   XC      SIOVR3(8),SIOVR3        CLEAR CSW SAVE AREA
001238  D7 00 F 120 F 120              XC      SENSE(1),SENSE          CLEAR SENSE BYTE
00123E  54 C0 F 758                    N       R12,CLRC                AND OUT BITS 0 THRU 20 OF GEN REG 12
001242  D2 00 F 048 F 121              MVC     CAW(1),CAWKEY           LOAD STORAGE KEY IN SEC PREF CAW
001248  D2 03 D 048 F 048              MVC     HCAW(4,R13),CAW         LOAD CAW
00124E  9C 00 C 000                    SIO     0(R12)                  START I/O
001252  45 10 F 256                    BAL     R1,*+4                  SAVE CONDITION CODE
001256  50 10 F 108                    ST      R1,SIOVR4              ,,
00125A  91 80 F 122                    TM      SIOSWS,X'80'            SEE IF RET TO PROG SW1 ON
00125E  47 10 F 438                    BC      ALL,SIOIO6             BR IF YES
001262  91 30 F 108                    TM      SIOVR4,X'30'            SEE IF SIO CC WAS ZERO
001266  47 50 F 2A4                    BC      ANY,SIOB00             BR IF NO
00126A  0A D8                          SVC     X'D8'                   WAIT FOR I/O INTERRUPT
        *
        *          COME HERE IF DID NOT GET FIRST INTERRUPT
        *
00126C  91 80 F 004                    TM      SNSW,X'80'              BR IF SEC SS 00 IS ZERO - NO SIO LOP
001270  47 80 F 288                    BC      NONE,SIOA02            ,,
001274  58 50 E 198           SIOA01   L       R5,408(R0,R14)          GET DM 10 SEC CONSTANT
001278  9D 00 C 000                    TIO     0(R12)                  TEST I/O
00127C  47 80 F 232                    BC      CC0,SIOA00              REPEAT SIO IF GOT CC0
001280  46 50 F 278                    BCT     R5,SIOA01+4             DELAY
001284  47 F0 F 232                    BC      UNC,SIOA00              GO REPEAT SIO
001288  D2 02 F 12C F 753     SIOA02   MVC     SIOMS1+9(3),UAPRT       SET PRINTER ADDR IN OUTPUT MESSAGE
00128E  0A DD                          SVC     X'DD'                   CONVERT CAW TO EBCDIC
001290  0004                           DC      AL2(4)                  NO OF HEX BYTES IN CAW
001292  0048                           DC      AL2(CAW-SECNO)          HEX DATA ADDR
001294  0134                           DC      AL2(SIOMS1+17-SECNO)    EBCDIC DATA ADDR IN OUTPUT MESSAGE
001296  92 F0 F 143                    MVI     SIOMS1+32,X'F0'         SET CC0 IN OUTPUT MSG
00129A  0A D0                          SVC     X'D0'                   PRINT GOT CC0 BUT NO INTERRUPT
00129C  40                             DC      X'40'                   PRINT PROG NO. PRIOR TO MESSAGE
        *                                                              TREAT AS ERROR
        *                                                              DO NOT CHAIN
        *                                                              DO NOT RESTORE
00129D  32                             DC      X'32'                   NO. OF CHAR IN MSG (50)
00129E  F123                           DC      AL2(SIOMS1-BASE+REG)    MESSAGE ADDRESS
0012A0  47 F0 F 274                    BC      UNC,SIOA01             GO TRY AGAIN
        *
        *          HANDLE SIO CC3 HERE
        *
0012A4  47 40 F 2CC           SIOB00   BC      SOME,SIOC00            BR IF NOT CC3
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
0012A8  91 80 F 004                    TM      SNSW,X'80'              BR IF SEC SS 00 IS 1 - LOOP SIO
0012AC  47 10 F 232                    BC      ALL,SIOA00             ,,
0012B0  0A DD                          SVC     X'DD'                   CONVERT CAW TO EBCDIC
0012B2  0004                           DC      AL2(4)                  NO. OF HEX BYTES IN CAW
0012B4  0048                           DC      AL2(CAW-SECNO)          HEX DATA ADDR
0012B6  0134                           DC      AL2(SIOMS1+17-SECNO)    EBCDIC DATA ADDR
0012B8  D2 02 F 12C F 753              MVC     SIOMS1+9(3),UAPRT       SET PRINTER ADDR IN OUTPUT MSG
0012BE  92 F3 F 143                    MVI     SIOMS1+32,X'F3'         SET CC3 IN OUTPUT MSG
0012C2  0A D0                          SVC     X'D0'                   PRINT GOT CC3 ON SIO
0012C4  40                             DC      X'40'                   PRINT PROG NO. PRIOR TO MSG
        *                                                              TREAT AS ERROR
        *                                                              DO NOT CHAIN
        *                                                              DO NOT RESTORE
0012C5  21                             DC      X'21'                   NO. OF CHAR IN MSG (33)
0012C6  F123                           DC      AL2(SIOMS1-BASE+REG)    MESSAGE ADDRESS
0012C8  47 F0 F 232                    BC      UNC,SIOA00             GO TRY SIO AGAIN
        *
        *          HANDLE SIO CC2 HERE
        *
0012CC  91 10 F 108           SIOC00   TM      SIOVR4,X'10'            BR IF DID NOT GET CC2
0012D0  47 10 F 2F8                    BC      ALL,SIOD00             ,,
0012D4  91 80 F 004                    TM      SNSW,X'80'              BR IF SEC SS 00 IS 1 - LOOP SIO
0012D8  47 10 F 274                    BC      ALL,SIOA01             ,,
0012DC  0A DD                          SVC     X'DD'                   CONVERT CAW TO EBCDIC
0012DE  0004                           DC      AL2(4)                  NO. OF HEX BYTES IN CAW
0012E0  0048                           DC      AL2(CAW-SECNO)          HEX DATA ADDR
0012E2  0134                           DC      AL2(SIOMS1+17-SECNO)    EBCDIC DATA ADDR IN OUTPUT MSG
0012E4  D2 02 F 12C F 753              MVC     SIOMS1+9(3),UAPRT       SET I/O ADDR IN OUTPUT MSG
0012EA  92 F2 F 143                    MVI     SIOMS1+32,X'F2'         SET CC2 IN OUTPUT MESSAGE
0012EE  0A D0                          SVC     X'D0'                   PRINT GOT CC2 ON SIO
0012F0  40                             DC      X'40'                   PRINT PROG NO. PRIOR TO MSG
        *                                                              TREAT AS ERROR
        *                                                              DO NOT CHAIN
        *                                                              DO NOT RESTORE
0012F1  21                             DC      X'21'                   NO. OF CHAR IN MSG (33)
0012F2  F123                           DC      AL2(SIOMS1-BASE+REG)    MESSAGE ADDRESS
0012F4  47 F0 F 274                    BC      UNC,SIOA01             GO TRY AGAIN
        *
        *          HANDLE SIO CC1 HERE
        *
0012F8  91 80 F 004           SIOD00   TM      SNSW,X'80'              BR IF SEC SS 00 IS 0 - NO LOOP SIO
0012FC  47 80 F 346                    BC      NONE,SIOD04            ,,
001300  91 FF D 045                    TM      HCSW+5(R13),X'FF'       DO TIO IF GOT ANY CH STS FOR CLEAR
001304  47 50 F 274                    BC      ANY,SIOA01             ,,
001308  47 F0 F 232                    BC      UNC,SIOA00              LOOP SIO ONLY
00130C  D2 02 F 15F F 753     SIOD02   MVC     SIOMS2+9(3),UAPRT       SET PRINTER ADDR IN OUTPUT MSG
001312  0A DD                          SVC     X'DD'                   CONVERT CAW TO EBCDIC
001314  0004                           DC      AL2(4)                  NO. OF HEX BYTES IN CAW
001316  0048                           DC      AL2(CAW-SECNO)          HEX DATA ADDR
001318  0167                           DC      AL2(SIOMS2+17-SECNO)    EBCDIC ADDR IN OUTPUT MESSAGE
00131A  D2 07 F 118 D 040              MVC     SIOVR3(8),HCSW(R13)     SAVE CSW
001320  0A DD                          SVC     X'DD'                   CONVERT CSW STATUS TO EBCDIC
001322  0002                           DC      AL2(2)                  NO. OF STATUS BYTES
001324  011C                           DC      AL2(SIOVR3+4-SECNO)     CSW STATUS ADDR
001326  0183                           DC      AL2(SIOMS2+45-SECNO)    EBCDIC ADDR IN OUTPUT MSG
001328  92 F1 F 176                    MVI     SIOMS2+32,X'F1'         SET CC1 IN OUTPUT MSG
00132C  91 02 F 11C                    TM      SIOVR3+4,X'02'          GO DO SENSE I/O IF GOT UC
001330  47 10 F 362                    BC      ALL,SIODE00            ,,
001334  0A D0                          SVC     X'D0'                   PRINT GOT CC1 ON SIO - NO UC
001336  40                             DC      X'40'                   PRINT PROG NO. PRIOR TO MSG
        *                                                              TREAT AS ERROR
        *                                                              DO NOT CHAIN
        *                                                              DO NOT RESTORE
001337  31                             DC      X'31'                   NO. OF CHAR IN MSG (49)
001338  F156                           DC      AL2(SIOMS2-BASE+REG)    MESSAGE ADDRESS
00133A  91 FF F 11D           SIOD03   TM      SIOVR3+5,X'FF'          DO TIO BEFORE SIO IF GOT ANY CH STS
00133E  47 50 F 274                    BC      ANY,SIOA01             ,,
001342  47 F0 F 232                    BC      UNC,SIOA00              REPEAT SIO ONLY
```

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001346   91 FF D 045      SIOD04 TM   HCSW+5(R13),X'FF'    BR IF GOT ANY CHAN STATUS
00134A   47 50 F 30C             BC   ANY,SIOD02           ,,
00134E   95 0C D 044             CLI  HCSW+4(R13),X'0C'    SEE IF GOT CE + DE ONLY
001352   47 60 F 30C             BC   UNEQ,SIOD02          BRANCH IF NO
001356   91 40 F 122             TM   SIOSWS,X'40'         SEE IF RETURN TO PROG ON IMMED OP
00135A   47 10 F 438             BC   ALL,SIOI06           BRANCH IF YES
00135E   47 F0 F 3C2             BC   UNC,SIOI02           GO INDICATE ERROR
001362   45 70 F 47E      SIOE00 BAL  R7,SIOF00            GO DO SENSE I/O
001366   0A DD                   SVC  X'DD'                CONVERT SENSE DATA TO EBCDIC
001368   0001                    DC   AL2(1)               NO. OF SENSE BYTES
00136A   0120                    DC   AL2(SENSE-SECNO)     SENSE DATA ADDR
00136C   018C                    DC   AL2(SIOMS2+54-SECNO) EBCDIC DATA ADDR IN OUTPUT MSG
00136E   91 40 F 120             TM   SENSE,X'40'          BR IF GO INTERV REQ
001372   47 10 F 380             BC   ALL,SIOE01           ,,
001376   0A D0                   SVC  X'D0'                GOT CC1 ON SIO WITH UC + NO INTV REQ
001378   40                      DC   X'40'                PRINT PROG NO. PRIOR TO MESSAGE
                           *                               TREAT AS ERROR
                           *                               DO NOT CHAIN
                           *                               DO NOT RESTORE
001379   38                      DC   X'38'                NO. OF CHAR IN MSG (56)
00137A   F156                    DC   AL2(SIOMS2-BASE+REG) MESSAGE ADDRESS
00137C   47 F0 F 33A             BC   UNC,SIOD03           REPEAT SIO
001380   0A D0            SIOE01 SVC  X'D0'                PRINT GOT CC1 ON SIO - UC + INTV REQ
001382   40                      DC   X'40'                MAKE PRINTER READY - I/O ADDR IN GR12
                           *                               PRINT PROG NO. PRIOR TO MSG
                           *                               TREAT AS ERROR
                           *                               DO NOT CHAIN
                           *                               DO NOT RESTORE
001383   49                      DC   X'49'                NO. OR CHAR IN MSG (73)
001384   F156                    DC   AL2(SIOMS2-BASE+REG) MESSAGE ADDRESS
001386   47 F0 F 274             BC   UNC,SIOA01           CONTINUE
                           *
                           *      HANDLE SIO CCO HERE
                           *
00138A   91 80 F 004      SIOINT TM   SNSW,X'80'           BR IF SEC SS 00 IS 1 - LOOP SIO
00138E   47 10 F 274             BC   ALL,SIOA01           ,,
001392   D2 07 F 118 D 040       MVC  SIOVR3(8),HCSW(R13)  SAVE CSW
001398   91 20 F 122             TM   SIOSWS,X'20'         BR IF RET TO PROG SW3 ON
00139C   47 10 F 438             BC   ALL,SIOI06           ,,
0013A0   D7 01 F 19F F 19F       XC   STATSV(2),STATSV     CLEAR 2ND STATUS SAVE AREA
0013A6   58 40 F 10C             L    R4,SIOVR9            LOAD TIME CONSTATN IN GR 4
0013AA   46 40 F 3B2      SIOI00 BCT  R4,SIOI01            REPEAT TIO IF GR 4 NOT ZERO
0013AE   47 F0 F 3CC             BC   UNC,SIOI03           CONTINUE - WAITED TOO LONG FOR CCO
0013B2   9D 00 C 000      SIOI01 TIO  0(R12)               TEST I/O
0013B6   47 80 F 3CC             BC   Z,SIOI03             BR IF GOT CCO
0013BA   47 40 F 3C2             BC   CC1,SIOI02           BR IF GOT CC1
0013BE   47 F0 F 3AA             BC   UNC,SIOI00           REPEAT TIO
0013C2   D6 01 F 19F D 044 SIOI02 OC  STATSV(2),HCSW+4(R13) SAVE 2ND STATUS
0013C8   47 F0 F 3AA             BC   UNC,SIOI00           REPEAT TIO
0013CC   91 04 F 122      SIOI03 TM   SIOSWS,X'04'         SEE IF WANT DELAY
0013D0   47 80 F 3EA             BC   NONE,SIOI04          BR IF NO
0013D4   58 40 F 10C             L    R4,SIOVR9            SET UP FOR DELAY
0013D8   9D 00 C 000             TIO  0(R12)               TEST I/O
0013DC   47 B0 F 3E6             BC   CSWNST,*+10          BR ON ANY CC BUT 1
0013E0   D6 01 F 19F D 044       OC   STATSV(2),HCSW+4(R13) SAVE CSW STATUS
0013E6   46 40 F 3D8             BCT  R4,SIOI03+12         BR IF NOT END OF DELAY
0013EA   D2 07 F 1A4 F 118 SIOI04 MVC CSWAG(8),SIOVR3      DEVELOP AGGREGATE CSW
0013F0   D6 01 F 1A8 F 19F       OC   CSWAG+4(2),STATSV    ,,
0013F6   91 0C F 1A8             TM   CSWAG+4,X'0C'        BR IF GOT CE + DE
0013FA   47 10 F 40C             BC   ALL,SIOI05           ,,
0013FE   45 30 F 45A             BAL  R3,SIOI09            GO SET UP PRINTOUT
001402   0A D0                   SVC  X'D0'                DID NOT GET CE AND/OR DE
001404   40                      DC   X'40'                PRINT PROG NO PRIOR TO MESSAGE
                           *                               TREAT AS ERROR
                           *                               DO NOT CHAIN
                           *                               DO NOT RESTORE
001405   36                      DC   X'36'                NO. OF CHAR IN MSG (54)
001406   F1AC                    DC   AL2(SIOMS3-BASE+REG) MESSAGE ADDRESS
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001408   47 F0 F 274             BC   UNC,SIOA01           GO TRY AGAIN
00140C   91 FF F 1A9      SIOI05 TM   CSWAG+5,X'FF'        BR IF GOT ANY CHAN STATUS
001410   47 50 F 44C             BC   ANY,SIOI08           ,,
001414   91 02 F 1A8             TM   CSWAG+4,X'02'        BR IF DID NOT GET UNIT CHECK
001418   47 80 F 438             BC   NONE,SIOI06          ,,
00141C   45 70 F 47E             BAL  R7,SIOF00            GO DO SENSE OP
001420   91 A2 F 120             TM   SENSE,X'A2'          BR IF GOT COMM REJ, BUS OUT PARITY,
001424   47 50 F 43E             BC   ANY,SIOI07           OR INVALID SEQUENCE
001428   96 01 F 122             OI   SIOSWS,X'01'         TURN ON INTERV REQ SW
00142C   91 40 F 120             TM   SENSE,X'40'          BR IF GOT INTERV REQ
001430   47 10 F 438             BC   ALL,SIOI06           ,,
001434   97 01 F 122             XI   SIOSWS,X'01'         TURN OFF INTERV REQ SW
001438   98 19 F 0E4      SIOI06 LM   R1,R9,SIOVR1         RESTORE R1 THRU R9
00143C   07 FB                   BCR  UNC,R11              RETURN TO PROGRAM
00143E   45 30 F 45A      SIOI07 BAL  R3,SIOI09            GO SET UP PRINTOUT
001442   0A D0                   SVC  X'D0'                GOT COMMAND REJ, BUS-OUT PARITY,
                           *                               AND/OR INVALID SEQ WITH CCO
001444   40                      DC   X'40'                PRINT PROG NO. PRIOR TO MESSAGE
                           *                               TREAT AS ERROR
                           *                               DO NOT CHAIN
                           *                               DO NOT RESTORE
001445   3F                      DC   X'3F'                NO. OF CHAR IN MSG (62)
001446   F1AC                    DC   AL2(SIOMS3-BASE+REG) MESSAGE ADDRESS
001448   47 F0 F 274             BC   UNC,SIOA01           GO TRY SIO AGAIN
00144C   45 30 F 45A      SIOI08 BAL  R3,SIOI09            GO SET UP PRINTOUT
001450   0A D0                   SVC  X'D0'                GOT CHANNEL STATUS WITH CCO
001452   40                      DC   X'40'                PRINT PROG NO. PRIOR TO MESSAGE
                           *                               TREAT AS ERROR
                           *                               DO NOT CHAIN
                           *                               DO NOT RESTORE
001453   36                      DC   X'36'                NO. OF CHAR IN MESSAGE (54)
001454   F1AC                    DC   AL2(SIOMS3-BASE+REG) MESSAGE ADDRESS
001456   47 F0 F 274             BC   UNC,SIOA01           GO TRY SIO AGAIN
00145A   D2 02 F 1B5 F 753 SIOI09 MVC SIOMS3+9(3),UAPRT    SET PRINTER ADDR IN OUTPUT MESSAGE
001460   0A DD                   SVC  X'DD'                CONVERT CAW TO EBCDIC
001462   0004                    DC   AL2(4)               NO. OF HEX BYTES IN CAW
001464   0048                    DC   AL2(CAW-SECNO)       HEX DATA ADDR
001466   01BD                    DC   AL2(SIOMS3+17-SECNO) EBCDIC DATA ADDR IN OUTPUT MSG
001468   0A DD                   SVC  X'DD'                CONVERT CSW TO EBCDIC
00146A   0008                    DC   AL2(8)               NO. OF HEX BYTES IN CAW
00146C   01A4                    DC   AL2(CSWAG-SECNO)     HEX DATA ADDR
00146E   01D2                    DC   AL2(SIOMS3+38-SECNO) EBC DATA ADDR IN OUTPUT MSG
001470   0A DD                   SVC  X'DD'                CONVERT SENSE DATA TO EBCDIC
001472   0001                    DC   AL2(1)               NO. OF SENSE BYTES
001474   0120                    DC   AL2(SENSE-SECNO)     HEX DATA ADDR
001476   01E7                    DC   AL2(SIOMS3+59-SECNO) EBCDIC DATA ADDR IN OUTPUT MSG
001478   92 F0 F 1CC             MVI  SIOMS3+32,X'F0'      SET CCO IN OUTPUT MESSAGE
00147C   07 F3                   BCR  UNC,R3               RETURN
         ****************************************************************************
         *           SENSE I/O PERFORMED HERE                                       *
         ****************************************************************************
00147E   D2 02 F 1F3 F 753 SIOF00 MVC SIOMS4+9(3),UAPRT    SET PRINTER ADDR IN OUTPUT MESSAGE
001484   41 00 F 568             LA   R0,SNSCCW            SET UP SENSE CAW
001488   50 00 F 048             ST   R0,CAW               ,,
00148C   D2 00 F 048 F 121       MVC  CAW(1),CAWKEY        ,,
001492   0A DD                   SVC  X'DD'                CONVERT CAW TO PRINTABLE
001494   0004                    DC   AL2(4)               NO OF HEX BYTES IN CAW
001496   0048                    DC   AL2(CAW-SECNO)       HEX DATA ADDRESS
001498   01FB                    DC   AL2(SIOMS4+17-SECNO) PRINTABLE DATA ADDRESS
00149A   D2 03 D 048 F 048 SIOF01 MVC HCAW(4,R13),CAW      LOAD SENSE CAW
0014A0   9C 00 C 000             SIO  0(R12)               SENSE I/O
0014A4   45 00 F 4A8             BAL  R0,*+4               SAVE CONDITION CODE
0014A8   91 80 F 004             TM   SNSW,X'80'           BR IF SEC SS 00 IS 1 - LOOP SIO
0014AC   47 10 F 552             BC   ALL,SIOF08           ,,
0014B0   50 00 F 110             ST   R0,SIOVR7            MOVE CONDITION CODE
0014B4   92 F0 F 20A             MVI  SIOMS4+32,X'F0'      SET CCO IN OUTPUT MESSAGE
0014B8   91 30 F 110             TM   SIOVR7,X'30'         BR IF GOT CCO
0014BC   47 80 F 500             BC   NONE,SIOF03          ,,
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0014C0   92 F3 F 20A              MVI  SIOMS4+32,X'F3'        SET CC3 IN OUTPUT MESSAGE
0014C4   47 10 F 4F6              BC   ALL,SIOF02             BR IF GOT CC3
0014C8   92 F2 F 20A              MVI  SIOMS4+32,X'F2'        SET CC2 IN OUTPUT MESSAGE
0014CC   91 20 F 110              TM   SIOVR7,X'20'           BR IF GOT CC2
0014D0   47 10 F 4F6              BC   ALL,SIOF02             ,,
0014D4   92 F1 F 20A              MVI  SIOMS4+32,X'F1'        SET CC1 IN OUTPUT MESSAGE
0014D8   D2 0A F 210 F 17C        MVC  SIOMS4+38(11),SIOMS2+38  SET UP OUTPUT MESSAGE
0014DE   D2 07 F 220 D 040        MVC  SIOVR8(8),HCSW(R13)    SAVE CSW
0014E4   0A DD                    SVC  X'DD'                  CONVERT CSW STATUS TO PRINTABLE
0014E6   0002                     DC   AL2(2)                 NO. OF STATUS BYTES
0014E8   0224                     DC   AL2(SIOVR8+4-SECNO)    CSW STATUS ADDRESS
0014EA   0217                     DC   AL2(SIOMS4+45-SECNO)   PRINTABLE DATA ADDRESS
0014EC   0A D0                    SVC  X'D0'                  GOT CC1 FOR SENSE
0014EE   40                       DC   X'40'                  ,, ERR MESSAGE
0014EF   31                       DC   X'31'                  ,, 49 CHARACTERS
0014F0   F1EA                     DC   AL2(SIOMS4-BASE+REG)   ,, ADDRESS OF MESSAGE
0014F2   47 F0 F 552              BC   UNC,SIOF08             GO TRY SENSE AGAIN
0014F6   0A D0        SIOF02 SVC  X'D0'                  GOT CC2 OR CC3 FOR SENSE
0014F8   40                       DC   X'40'                  ,, ERROR MESSAGE
0014F9   21                       DC   X'21'                  ,, 33 CHARACTERS
0014FA   F1EA                     DC   AL2(SIOMS4-BASE+REG)   ,, ADDRESS OF MESSAGE
0014FC   47 F0 F 552              BC   UNC,SIOF08             GO TRY SENSE AGAIN
001500   D7 07 F 220 F 220  SIOF03 XC  SIOVR8(8),SIOVR8       CLEAR SENSE CSW SAVE AREA
001506   58 40 E 198              L    R4,408(R0,R14)         GET DM TEN SEC TIME CONSTANT
00150A   9D 00 C 000    SIOF04 TIO  0(R12)                 TEST I/O
00150E   47 40 F 51A              BC   CC1,SIOF05             BR IF CSW STORED
001512   46 40 F 50A              BCT  R4,SIOF04              LOOP TIO FOR MAX OF TEN SEC
001516   47 F0 F 520              BC   UNC,SIOF05+6           CONTINUE
00151A   D6 07 F 220 D 040  SIOF05 OC  SIOVR8(8),HCSW(R13)    SAVE CSW
001520   91 FF F 225              TM   SIOVR8+5,X'FF'         BR IF ANY CHANNEL STATUS
001524   47 50 F 538              BC   ANY,SIOF06             ,,
001528   91 0C F 224              TM   SIOVR8+4,X'0C'         BR IF DID NOT GET CE + DE
00152C   47 C0 F 538              BC   ZNEQ,SIOF06            ,,
001530   91 F3 F 224              TM   SIOVR8+4,X'F3'         BR IF NOT ANY OTHER UNIT STATUS
001534   47 80 F 54A              BC   NONE,SIOF07            ,,
001538   0A DD        SIOF06 SVC  X'DD'                  CONVERT CSW TO PRINTABLE
00153A   0008                     DC   AL2(8)                 ,, NO. OF CSW BYTES TO BE CONVERTED
00153C   0220                     DC   AL2(SIOVR8-SECNO)      ,, SENSE CSW ADDRESS
00153E   0210                     DC   AL2(SIOMS4+38-SECNO)   ,, PRINTABLE DATA ADDRESS
001540   0A D0                    SVC  X'D0'                  GOT CC0 FOR SENSE, BUT WRONG STATUS
001542   40                       DC   X'40'                  ,, ERROR MESSAGE
001543   36                       DC   X'36'                  ,, 54 CHARACTERS
001544   F1EA                     DC   AL2(SIOMS4-BASE+REG)   ,, ADDRESS OF MESSAGE
001546   47 F0 F 552              BC   UNC,SIOF08             GO TRY SENSE AGAIN
00154A   D2 03 F 048 F 114  SIOF07 MVC  CAW(4),SIOVR2          RESTORE ORIGINAL CAW
001550   07 F7                    BCR  UNC,R7                 RETURN
001552   58 40 E 198    SIOF08 L    R4,408(R0,R14)         GET DM TEN SEC TIME CONSTANT
001556   9D 00 C 000              TIO  0(R12)                 TEST I/O
00155A   47 80 F 49A              BC   CC0,SIOF01             REPEAT SENSE IF GOT CC 0
00155E   46 40 F 556              BCT  R4,SIOF08+4            REPEAT TIO FOR TEN SEC MAX
001562   47 F0 F 49A              BC   UNC,SIOF01             GO TRY SENSE AGAIN
***************************************************************
*        CCW-S USED BY SIO ROUTINE                            *
***************************************************************
001568   04 001120 0000 0001  SNSCCW CCW  X'04',SENSE,X'00',1  SENSE CCW
***************************************************************
*      VARIABLES FOR UTILITY ROUTINE - DOUBLE WORD BOUNDARY   *
***************************************************************
001570   00 00157C 0000 0000  SCPCCW CCW  X'00',SCPDAT,X'00',00 UTILITY ROUTINE CCW
***************************************************************
*      VARIABLES FOR UTILITY ROUTINE - WORD BOUNDARY          *
***************************************************************
001578   00000000             SCPRK4 DC   F'00'                 WORK AREA
***************************************************************
*      VARIABLES FOR UTILITY ROUTINE - NO BOUNDARY            *
***************************************************************
00157C   000000000000000000   SCPDAT DC   XL250'0'              SCOPE ROUTINE DATA FIELD
001585   000000000000000000
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```
00158E   0000000000000000000
001597   0000000000000000000
0015A0   0000000000000000000
0015A9   0000000000000000000
0015B2   0000000000000000000
0015BB   0000000000000000000
0015C4   0000000000000000000
0015CD   0000000000000000000
0015D6   0000000000000000000
0015DF   0000000000000000000
0015E8   0000000000000000000
0015F1   0000000000000000000
0015FA   0000000000000000000
001603   0000000000000000000
00160C   0000000000000000000
001615   0000000000000000000
00161E   0000000000000000000
001627   0000000000000000000
001630   0000000000000000000
001639   0000000000000000000
001642   0000000000000000000
00164B   0000000000000000000
001654   0000000000000000000
00165D   0000000000000000000
001666   0000000000000000000
00166F   00000000000000
```

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***********************************************************************
*      UTILITY ROUTINE                                                *
***********************************************************************
001676                        CNOP  0,4
001676   07 00                BCR   0,0
001678   90 9C F 0E4    SCPR00 STM  R9,R12,SIOVR1          SAVE R9 THRU GR12
00167C   0A D0          SCPR10 SVC  X'D0'                  PRESS CONSOLE STOP, ENTER CCW DATA
*                                                          1. ENTER OP IN GR 10 - BYTE 2 -
*                                                          2. ENTER CCW FLAGS IN GR10 -
*                                                             BYTE 3 -
*                                                             BIT 0 - NOT USED
*                                                             BIT 1 - NOT USED
*                                                             BIT 2 - SLI
*                                                             BIT 3 - SKIP
*                                                             BIT 5 - NOT USED
*                                                          3. ENTER DATA FIELD CONTENTS IN
*                                                             GR 11 - BYTES 0 THRU 3 -
*                                                          4. ENTER CCW COUNT IN GR 12
*                                                             -BYTES 0 AND 1-
*                                                          5. ENTER DEVICE ADDRESS IN GR 12
*                                                             -BYTE 2, BITS 5-6-7, AND BYTE 3
*                                                          6. SET SEC SS 00 TO 1 TO LOOP, OR
*                                                             SET TO ZERO FOR 1 PASS-
*                                                          7. PRESS CONSOLE START
*                                                          8. TO EXIT THIS RTN PRESS CONSOLE
*                                                             STOP, SET SEC SS 00 AND 01 TO
*                                                             ZERO, THEN PRESS CONSOLE START
00167E   80                       DC   X'80'                  ,,
00167F   27                       DC   X'27'                  ,, 39 CHARACTERS
001680   F728                     DC   AL2(SCPRK2-BASE+REG)   ,, ADDRESS OF MESSAGE
001682   58 C0 F 720              L    R12,SCPRK3             SET GR 12 TO ONES
001686   55 C0 F 720    SCPR20 CL   R12,SCPRK3             SEE IF GR 12 WAS ALTERED
00168A   47 80 F 6A2              BC   EQ,SCPR40              BR IF NO
00168E   91 40 F 004              TM   SNSW,X'40'             BR IF SEC SS 01 IS 1 - USE UTILITY
001692   47 10 F 6AE              BC   ALL,SCPR50             ,,
001696   98 9C F 0E4    SCPR30 LM   R9,R12,SIOVR1          RESTORE GR 9 THRU GR 12
00169A   D2 03 F 048 F 114        MVC  CAW(4),SIOVR2          RESTORE ORIGINAL CAW
0016A0   07 F8                    BCR  UNC,R8                 RETURN TO PROGRAM
0016A2   91 40 F 004    SCPR40 TM   SNSW,X'40'             BR IF SEC SS 01 IS 1 - USE UTILITY
0016A6   47 10 F 686              BC   ALL,SCPR20             ,,
0016AA   47 F0 F 696              BC   UNC,SCPR30             RETURN TO PROGRAM
0016AE   50 A0 F 578    SCPR50 ST   R10,SCPRK4             SET UP CCW
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0016B2   D2 00 F 570 F 57A        MVC   SCPCCW(1),SCPRK4+2      ,,
0016B8   92 30 F 574              MVI   SCPCCW+4,X'30'         ,,
0016BC   D4 00 F 574 F 57B        NC    SCPCCW+4(1),SCPRK4+3   ,,
0016C2   50 C0 F 578              ST    R12,SCPRK4            ,,
0016C6   D2 01 F 576 F 578        MVC   SCPCCW+6(2),SCPRK4    ,,
0016CC   D5 01 F 578 F 74F        CLC   SCPRK4(2),SCPRKA      CHECK IF CCW COUNT OVER 250
0016D2   47 D0 F 6DC              BC    NHIGH,SCPR51         BR IF NOT
0016D6   D2 01 F 576 F 74F        MVC   SCPCCW+6(2),SCPRKA   FORCE CCW COUNT TO 250
0016DC   50 B0 F 578        SCPR51 ST   R11,SCPRK4           SET UP DATA FIELD
0016E0   D2 03 F 57C F 578        MVC   SCPDAT(4),SCPRK4     ,,
0016E6   D2 F5 F 580 F 57C        MVC   SCPDAT+4(246),SCPDAT ,,
                                *
                                *   START I/O FOR UTILITY ROUTINE
                                *
0016EC   41 90 F 570        SCPR70 LA   R9,SCPCCW            SET UP CAW
0016F0   50 90 F 048              ST    R9,CAW              ,,
0016F4   D2 00 F 048 F 121        MVC   CAW(1),CAWKEY       ,,
0016FA   D2 03 D 048 F 048  SCPR80 MVC  HCAM(4,R13),CAW     LOAD CAW
001700   9C 00 C 000              SIO   0(R12)              START I/O
001704   9D 00 C 000        SCPR90 TIO  0(R12)              TEST I/O
001708   47 70 F 704              BC    NZ,SCPR90           REPEAT TIO IF NOT CCO
00170C   91 80 F 004              TM    SNSW,X'80'          BR IF SEC SS 00 IS 1 - LOOP SIO
001710   47 10 F 6FA              BC    ALL,SCPR80          ,,
001714   91 40 F 004              TM    SNSW,X'40'          BR IF SEC SS 01 IS 1 - USE UTILITY
001718   47 10 F 67C              BC    ALL,SCPR10          ,,
00171C   47 F0 F 696              BC    UNC,SCPR30          RETURN TO PROGRAM
                                ********************************************************************
                                *   CONSTANTS FOR UTILITY ROUTINE - WORD BOUNDARY                *
                                ********************************************************************
001720                            CNOP  0,4
001720   FFFFFFFF           SCPRK3 DC   X'FFFFFFFF'
001724   00000014           SCPRK5 DC   X'00000014'
                                ********************************************************************
                                *   CONSTANTS FOR UTILITY ROUTINE - NO BOUNDARY                  *
                                ********************************************************************
001728   D7D9C5E2E240C3D6D5  SCPRK2 DC  C'PRESS CONSOLE ST'
001731   E2D6D3C540E2E3
001738   D6D7404E40C5D5E3C5        DC    C'OP + ENTER UTILI'
001741   D940E4E3C9D3C9
001748   E3E840C4C1E3C1           DC    C'TY DATA'
00174F   00FA               SCPRKA DC   X'00FA'
                                ********************************************************************
                                *   VARIABLES USED BY OVERLAYS - NO BOUNDARY                     *
                                ********************************************************************
001751   00                 SCHNUM DC   X'00'               ROUTINE SEARCH NO. STORED HERE
001752   00                        DC    X'00'               AREA TO SAVE PRINTABLE PRINTER ADDR
001753   000000             UAPRT  DC   XL3'0'              ,,
001756                             CNOP  0,4
001756   07 00                     BCR   0,0
001758   000007FF           CLRC   DC   X'000007FF'
                                ********************************************************************
                                *   COME HERE IF OPERATOR ABORTS PROGRAM                         *
00175C   92 FF F 751        BREX   MVI  SCHNUM,X'FF'         SET SEARCH NO. FOR BUFFER RESTORE .
001760   0A D6                     SVC   X'D6'               ROUTINE EXIT
                                *
                                ********************************************************************
                                *   OVERLAYS BEGIN HERE                                          *
                                ********************************************************************
         00176C                   ORG   SECNO+1900
                                ********************************************************************
                                *   ROUTINES, VARIABLES, + CONSTANTS USED BY BOTH CONTROL        *
                                *                                    OVERLAY ROUTINES 1 + 2      *
                                ********************************************************************
                                *
                                *       VARIABLE PROGRAM CONSTANTS
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
00176C                     WRAREA DS   153C                 WRITE AREA
001805   00                CESTAT DC   X'00'                CHAN END STATUS
001806   00                DESTAT DC   X'00'                DEV END STATUS
001807   00                AGSTAT DC   X'00'                COMBINED CHAN + DEV END STATUS
001808   00                SNSE   DC   X'00'                SENSE DATA
001809                     CKRDAR DS   133C                 CHECK READ AREA
00188E                     RDAR   DS   153C                 DATA READ AREA
001927   00                CKDATA DC   X'00'                TEMPORARY CK READ DATA STORAGE
001928   00                EXPECT DC   X'00'                AREA TO TEST FOR EXPECTED BIT
001929   00                PROGSW DC   X'00'                PROGRAM SWITCHES
                                *                                ,, BIT 0 - 1ST PRINT PASS
                                *                                ,, BIT 1 - RUN ROUTINE
                                *                                ,, BIT 2 - SKIP LOG OUT OF
                                *                                ,,  ,,    CHECK + DATA READS
         00157C             UCSAR  EQU  SCPDAT               ,, BIT 7, -WRITE C.E. PARITY
         00157C             CMPAR  EQU  SCPDAT               UCB BUFFER LOAD AREA
                                *                                 COMPARE DATA AREA
                                *
                                *           LOGOUT INFORMATION ROUTINE
                                *
00192A   91 40 F 004        EXIT   TM   SNSW,X'40'           IS SCOPE ROUTINE DESIRED
00192E   47 80 F 936               BC   NONE,EXIT1           BRANCH IF NO
001932   45 80 F 678               BAL  R8,SCPROO            GO TO SCOPE ROUTINE
001936   91 20 F 004        EXIT1  TM   SNSW,X'20'           IS LOGOUT OF DATA DESIRED
00193A   47 80 F 9A4               BC   NONE,EXIT2           BRANCH IF NO
00193E   D2 41 F 57C F 76D         MVC  OUTPUT(66),WRAREA+1
001944   45 B0 F 9A6               BAL  R11,GO
001948   D2 41 F 57C F 7AF         MVC  OUTPUT(66),WRAREA+67
00194E   45 B0 F 9A6               BAL  R11,GO
001952   D2 03 F 57C F 805         MVC  OUTPUT(04),CESTAT
001958   0A DD                     SVC  X'DD'
00195A   0004                      DC   AL2(04)
00195C   057C                      DC   AL2(OUTPUT-SECNO)
00195E   057C                      DC   AL2(OUTPUT-SECNO)
001960   91 20 F 929               TM   PROGSW,X'20'         SHOULD READ DATA BE SKIPPED
001964   47 10 F 9CA               BC   ALL,GO2              BRANCH TO SKIP READ DATA
001968   0A D0                     SVC  X'DO'
00196A   A0                        DC   X'A0'
00196B   08                        DC   X'08'
00196C   F57C                      DC   AL2(OUTPUT-BASE+REG)
00196E   D2 41 F 57C F 80A         MVC  OUTPUT(66),CKRDAR+1
001974   45 B0 F 9A6               BAL  R11,GO
001978   D2 41 F 57C F 84C         MVC  OUTPUT(66),CKRDAR+67
00197E   45 B0 F 9A6               BAL  R11,GO
001982   D2 41 F 57C F 88F         MVC  OUTPUT(66),RDAR+1
001988   45 B0 F 9A6               BAL  R11,GO
00198C   D2 41 F 57C F 8D1         MVC  OUTPUT(66),RDAR+67
001992   47 F0 F 9BC               BC   UNC,GO1
001996   0A DA              EXIT1A SVC  X'DA'
001998   91 40 F 004               TM   SNSW,X'40'           IS SCOPE ROUTINE DESIRED
00199C   47 80 F 9A4               BC   NONE,EXIT2           BRANCH IF NO
0019A0   45 80 F 678               BAL  R8,SCPROO            GO TO SCOPE ROUTINE
0019A4   0A D6              EXIT2  SVC  X'D6'                EXIT FROM ROUTINE
                                *
0019A6   0A DD              GO     SVC  X'DD'
0019A8   0042                      DC   AL2(66)
0019AA   057C                      DC   AL2(OUTPUT-SECNO)
0019AC   057C                      DC   AL2(OUTPUT-SECNO)
0019AE   0A D0                     SVC  X'D0'
0019B0   A0                        DC   X'A0'
0019B1   42                        DC   X'42'
0019B2   F57C                      DC   AL2(OUTPUT-BASE+REG)
0019B4   0A D0                     SVC  X'D0'
0019B6   A0                        DC   X'A0'
0019B7   42                        DC   X'42'
0019B8   F 5BE                     DC   S(OUTPUT+66)
0019BA   07 FB                     BCR  UNC,R11
0019BC   45 B0 F 9A6        GO1    BAL  R11,GO
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
0019C0   0A D0                    SVC    X'D0'
0019C2   80                       DC     X'80'
0019C3   01                       DC     X'01'
0019C4   F 126                    DC     S(SIOMS1+3)
0019C6   47 F0 F 996              BC     UNC,EXIT1A
0019CA   0A D0              GO2    SVC    X'D0'
0019CC   80                       DC     X'80'
0019CD   08                       DC     X'08'
0019CE   F57C                     DC     AL2(OUTPUT-BASE+REG)
0019D0   94 DF F 929              NI     PROGSW,X'DF'          RESET SKIP READS LOG OUT SWITCH
0019D4   47 F0 F 996              BC     UNC,EXIT1A
         *
         *          ROUTINE TO CHECK ALL POSITIONS FOR BITS -CHECK READ AREA-
         *
0019D8   18 25              BITCK0 LR     R2,R5                 SET INDEX TO MAXIMUM COUNT
0019DA   43 02 F 809        BITCK1 IC     R0,CKRDAR(2)          GET A CHECK READ CHARACTER
0019DE   42 00 F 927              STC    R0,CKDATA             ,,
0019E2   44 10 F 9F6              EX     R1,EXTM               CHECK FOR REQUIRED BIT
0019E6   47 10 F 9F0              BC     ALL,BITCK2            RETURN TO ROUTINE IF BIT ON
0019EA   46 20 F 9DA              BCT    R2,BITCK1             WERE ALL POSITIONS CHECKED
0019EE   07 FB                    BCR    UNC,R11               RETURN TO PROGRAM-NO BITS FOUND
0019F0   41 BB 0 004        BITCK2 LA     R11,4(R11,0)          ADD 4 TO RETURN ADDRESS
0019F4   07 FB                    BCR    UNC,R11               RETURN TO PROGRAM-BITS FOUND
0019F6   91 00 F 927        EXTM   TM     CKDATA,X'00'          OP TO CHECK FOR BITS -EXECUTE OP-
         *
         *          OPS TO SAVE STATUS AND SENSE INFORMATION
         *
0019FA   D2 00 F 805 F 11C  SAVSTA MVC    CESTAT(1),CSWSAV+4    SAVE CHANNEL END STATUS
001A00   D2 00 F 806 F 19F         MVC    DESTAT(1),STATSV      SAVE DEVICE END STATUS
001A06   D2 00 F 807 F 1A8         MVC    AGSTAT(1),CSWAG+4     SAVE AGGREGATE STATUS
001A0C   D2 00 F 808 F 120         MVC    SNSE(1),SENSE         SAVE SENSE DATA
001A12   07 FB                    BCR    UNC,R11               RETURN TO MAIN ROUTINE
         *
         *          ROUTINES TO DO CHECK READ AND DATA READ
         *
001A14   D7 84 F 809 F 809  READS  XC     CKRDAR(133),CKRDAR    CLEAR CHECK READ AREA
001A1A   41 00 F A58              LA     R0,CRDCCW             LOAD ADDRESS OF CHECK READ CCW
001A1E   50 00 F 048              ST     R0,CAW                ,,
001A22   92 00 F 122              MVI    SIOSWS,X'00'          RESET SIO SWITCHES
001A26   45 B0 F 228              BAL    R11,SIO               GO TO START I/O ROUTINE
         *
001A2A   D7 98 F 88E F 88E  READS2 XC     RDAR(153),RDAR        CLEAR READ AREA
001A30   41 00 F A50              LA     R0,PRRCCW             LOAD ADDRESS OF PRINT READ CCW
001A34   50 00 F 048              ST     R0,CAW                ,,
001A38   92 00 F 122              MVI    SIOSWS,X'00'          RESET SIO SWITCHES
001A3C   45 B0 F 228              BAL    R11,SIO               GO TO START I/O ROUTINE
001A40   07 FA                    BCR    UNC,R10               RETURN TO MAIN ROUTINE
         *
001A48   7B 00188F 6000 0001 ADCCW CCW    X'7B',RDAR+1,X'60',1  ALLOW DATA CHECK CCW
001A50   02 00188F 2000 0098 PRRCCW CCW   X'02',RDAR+1,X'20',152   DATA READ FROM BUFFER, SLI ON
001A58   06 00180A 2000 0084 CRDCCW CCW   X'06',CKRDAR+1,X'20',132 DIAG CHECK READ CCW, SLI ON
         *
         *          ROUTINE PREFIX
         *
         *          ROUTINE 01
001A60                      CNOP   0,4                         FULL WORD ALIGNMENT
001A60   01                 RTN01  DC     XL1'01'               ROUTINE NUMBER
001A61   00                        DC     XL1'0'                FLAGS
001A62   FFFE                      DC     X'FFFE'               ADDRESS OF NEXT ROUTINE
         *
001A64   18 CC              INIT00 SR     R12,R12               CLEAR REGISTER 12
001A66   48 C0 F 0E2              LH     R12,U1ADDR            LOAD PRINTER ADDR IN REG 12
001A6A   91 10 F 0E1              TM     UNIT1+1,X'10'         IS UCS PRINTER DEFINED
001A6E   47 10 F A7A              BC     ALL,INIT05            CONTINUE WITH TEST IF DEFINED
001A72   0A D0                    SVC    X'D0'                 PRINT MESSAGE-TEST BYPASSED
001A74   44                       DC     X'44'                 ,,
001A75   18                       DC     X'18'                 ,,
001A76   FE31                     DC     AL2(BYPASS-BASE+REG)  ,,
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
001A78   0A D5                    SVC    X'D5'                 BYPASS TESTS IF NOT UCS PRINTER
001A7A   1B DD              INIT05 SR     R13,R13               CLEAR REGISTER 13
001A7C   91 40 E 196              TM     406(14),X'40'         LOAD REG 13 WITH THE CONTENTS
001A80   47 80 F A86              BC     NONE,*+6              ,, OF REG 15 IF RUNNING
001A84   18 DF                    LR     R13,R15               ,, IN PROBLEM STATE
001A86   47 80 F A94              BC     NONE,INIT10           BRANCH TO SKIP TITLE PRINTOUT
         *
001A8A   91 02 F 004              TM     SNSW,X'02'            IS TITLE PRINTOUT DESIRED
001A8E   0A D0                    SVC    X'D0'                 PRINT TITLE
001A90   80                       DC     X'80'                 ,,
001A91   20                       DC     X'20'                 ,, 32 CHARACTERS
001A92   FE08                     DC     AL2(TITLE1-BASE+REG)  ,, ADDRESS OF TITLE
         *
001A94   0A D0              INIT10 SVC    X'D0'                 PRINT MESSAGE-WARNING NOT TO USE
001A96   04                       DC     X'04'                 ,,        DEVICE UNDER TEST AS
001A97   2C                       DC     X'2C'                 ,,        THE OUTPUT DEVICE
001A98   FE49                     DC     AL2(WARN-BASE+REG)    ,,
         *
001A9A   1B 00                    SR     R0,R0                 CLEAR REGISTER 0
001A9C   91 10 E 180              TM     384(14),X'10'         IS STORAGE PROTECT ON SYSTEM
001AA0   47 80 F AAA              BC     NONE,INIT20           BRANCH IF NOT
001AA4   09 0F                    ISK    R0,R15                PUT STORAGE KEY IN REG 0
001AA6   42 00 F 121              STC    R0,CAWKEY             SAVE STOR KEY FOR PROGRAM USE
001AAA   0A DD              INIT20 SVC    X'DD'                 CONVERT PRINTER ADDR TO PRINT CHAR
001AAC   0002                     DC     AL2(2)                ,, 2 BYTES
001AAE   00E2                     DC     AL2(U1ADDR-SECNO)     ,, ADDRESS OF PRINTER ADDRESS
001AB0   0752                     DC     AL2(UAPRT-1-SECNO)    ,, ADDRESS OF PLACEMENT
         *
001AB2   41 50 0 084              LA     R5,132(0,0)           SET REG 5 FOR 132 POSITION PRINTER
001AB6   91 04 F 0E1              TM     UNIT1+1,X'04'         IS 120 POSITION PRINTER USED
001ABA   47 80 F AC2              BC     NONE,*+8              BRANCH IF NOT 120 POSITION
001ABE   41 50 0 078              LA     R5,120(0,0)           SET GEN REG 5 FOR 120 POS PRINTER
         *
001AC2   1B 00                    SR     R0,R0                 CLEAR REGISTER 0
001AC4   58 10 E 198              L      R1,408(R0,R14)        SET UP TIMEOUT CONSTANT FOR 100 MS.
001AC8   41 20 0 064              LA     R2,100(0,0)           ,, SET UP DIVISOR
001ACC   1D 02                    DR     R0,R2                 ,, DIVIDE TIMING CONSTANT BY 100
001ACE   50 10 F 10C              ST     R1,SIOVR9             ,, STORE 100 MS CONSTANT FOR USE
         *
001AD2   91 40 F 004              TM     SNSW,X'40'            IS SCOPE ROUTINE DESIRED
001AD6   47 80 F ADE              BC     NONE,UCBA00           BRANCH IF NO
001ADA   45 80 F 678              BAL    R8,SCPR00             GO TO SCOPE ROUTINE
         *
         *          BEGIN CHECKOUT
         *
001ADE   41 00 F A48        UCBA00 LA     R0,ADCCW              LOAD ADDR OF ALLOW DATA CK + RD CCW
001AE2   50 00 F 048              ST     R0,CAW                STORE CCW ADDR IN CAW
001AE6   92 00 F 122              MVI    SIOSWS,X'00'          RESET SIO SWITCHES
001AEA   45 B0 F 228              BAL    R11,SIO               GO TO SIO ROUTINE
         *
001AEE   95 14 F 11F              CLI    CSWSAV+7,X'14'        WAS CSW RESIDUAL COUNT OK
001AF2   47 80 F B00              BC     EQ,UCBA05             BRANCH IF OK
001AF6   0A D0                    SVC    X'D0'                 ERROR MESSAGE-CSW RESIDUAL COUNT ERR
001AF8   44                       DC     X'44'                 ,,
001AF9   07                       DC     X'07'                 ,,
001AFA   FE7C                     DC     AL2(ERR002-BASE+REG)  ,,
001AFC   47 F0 F 92A              BC     UNC,EXIT
         *
         *
001B00   D7 98 F 76C F 76C  UCBA05 XC     WRAREA(153),WRAREA    LOAD WRITE AREA WITH BLANKS
001B06   41 00 F DF0              LA     R0,SHTCCW             LOAD ADDR OF SHORT PRINT WRITE CCW
001B0A   50 00 F 048              ST     R0,CAW                STORE PRINT CCW ADDR IN CAW
001B0E   92 04 F 122        UCBA10 MVI    SIOSWS,X'04'          RESET SIO SWITCHES- WAIT FOR SYNC CK
001B12   45 B0 F 228              BAL    R11,SIO               GO TO START I/O ROUTINE
         *
001B16   45 B0 F 9FA              BAL    R11,SAVSTA            GO SAVE STATUS + SENSE INFO
001B1A   91 01 F 122              TM     SIOSWS,X'01'          IS INTERVENTION REQ SWITCH SET
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```
001B1E   47 80 F B2C              BC    NONE,UCBA17           BRANCH IF OFF
001B22   0A D0          UCBA15 SVC     X'D0'                 ERROR MESSAGE-SYNC CHECK
001B24   44                      DC    X'44'                   ,,
001B25   07                      DC    X'07'                   ,,
001B26   FE75                    DC    AL2(ERR001-BASE+REG)    ,,
001B28   47 F0 F 92A             BC    UNC,EXIT
        *
001B2C   41 00 F DF8    UCBA17 LA      R0,DPRCCW             LOAD ADDRESS OF DIAG PRINT CCW
001B30   50 00 F 048             ST    R0,CAW                 ,,
001B34   92 00 F 122             MVI   SIOSWS,X'00'          RESET SIO SWITCHES
001B38   45 B0 F 228             BAL   R11,SIO               GO TO START I/O ROUTINE
        *
001B3C   D6 00 F 805 F 11C       OC    CESTAT(1),CSWSAV+4    OR CHAN END STATUS WITH PREVIOUS
001B42   95 14 F 11F             CLI   CSWSAV+7,X'14'        IS CSW RESIDUAL COUNT OK
001B46   47 80 F B54             BC    EQ,UCBB00             BRANCH IF OK
001B4A   0A D0          UCBA20 SVC     X'D0'                 ERROR MESSAGE-CSW RESIDUAL COUNT ERR
001B4C   44                      DC    X'44'                   ,,
001B4D   07                      DC    X'07'                   ,,
001B4E   FE7C                    DC    AL2(ERR002-BASE+REG)    ,,
001B50   47 F0 F 92A             BC    UNC,EXIT
        *
001B54   45 B0 F 9FA    UCBB00 BAL     R11,SAVSTA            GO SAVE STATUS + SENSE INFO
001B58   45 A0 F A14             BAL   R10,READS             GO DO CHECK READ + DATA READ
        *
001B5C   91 04 F 808    UCBC00 TM      SNSE,X'04'            WAS UCB PARITY ON WITH WRITE
001B60   47 10 F BE8             BC    ALL,UCBE00            BRANCH IF ON
001B64   91 02 F 805             TM    CESTAT,X'02'          WAS UNIT-CK ON AT CHANNEL-END
001B68   47 80 F B90             BC    NONE,UCBD00           BRANCH IF OFF
001B6C   41 10 0 001             LA    R1,1(0,0)             SET MASK TO LOOK FOR PARITY CK
001B70   45 B0 F 9D8             BAL   R11,BITCK0            GO CHECK IF ANY 7 BITS IN CK RD DATA
001B74   47 F0 F B86             BC    UNC,UCBC50            NO BITS FOUND - BR NO PARITY ERRS
        *
001B78   0A D0          UCBC05 SVC     X'D0'                 ERROR MESSAGE -DATA REGISTER PROBLEM
001B7A   44                      DC    X'44'                  ,, OR PARITY CIRCUITS PROBLEM
001B7B   07                      DC    X'07'                   ,,
001B7C   FE8A                    DC    AL2(ERR004-BASE+REG)    ,,
001B7E   92 83 F 751             MVI   SCHNUM,X'83'          SET UP SEARCH FOR PRINT DAT REG FLT
001B82   47 F0 F 92A             BC    UNC,EXIT
        *
001B86   0A D0          UCBC50 SVC     X'D0'                 ERROR MESSAGE - FALSE UNIT CK
001B88   44                      DC    X'44'                   ,,
001B89   07                      DC    X'07'                   ,,
001B8A   FE91                    DC    AL2(ERR005-BASE+REG)    ,,
001B8C   47 F0 F 92A             BC    UNC,EXIT
        *
001B90   91 02 F 806    UCBD00 TM      DESTAT,X'02'          WAS UNIT-CK ON AT DEVICE-END
001B94   47 80 F BE8             BC    NONE,UCBE00           BRANCH IF OFF
001B98   41 10 0 001             LA    R1,1(0,0)             SET MASK TO LOOK FOR PARITY CK
001B9C   45 B0 F 9D8             BAL   R11,BITCK0            GO CHECK IF ANY 7 BITS IN CK RD DATA
001BA0   47 F0 F BAE             BC    UNC,UCBD20            NO BITS FOUND - BR NO PARITY ERRORS
        *
001BA4   0A D0                   SVC   X'D0'                 ERROR MESSAGE- BUFFER PROBLEM
001BA6   44                      DC    X'44'                   ,,
001BA7   07                      DC    X'07'                   ,,
001BA8   FE98                    DC    AL2(ERR006-BASE+REG)    ,,
001BAA   47 F0 F 92A             BC    UNC,EXIT
        *
001BAE   41 10 0 002    UCBD20 LA      R1,2(0,0)             SET MASK TO LOOK FOR PRINT CKS
001BB2   45 B0 F 9D8             BAL   R11,BITCK0            GO CHECK IF ANY 6 BITS IN CK RD DATA
001BB6   47 F0 F BC4             BC    UNC,UCBD30            NO BITS FOUND - BR NO PRINT CKS
        *
001BBA   0A D0          UCBD25 SVC     X'D0'                 ERROR MESSAGE - FALSE PRINT CHECKS
001BBC   44                      DC    X'44'                  ,,  COULD BE COMPARE
001BBD   07                      DC    X'07'                  ,,  CIRCUITS PROBLEM
001BBE   FE9F                    DC    AL2(ERR007-BASE+REG)    ,,
001BC0   47 F0 F 92A             BC    UNC,EXIT
        *
001BC4   91 10 F 808    UCBD30 TM      SNSE,X'10'            WAS EQUIP CK ON AT DEVICE END
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```
001BC8   47 80 F BD6              BC    NONE,UCBD40           BRANCH IF OFF
001BCC   0A D0          UCBD32 SVC     X'D0'                 ERROR MESSAGE - FALSE EQUIP CK
001BCE   44                      DC    X'44'                   ,,
001BCF   07                      DC    X'07'                   ,,
001BD0   FEA6                    DC    AL2(ERR008-BASE+REG)    ,,
0C1BD2   47 F0 F 92A             BC    UNC,EXIT
        *
001BD6   91 08 F 808    UCBD40 TM      SNSE,X'08'            WAS DATA CK PRESENT AT DEVICE END
001BDA   47 10 F BE8             BC    ALL,UCBE00            BRANCH IF ON
001BDE   0A D0          UCBD50 SVC     X'D0'                 ERROR MESSAGE -FALSE UNIT CHECK
001BE0   44                      DC    X'44'                   ,,
001BE1   07                      DC    X'07'                   ,,
001BE2   FE91                    DC    AL2(ERR005-BASE+REG)    ,,
001BE4   47 F0 F 92A             BC    UNC,EXIT
        *
001BE8   91 04 F 0E1    UCBE00 TM      UNIT1+1,X'04'         IS 120 POSITION PRINTER USED
001BEC   47 10 F BFE             BC    ALL,UCBE10            BRANCH IF 120 POSITION PRINTER
001BF0   D5 83 F 88F F 76D       CLC   RDAR+1(132),WRAREA+1  WAS DATA READ BACK OK-132 POSITIONS
001BF6   47 80 F C68             BC    EQ,UCBF00             BRANCH IF OK
001BFA   47 F0 F C08             BC    UNC,UCBE20
        *
001BFE   D5 77 F 88F F 76D UCBE10 CLC  RDAR+1(120),WRAREA+1  WAS DATA READ BACK OK-120 POSITIONS
001C04   47 80 F C68             BC    EQ,UCBF00             BRANCH IF OK
        *
001C08   D2 00 F 57D F 88F UCBE20 MVC  CMPAR+1(1),RDAR+1     CHECK IF ALL BITS READ THE SAME
001C0E   D2 82 F 57E F 57D       MVC   CMPAR+2(131),CMPAR+1   ,,
001C14   91 04 F 0E1             TM    UNIT1+1,X'04'         IS 120 POSITION PRINTER USED
001C18   47 10 F C2A             BC    ALL,UCBE25             ,, BRANCH IF 120 POSITION
001C1C   D5 83 F 57D F 88F       CLC   CMPAR+1(132),RDAR+1    ,,
001C22   47 80 F C3A             BC    EQ,UCBE50              ,,
001C26   47 F0 F C34             BC    UNC,UCBE30             ,,
        *
001C2A   D5 77 F 57D F 88F UCBE25 CLC  CMPAR+1(120),RDAR+1    ,,
001C30   47 80 F C3A             BC    EQ,UCBE50              ,,
001C34   0A D0          UCBE30 SVC     X'D0'                 ERROR MESSAGE- INTERMITTANT BUSS IN
001C36   44                      DC    X'44'                  ,,          PROBLEM
001C37   07                      DC    X'07'                  ,,
001C38   FEB4                    DC    AL2(ERR010-BASE+REG)    ,,
001C3A   41 05 F 88F    UCBE50 LA      R0,RDAR+1(R5)         SET UP MAXIMUM COUNT
001C3E   41 10 F 88F             LA    R1,RDAR+1             SET UP BEGINNING OF AREA
001C42   91 40 1 000    UCBE52 TM      0(R1),X'40'           CHECK FOR A 1 BIT
001C46   47 80 F C5E             BC    NONE,UCBE60           BRANCH IF NO 1 BIT
001C4A   41 11 0 001             LA    R1,1(R1,0)            UPDATE INDEX 1 BY 1
001C4E   15 01                   CLR   R0,R1                 WERE ALL POSITIONS CHECKED
001C50   47 60 F C42             BC    UNEQ,UCBE52           GO CHECK NEXT POSITION
        *
001C54   0A D0                   SVC   X'D0'                 ERROR MESSAGE - FOLDING PROBLEM
001C56   44                      DC    X'44'                  ,,          OR BUSS IN 1 BIT
001C57   07                      DC    X'07'                  ,,          PROBLEM
001C58   FEBB                    DC    AL2(ERR011-BASE+REG)    ,,
001C5A   47 F0 F 92A             BC    UNC,EXIT
        *
001C5E   0A D0          UCBE60 SVC     X'D0'                 ERROR MESSAGE -BUSS IN PROBLEM
001C60   44                      DC    X'44'                  ,,          PICKED UP BITS
001C61   07                      DC    X'07'                   ,,
001C62   FEC2                    DC    AL2(ERR012-BASE+REG)    ,,
001C64   47 F0 F 92A             BC    UNC,EXIT
        *
001C68   91 08 F 808    UCBF00 TM      SNSE,X'08'            WAS DATA-CK PRESENT
001C6C   47 80 F C7A             BC    NONE,UCBF10           BRANCH IF NO
001C70   0A D0          UCBF05 SVC     X'D0'                 ERROR MESSAGE- FALSE DATA CHECK
001C72   44                      DC    X'44'                   ,,
001C73   07                      DC    X'07'                   ,,
001C74   FEC9                    DC    AL2(ERR013-BASE+REG)    ,,
001C76   47 F0 F 92A             BC    UNC,EXIT
        *
001C7A   41 05 F 80A    UCBF10 LA      R0,CKRDAR+1(R5)       SET UP FOR MAXIMUM COUNT
001C7E   41 10 F 80A             LA    R1,CKRDAR+1           INITIALIZE INDEX 1
```

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```
001C82  91 04 1 000        UCBF15 TM  0(R1),X'04'             CHECK FOR PLC BIT
001C86  47 80 F C98               BC  NONE,UCBF20             BRANCH IF NO PLC BIT
001C8A  41 11 0 001               LA  R1,1(R1,0)              UPDATE INDEX BY 1
001C8E  15 01                     CLR R0,R1                   WERE ALL POSITIONS CHECKED
001C90  47 60 F C82               BC  UNEQ,UCBF15             GO CHECK NEXT POSITION
001C94  47 F0 F CA2               BC  UNC,UCBG00
*
001C98  0A D0              UCBF20 SVC X'D0'                   ERROR MESSAGE- PROBLEM SETTING PLC
001C9A  44                        DC  X'44'                   ,,           WITH BLANKS
001C9B  07                        DC  X'07'                   ,,
001C9C  FED0                      DC  AL2(ERR014-BASE+REG)    ,,
001C9E  47 F0 F 92A               BC  UNC,EXIT
*
001CA2  D7 98 F 76C F 76C  UCBG00 XC  WRAREA(153),WRAREA      CLEAR WRITE DATA AREA
001CA8  41 90 F E28               LA  R9,DATA1                INITIALIZE INDEX 9 TO DATA-FIELD
001CAC  D2 00 F 76D 9 000  UCBG10 MVC WRAREA+1(1),0(9)        SET A DATA BYTE IN WRITE AREA
001CB2  41 00 F E00               LA  R0,PRCCW1               LOAD ADDR OF DIAG WRITE CCW FOR 1
001CB6  50 00 F 048               ST  R0,CAW                  STORE CCW ADDR IN CAW
001CBA  92 00 F 122               MVI SIOSWS,X'00'            RESET SIO SWITCHES
001CBE  45 B0 F 228               BAL R11,SIO                 GO TO START I/O ROUTINE
*
001CC2  45 B0 F 9FA               BAL R11,SAVSTA             GO SAVE STATUS AND SENSE INFO
001CC6  45 A0 F A14               BAL R10,READS              GO DO CHECK READ + DATA READ
*
001CCA  D5 00 F 88F F 76D         CLC RDAR+1(1),WRAREA+1      WAS 1ST BYTE READ AS EXPECTED
001CD0  47 80 F D34               BC  EQ,UCBK00
*
001CD4  95 FF F 76D               CLI WRAREA+1,X'FF'          IS DATA FF BEING CHECKED
001CD8  47 80 F CE4               BC  EQ,UCBG25               BRANCH IF DATA FF
001CDC  95 00 F 88F               CLI RDAR+1,X'00'            WERE NO BITS IN FIRST BYTE
001CE0  47 60 F D1A               BC  UNEQ,UCBH00             BRANCH IF BITS PRESENT
*
001CE4  41 10 0 001        UCBG25 LA  R1,1(0,0)               CHECK FOR PARITY PROBLEMS-SET MASK
001CE8  45 B0 F 9D8               BAL R11,BITCK0               ,, GO CHECK FOR 7 BITS IN CK READ
001CEC  47 F0 F D10               BC  UNC,UCBG50               ,, NO BITS FOUND-BR NO PARITY
*
001CF0  91 02 F 805               TM  CESTAT,X'02'            WAS UNIT CK ON FOR WRITE CHAN-END
001CF4  47 80 F D06               BC  NONE,UCBG40             BRANCH IF NO UNIT CK
001CF8  0A D0                     SVC X'D0'                   ERROR MESSAGE- PRINT DATA-REG PROB
001CFA  44                        DC  X'44'                   ,,          LOST BITS
001CFB  07                        DC  X'07'                   ,,
001CFC  FED7                      DC  AL2(ERR015-BASE+REG)    ,,
001CFE  92 83 F 751               MVI SCHNUM,X'83'            SET UP SEARCH FOR PRINT DAT REG FLT
001D02  47 F0 F 92A               BC  UNC,EXIT
*
001D06  0A D0              UCBG40 SVC X'D0'                   ERROR MESSAGE - PRINT BUFFER PROB.
001D08  44                        DC  X'44'                   ,,          LOST BITS
001D09  07                        DC  X'07'                   ,,
001D0A  FEDE                      DC  AL2(ERR016-BASE+REG)    ,,
001D0C  47 F0 F 92A               BC  UNC,EXIT
*
001D10  0A D0              UCBG50 SVC X'D0'                   ERROR MESSAGE - BUSS IN PROBLEM
001D12  44                        DC  X'44'                   ,,
001D13  07                        DC  X'07'                   ,,
001D14  FEE5                      DC  AL2(ERR017-BASE+REG)    ,,
001D16  47 F0 F 92A               BC  UNC,EXIT
*
001D1A  91 80 F 76D        UCBH00 TM  WRAREA+1,X'80'          IS 0 BIT BEING WRITTEN
001D1E  47 80 F D2A               BC  NONE,UCBH30             BRANCH IF NOT 0 BIT
*
001D22  95 C0 F 88F               CLI RDAR+1,X'C0'            WAS 0 + 1 BIT READ BACK
001D26  47 80 F D44               BC  EQ,UCBK10               BRANCH IF 0 + 1 BIT, FOLDING EXISTS
*
001D2A  0A D0              UCBH30 SVC X'D0'                   ERROR MESSAGE-INTERMITTANT HOT BITS
001D2C  44                        DC  X'44'                   ,,
001D2D  07                        DC  X'07'                   ,,
001D2E  FEEC                      DC  AL2(ERR018-BASE+REG)    ,,
001D30  47 F0 F 92A               BC  UNC,EXIT
```

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```
*
001D34  41 10 0 001        UCBK00 LA  R1,1(0,0)               CHECK FOR PARITY CHECKS-SET MASK
001D38  45 B0 F 9D8               BAL R11,BITCK0               ,, GO CHECK FOR 7 BITS IN CK READ
001D3C  47 F0 F D44               BC  UNC,UCBK10               ,, NO BITS FOUND-BR NO PARITY ERR
001D40  47 F0 F B78               BC  UNC,UCBC05               ,, PARITY ERRORS FOUND
*
001D44  41 99 0 001        UCBK10 LA  R9,1(R9,0)              UPDATE INDEX 9
001D48  41 00 F E31               LA  R0,DATA1+9              SET UP MAXIMUM COUNT
001D4C  15 90                     CLR R9,R0                   WERE ALL BITS CHECKED
001D4E  47 60 F CAC               BC  UNEQ,UCBG10             GO GET NEXT BIT
*
001D52  92 FF F 76D        UCBL00 MVI WRAREA+1,X'FF'          LOAD WRITE AREA WITH ALL BITS
001D56  D2 82 F 76E F 76D         MVC WRAREA+2(131),WRAREA+1  ,,
001D5C  41 00 F DF8               LA  R0,DPRCCW               LOAD ADDRESS OF PRINT WRITE CCW
001D60  50 00 F 048               ST  R0,CAW                  STORE PRINT CCW ADDR IN CAW
001D64  92 00 F 122               MVI SIOSWS,X'00'            RESET START I/O SWITCHES
001D68  45 B0 F 228               BAL R11,SIO                 GO TO START I/O
*
001D6C  45 B0 F 9FA               BAL R11,SAVSTA             GO SAVE STATUS + SENSE DATA
001D70  45 A0 F A14               BAL R10,READS              GO DO CHECK READ + DATA READ
*
001D74  91 04 F 0E1               TM  UNIT1+1,X'04'           IS 120 POSITION PRINTER USED
001D78  47 10 F D8A               BC  ALL,UCBL40              BRANCH IF 120 POSITION PRINTER
001D7C  D5 83 F 76D F 88F         CLC WRAREA+1(132),RDAR+1    WAS DATA READ OK -132 POSITIONS
001D82  47 60 F D94               BC  UNEQ,UCBL50             BRANCH IF NOT OK
001D86  47 F0 F D9E               BC  UNC,UCBL60
*
001D8A  D5 77 F 76D F 88F  UCBL40 CLC WRAREA+1(120),RDAR+1    WAS DATA READ OK -120 POSITIONS
001D90  47 80 F D9E               BC  EQ,UCBL60               BRANCH IF OK
*
001D94  0A D0              UCBL50 SVC X'D0'                   ERROR MESSAGE -PRINT BUFFER PROBLEM
001D96  44                        DC  X'44'                   ,,          ABOVE POSITION 1
001D97  07                        DC  X'07'                   ,,
001D98  FEF3                      DC  AL2(ERR019-BASE+REG)    ,,
001D9A  47 F0 F 92A               BC  UNC,EXIT
*
001D9E  D7 82 F 76E F 76E  UCBL60 XC  WRAREA+2(131),WRAREA+2  CLEAR WRITE DATA AREA
001DA4  41 00 F E00               LA  R0,PRCCW2               LOAD ADDR OF DIAG WRITE CCW- 1 BYTE
001DA8  50 00 F 048               ST  R0,CAW                  STORE CCW ADDRESS IN CAW
001DAC  92 00 F 122               MVI SIOSWS,X'00'            RESET START I/O SWITCHES
001DB0  45 B0 F 228               BAL R11,SIO                 GO TO START I/O ROUTINE
*
001DB4  45 B0 F 9FA               BAL R11,SAVSTA             GO SAVE STATUS + SENSE DATA
001DB8  45 A0 F A14               BAL R10,READS              GO DO CHECK READ + DATA READ
*
001DBC  91 04 F 0E1               TM  UNIT1+1,X'04'           IS 120 POSITION PRINTER USED
001DC0  47 10 F DD2               BC  ALL,UCBL70              BRANCH IF 120 POSITION PRINTER
001DC4  D5 82 F 76E F 890         CLC WRAREA+2(131),RDAR+2    WAS DATA READ OK -132 POSITION
001DCA  47 60 F DE4               BC  UNEQ,UCBL75             BRANCH NOT OK
001DCE  47 F0 F DDC               BC  UNC,UCBL72
*
001DD2  D5 76 F 76E F 890  UCBL70 CLC WRAREA+2(119),RDAR+2    WAS DATA READ OK -120 POSITION
001DD8  47 60 F DE4               BC  UNEQ,UCBL75             BRANCH IF NOT OK
001DDC  92 82 F 751        UCBL72 MVI SCHNUM,X'82'            SET SEARCH NUMBER FOR ROUTINE 2
001DE0  47 F0 F 9A4               BC  UNC,EXIT2
*
001DE4  0A D0              UCBL75 SVC X'D0'                   ERROR MESSAGE -INSERT BLANKS PROBLEM
001DE6  44                        DC  X'44'                   ,,
001DE7  07                        DC  X'07'                   ,,
001DE8  FEFA                      DC  AL2(ERR020-BASE+REG)    ,,
001DEA  47 F0 F 92A               BC  UNC,EXIT
**********************************************************************************
*
*                             CONSTANTS
*                             CCW TABLE
001DEE                        CNOP 0,8                        DOUBLE WORD ALIGNMENT
001DEE  07 00                 BCR  0,0
001DF0  05 00176D 2000 0083  SHTCCW CCW X'05',WRAREA+1,X'20',131 DIAG WRITE,SHORT COUNT,SLI ON
```

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```
001DF8   05 00176D 2000 0098   DPRCCW CCW   X'05',WRAREA+1,X'20',152   DIAG WRITE TO PRINT BUFF, SLI ON
001E00   05 00176D 2000 0001   PRCCW2 CCW   X'05',WRAREA+1,X'20',1     DIAG WRITE TO PRINT BUFF, SLI ON
                               *
001E08   F2F8F2F140E2C3C1D5    TITLE1 DC    C'2821 SCAN/1403 U'        ROUTINE TITLE
001E11   61F1F4F0F340E4
001E18   C3E26B40C3D6D5E3D9           DC    C'CS, CONTROL PROG'  ''
001E21   D6D340D7D9D6C7
001E28   0102040810204080FF    DATA1  DC    X'010204081020 4080FF'     WRITE PRINT BUFFER DATA
001E31   C2E8D7C1E2E2C5C460    BYPASS DC    C'BYPASSED-UCS NOT'
001E3A   E4C3E240D5D6E3
001E41   40C4C5C6C9D5C5C4            DC    C' DEFINED'
001E49   D5D6E3C560C4D640D5    WARN   DC    C'NOTE-DO NOT USE '
001E52   D6E340E4E2C540
001E59   C4C5E5C9C3C540E4D5          DC    C'DEVICE UNDER TES'
001E62   C4C5D940E3C5E2
001E69   E340C6D6D940D6E4E3          DC    C'T FOR OUTPUT'
001E72   D7E4E3

         ****************************************************************************
         *
         *                  ERROR MESSAGES
         *
         *                  ERROR CONDITIONS
         *
001E75   C5D9D940F0F0F1        ERR001 DC    C'ERR 001'     SYNC CHECK- PROBABLE ADV BY 2 PROB.
                                                           OR BAR UNITS ENCODE-
         *                                                 ADV BY 3 PROBLEM.
001E7C   C5D9D940F0F0F2        ERR002 DC    C'ERR 002'     CSW COUNT WRONG - PROBABLE BAR ADV
         *                                                             BY 1 PROBLEM
001E83   C5D9D940F0F0F3        ERR003 DC    C'ERR 003'     ***RESERVED***
001E8A   C5D9D940F0F0F4        ERR004 DC    C'ERR 004'     PRINT BUFFER DATA REGISTER PROBLEM
         *                                                  ,, OR PARITY CIRCUITS PROBLEM
001E91   C5D9D940F0F0F5        ERR005 DC    C'ERR 005'     FALSE UNIT CK - COULD BE HAMMER CK
         *                                                             ON SOLID
001E98   C5D9D940F0F0F6        ERR006 DC    C'ERR 006'     PRINT BUFFER PROBLEM
001E9F   C5D9D940F0F0F7        ERR007 DC    C'ERR 007'     FALSE PRINT CHECKS - COULD BE
         *                                                  ,,      COMPARE CIRCUITS
001EA6   C5D9D940F0F0F8        ERR008 DC    C'ERR 008'     FALSE EQUIPMENT CHECK
001EAD   C5D9D940F0F0F9        ERR009 DC    C'ERR 009'     ***RESERVED***
001EB4   C5D9D940F0F1F0        ERR010 DC    C'ERR 010'     INTERMITTANT BUSS IN PROBLEM
001EBB   C5D9D940F0F1F1        ERR011 DC    C'ERR 011'     FOLDING PROBLEM OR BUSS IN 1 BIT
         *                                                  ,,        PROBLEM
001EC2   C5D9D940F0F1F2        ERR012 DC    C'ERR 012'     PROBLEM WITH BUSS IN CIRCUITS
         *                                                  ,,        PICKED UP BITS
001EC9   C5D9D940F0F1F3        ERR013 DC    C'ERR 013'     FALSE DATA CHECKS
001ED0   C5D9D940F0F1F4        ERR014 DC    C'ERR 014'     PROBLEM SETTING PLC BITS FOR BLANKS
001ED7   C5D9D940F0F1F5        ERR015 DC    C'ERR 015'     PRINT BUFFER DATA-REGISTER PROBLEM
         *                                                  ,, LOST BITS
001EDE   C5D9D940F0F1F6        ERR016 DC    C'ERR 016'     PRINT BUFFER PROBLEM -LOST BITS
001EE5   C5D9D940F0F1F7        ERR017 DC    C'ERR 017'     BUSS IN PROBLEM - LOST BITS
001EEC   C5D9D940F0F1F8        ERR018 DC    C'ERR 018'     INTERMITTANT HOT BITS
001EF3   C5D9D940F0F1F9        ERR019 DC    C'ERR 019'     PRINTER BUFFER PROBLEM ABOVE POS 1
001EFA   C5D9D940F0F2F0        ERR020 DC    C'ERR 020'     PRINTER INSERT BLANKS PROBLEM
         *
         *                  EQUATES
         *
000040                        HCSW   EQU   64            HARDWARE CSW LOCATION
000048                        HCAW   EQU   72            HARDWARE CAW LOCATION
000078                        HION   EQU   120           HARDWARE I/O NEW PSW LOCATION
001118                        CSWSAV EQU   SIOVR3
00157C                        OUTPUT EQU   SCPDAT        OUTPUT AREA EQUALS SCOPE DATA AREA
         *
         *                  GENERAL REGISTER EQUATES
         *
000000                        R0     EQU   0
000001                        R1     EQU   1
000002                        R2     EQU   2
000003                        R3     EQU   3
```

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```
000004        R4     EQU   4
000005        R5     EQU   5
000006        R6     EQU   6
000007        R7     EQU   7
000008        R8     EQU   8
000009        R9     EQU   9
00000A        R10    EQU   10
00000B        R11    EQU   11
00000C        R12    EQU   12
00000D        R13    EQU   13
00000E        R14    EQU   14
00000F        R15    EQU   15
       *
       *                  CONDITION CODE EQUATES
       *
000008        NONE   EQU   8        ALL OFF        0
000005        ANY    EQU   5        ANY ON            1   3
000001        ALL    EQU   1        ALL ON                3
000004        SOME   EQU   4        MIXED             1
000009        NMIXED EQU   9        NOT MIXED      0      3
000008        EQ     EQU   8        EQUAL          0
000006        UNEQ   EQU   6        NOT EQUAL         1 2
000004        LO     EQU   4        LOW               1
000002        HI     EQU   2        HIGH                2
000008        Z      EQU   8        ZERO           0
000002        POS    EQU   2        GREATER ZERO        2
000008        CCO    EQU   8        AVAILABLE      0
000004        CC1    EQU   4        CSW STORED     1
000002        CC2    EQU   2        BUSY                2
00000F        UNC    EQU   15       UNCONDITIONL   0 1 2 3
00000D        NOTBSY EQU   13       NOT BUSY       0 1   3
000007        NZ     EQU   7        NOT CC 0       0 1 2 3
000004        NEG    EQU   4        NOT ZERO -AND-    1
00000C        ZNEG   EQU   12       MIXED OR NONE  0 1
00000B        CSWNST EQU   11       CSW NOT STORED 0   2 3
00000D        NHIGH  EQU   13       NOT HIGH       0 1   3
       *
001000        BASE   EQU   SECNO
00F000        REG    EQU   X'F000'
              END
```

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POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
     1    8    Z     13B6
     1    8    EQ    168A,  1AF2,  1846,  1BF6,  1C04,  1C22,  1C30
                     1CD0,  1CD8,  1D26,  1D90
     2   19A6   GO    1944,  194E,  1974,  197E,  1988,  19BC
     1    2    HI
     1    4    LO
     1    7    NZ    1708
     1    0    RO    1274,  1484,  1488,  14A4,  14B0,  1506,  1552
                     19DA,  19DE,  1A1A,  1A1E,  1A30,  1A34,  1A9A
                     1A9A,  1AA4,  1AA6,  1AC2,  1AC2,  1AC4,  1ACC
                     1ADE,  1AE2,  1B06,  1B0A,  1B2C,  1B30,  1C3A
                     1C4E,  1C7A,  1C8E,  1CB2,  1C86,  1D48,  1D4C
                     1D5C,  1D60,  1DA4,  1DA8
     1    1    R1    1228,  1252,  1256,  1438,  19E2,  1AC4,  1ACE
                     1B6C,  1B98,  1BAE,  1C3E,  1C42,  1C4A,  1C4A
                     1C4E,  1C7E,  1C82,  1C8A,  1C8A,  1C8E,  1CE4
                     1D34
     1    2    R2    19D8,  19EA,  1AC8,  1ACC
     1    3    R3    13FE,  143E,  144C,  147C
     1    4    R4    13A6,  13AA,  13D4,  13E6,  1506,  1512,  1552
                     155E
     1    5    R5    1274,  1280,  19D8,  1AB2,  1ABE,  1C3A,  1C7A
     1    6    R6
     1    7    R7    1362,  141C,  1550
     1    8    R8    16A0,  1932,  19A0,  1ADA
     1    9    R9    1228,  1438,  1678,  1696,  16EC,  16F0,  1CA8
                     1D44,  1D44,  1D4C
     1    1    ALL   125E,  12AC,  12D0,  12D8,  1330,  135A,  1372
                     138E,  139C,  13FA,  1430,  14AC,  14C4,  14D0
                     1692,  16A6,  1710,  1718,  1964,  19E6,  1A6E
                     1B60,  1BDA,  1BEC,  1C18,  1D78,  1DC0
     1    5    ANY   1266,  1304,  133E,  134A,  1410,  1424,  1524
     4   1048   CAW   122C,  1242,  1248,  1292,  1284,  12E0,  1316
                     1464,  1488,  148C,  1496,  149A,  154A,  169A
                     16F0,  16F4,  16FA,  1A1E,  1A34,  1AE2,  1B0A
                     1B30,  1CB6,  1D60,  1DA8
     1    8    CC0   127C,  155A
     1    4    CC1   13BA,  150E
     1    2    CC2
     8   1040   CSW
     4   19BC   GO1   1992
     2   19CA   GO2   1964
     2   100A   ICM
     1    4    NEG
     1    2    POS
     1    A    R10   16AE,  1A40,  1B58,  1CC6,  1D70,  1DB8
     1    B    R11   143C,  16DC,  1944,  194E,  1974,  197E,  1988
                     19BA,  19BC,  19EE,  19F0,  19F0,  19F4,  1A12
                     1A26,  1A3C,  1AEA,  1B12,  1B16,  1B38,  1B54
                     1B70,  1B9C,  1BB2,  1CBE,  1CC2,  1CE8,  1D38
                     1D68,  1D6C,  1DB0,  1DB4
     1    C    R12   123E,  124E,  1278,  13B2,  13D8,  14A0,  150A
                     1556,  1678,  1682,  1686,  1696,  16C2,  1700
                     1704,  1A64,  1A64,  1A66
     1    D    R13   1248,  1300,  131A,  1346,  134E,  1392,  13C2
                     13E0,  149A,  14DE,  151A,  16FA,  1A7A,  1A7A
                     1A84
     1    E    R14   1274,  1506,  1552,  1AC4
     1    F    R15   1A84,  1AA4
     1   F000   REG   129E,  12C6,  12F2,  1338,  137A,  1384,  1406
                     1446,  1454,  14F0,  14FA,  1544,  1680,  196C
```

```
                     19B2,  19CE,  1A76,  1A92,  1A98,  1AFA,  1B26
                     1B4E,  1B7C,  1B8A,  1BA8,  1BBE,  1BD0,  1BE2
                     1C38,  1C58,  1C62,  1C74,  1C9C,  1CFC,  1D0A
                     1D14,  1D2E,  1D98,  1DE8
     4   1228   SIO   1A26,  1A3C,  1AEA,  1B12,  1B38,  1CBE,  1D68
                     1DB0
     1    F    UNC   1284,  12A0,  12C8,  12F4,  1308,  1342,  135E
                     137C,  1386,  13AE,  13BE,  13C8,  1408,  143C
                     1448,  1456,  147C,  14F2,  14FC,  1516,  1546
                     1550,  1562,  16A0,  16AA,  171C,  1992,  19BA
                     19C6,  19D4,  19EE,  19F4,  1A12,  1A40,  1AFC
                     1B28,  1B50,  1B74,  1B82,  1B8C,  1BA0,  1BAA
                     1BB6,  1BC0,  1BD2,  1BE4,  1BFA,  1C26,  1C5A
                     1C64,  1C76,  1C94,  1C9E,  1CEC,  1D02,  1D0C
                     1D16,  1D30,  1D3C,  1D40,  1D86,  1D9A,  1DCE
                     1DE0,  1DEA
     3   1000   BASE  129E,  12C6,  12F2,  1338,  137A,  1384,  1406
                     1446,  1454,  14F0,  14FA,  1544,  1680,  196C
                     19B2,  19CE,  1A76,  1A92,  1A98,  1AFA,  1B26
                     1B4E,  1B7C,  1B8A,  1BA8,  1BBE,  1BD0,  1BE2
                     1C38,  1C58,  1C62,  1C74,  1C9C,  1CFC,  1D0A
                     1D14,  1D2E,  1D98,  1DE8
     4   175C   BREX  105D
     4   1758   CLRC  123E
     4   192A   EXIT  1AFC,  1B28,  1B50,  1B82,  1B8C,  1BAA,  1BC0
                     1BD2,  1BE4,  1C5A,  1C64,  1C76,  1C9E,  1D02
                     1D0C,  1D16,  1D30,  1D9A,  1DEA
     4   19F6   EXTM  19E2
     1    48   HCAW  1248,  149A,  16FA
     1    40   HCSW  1300,  131A,  1346,  134E,  1392,  13C2,  13E0
                     14DE,  151A
     1    78   HION
     1    8    NONE  1270,  12FC,  13D0,  1418,  14BC,  1534,  192E
                     193A,  199C,  1A80,  1A86,  1AA0,  1ABA,  1AD6
                     1B1E,  1B68,  1B94,  1BC8,  1C46,  1C6C,  1C86
                     1CF4,  1D1E
     1   100D   NUTE
     1   188E   RDAR  1982,  198C,  1A2A,  1A2A,  1A48,  1A50,  1BF0
                     1BFE,  1C08,  1C1C,  1C2A,  1C3A,  1C3E,  1CCA
                     1CDC,  1D22,  1D7C,  1D8A,  1DC4,  1DD2
     1   1808   SNSE  1A0C,  1B5C,  1BC4,  1BD6,  1C68
     4   1004   SNSW  126C,  12A8,  12D4,  12F8,  138A,  14A8,  168E
                     16A2,  170C,  1714,  192A,  1936,  1998,  1A8A
                     1AD2
     1    4    SOME  12A4
     1   10E1   U10P
     1    6    UNEQ  1352,  1C50,  1C90,  1CE0,  1D4E,  1D82,  1DCA
                     1DD8
    16   1E49   WARN  1A98
     1    C    ZNEG  152C
     8   1A48   ADCCW  1ADE
   250   157C   CMPAR  1C08,  1C0E,  1C0E,  1C1C,  1C2A
     4   11A4   CSWAG  13EA,  13F0,  13F6,  140C,  1414,  146C,  1A06
     9   1E28   DATA1  1CA8,  1D48
     4   1936   EXIT1  192E
     2   19A4   EXIT2  193A,  199C,  1DE0
     1   100E   FLAG1
     1   100F   FLAG2
     5   1010   INPSW
     1    D    NHIGH  16D2
     6   1A14   READS  1B58,  1CC6,  1D70,  1DB8
     1   1A60   RTNO1  1015
     3   1000   SECNO  1292,  1294,  12B4,  12B6,  12E0,  12E2,  1316
                     1318,  1324,  1326,  136A,  136C,  1464,  1466
                     146C,  146E,  1474,  1476,  1496,  1498,  14E8
                     14EA,  153C,  153E,  1762,  195C,  195E,  19AA
                     19AC,  1AAE,  1AB0,  1F01
     1   1120   SENSE  1238,  1238,  136A,  136E,  1420,  142C,  1474
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
                  1568,  1A0C
       3   1753  UAPRT   1288,  1288,  12E4,  130C,  145A,  147E,  1AB0
     250   157C  UCSAR
       1   10E0  UNIT1   1A6A,  1AB6,  1BE8,  1C14,  1D74,  1DBC
       1   1807  AGSTAT  1A06
       2   19D8  BITCKO  1B70,  189C,  1BB2,  1CE8,  1D38
       4   19DA  BITCK1  19EA
       4   19F0  BITCK2  19E6
      16   1E31  BYPASS  1A76
       1   1121  CAWKEY  1242,  148C,  16F4,  1AA6
       1   1805  CESTAT  1952,  19FA,  1B3C,  1B64,  1CF0
       1   1927  CKDATA  19DE,  19F6
       1   1809  CKRDAR  196E,  1978,  19DA,  1A14,  1A14,  1A58,  1C7A
                  1C7E
       8   1A58  CRDCCW  1A1A
       1      B  CSWNST  13DC
       4   1118  CSWSAV  19FA,  1AEE,  1B3C,  1B42
       1   1806  DESTAT  1A00,  1B90
       8   1DF8  DPRCCW  1B2C,  1D5C
       7   1E75  ERRO01  1B26
       7   1E7C  ERRO02  1AFA,  1B4E
       7   1E83  ERRO03
       7   1E8A  ERRO04  1B7C
       7   1E91  ERRO05  1B8A,  1BE2
       7   1E98  ERRO06  1BA8
       7   1E9F  ERRO07  1BBE
       7   1EA6  ERRO08  1BD0
       7   1EAD  ERRO09
       7   1EB4  ERRO10  1C38
       7   1EBB  ERRO11  1C58
       7   1EC2  ERRO12  1C62
       7   1EC9  ERRO13  1C74
       7   1ED0  ERRO14  1C9C
       7   1ED7  ERRO15  1CFC
       7   1EDE  ERRO16  1D0A
       7   1EE5  ERRO17  1D14
       7   1EEC  ERRO18  1D2E
       7   1EF3  ERRO19  1D98
       7   1EFA  ERRO20  1DE8
       2   1996  EXIT1A  19C6,  19D4
       3   105D  EXNADR
       5   1058  EXNPSW
       8   1018  EXOPSW
       1   1928  EXPECT
       2   1A64  INIT00
       2   1A7A  INIT05  1A6E
       2   1A94  INIT10  1A86
       2   1AAA  INIT20  1AA0
       3   107D  IONADR
       5   1078  IONPSW
       8   1038  IOOPSW
       8   1070  MCNPSW
       8   1030  MCOPSW
       1      9  NMIXED
       1      D  NOTBSY
     250   157C  OUTPUT  193E,  1948,  1952,  195C,  195E,  196C,  196E
                  1978,  1982,  198C,  19AA,  19AC,  19B2,  19B8
                  19CE
       8   1068  PGNPSW
       8   1028  PGOPSW
       8   1E00  PRCCW2  1CB2,  1DA4
       1   1929  PROGSW  1960,  19D0
       8   1A50  PRRCCW  1A30
       6   1A2A  READS2
       4   1080  REGDMP
       6   19FA  SAVSTA  1B16,  1B54,  1CC2,  1D6C,  1DB4
       1   1751  SCHNUM  175C,  1B7E,  1CFE,  1DDC
       8   1570  SCPCCW  16B2,  16B8,  168C,  16C6,  16D6,  16EC
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
     250   157C  SCPDAT  1570,  16E0,  16E6,  16E6,  192A,  192A,  1F01
       4   1678  SCPR00  1932,  19A0,  1ADA
       2   167C  SCPR10  1718
       4   1686  SCPR20  16A6
       4   1696  SCPR30  16AA,  171C
       4   16A2  SCPR40  168A
       4   16AE  SCPR50  1692
       4   16DC  SCPR51  16D2
       4   16EC  SCPR70
       6   16FA  SCPR80  1710
       4   1704  SCPR90  1708
      16   1728  SCPRK2  1680
       4   1720  SCPRK3  1682,  1686
       4   1578  SCPRK4  16AE,  16B2,  16BC,  16C2,  16C6,  16CC,  16DC
                  16E0
       4   1724  SCPRK5
       2   174F  SCPRKA  16CC,  16D6
       8   1DF0  SHTCCH  1B06
       6   1232  SIOA00  127C,  1284,  12AC,  12C8,  1308,  1342
       4   1274  SIOA01  1280,  12A0,  12D8,  12F4,  1304,  133E,  1386
                  138E,  1408,  1448,  1456
       6   1288  SIOA02  1270
       4   12A4  SIOB00  1266
       4   12CC  SIOC00  12A4
       4   12F8  SIODD00  12D0
       6   130C  SIOD02  134A,  1352
       4   133A  SIOD03  137C
       4   1346  SIOD04  12FC
       4   1362  SIOE00  1330
       2   1380  SIOE01  1372
       6   147E  SIOF00  1362,  141C
       6   149A  SIOF01  155A,  1562
       2   14F6  SIOF02  14C4,  14D0
       6   1500  SIOF03  14BC
       4   150A  SIOF04  1512
       6   151A  SIOF05  150E,  1516
       2   1538  SIOF06  1524,  152C
       6   154A  SIOF07  1534
       4   1552  SIOF08  14AC,  14F2,  14FC,  1546,  155E
       4   13AA  SIOI00  13BE,  13C8
       4   13B2  SIOI01  13AA
       6   13C2  SIOI02  135E,  13BA
       4   13CC  SIOI03  13AE,  13B6,  13E6
       6   13EA  SIOI04  13D0
       4   140C  SIOI05  13FA
       4   1438  SIOI06  125E,  135A,  139C,  1418,  1430
       4   143E  SIOI07  1424
       4   144C  SIOI08  1410
       6   145A  SIOI09  13FE,  143E,  144C
       4   138A  SIOINT  107D
      16   1123  SIOMS1  1288,  1294,  1296,  129E,  1286,  12B8,  12BE
                  12C6,  12E2,  12E4,  12EA,  12F2,  19C4
      16   1156  SIOMS2  130C,  1318,  1326,  1328,  1338,  136C,  137A
                  1384,  14D8
      16   11AC  SIOMS3  1406,  1446,  1454,  145A,  1466,  146E,  1476
                  1478
      16   11EA  SIOMS4  147E,  1498,  14B4,  14C0,  14C8,  14D4,  14D8
                  14EA,  14F0,  14FA,  153E,  1544
       1   1122  SIOSWS  125A,  1356,  1398,  13CC,  1428,  1434,  1A22
                  1A38,  1AE6,  1B0E,  1B1A,  1B34,  1CBA,  1D64
                  1DAC
       4   10E4  SIOVR1  1228,  1438,  1678,  1696
       4   1114  SIOVR2  122C,  154A,  169A
       4   1118  SIOVR3  1232,  1232,  131A,  1324,  132C,  133A,  1392
                  13EA,  1F01
       4   1108  SIOVR4  1256,  1262,  12CC
       1   1155  SIOVR6
       4   1110  SIOVR7  14B0,  14B8,  14CC
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 RESIDENT AND CONTROL ROUTINE OVERLAY 1

```
   8    1220 SIOVR8   14DE,  14E8,  1500,  1500,  151A,  1520,  1528
                      1530,  153C
   4    110C SIOVR9   13A6,  13D4,  1ACE
   8    1568 SNSCCW   1484
   2    119F STATSV   13A0,  13A0,  13C2,  13E0,  13F0,  1A00
   8    1060 SVNPSW
   8    1020 SVOPSW
  16    1E08 TITLE1   1A92
   2    10E2 U1ADDR   1A66,  1AAE
   4    1ADE UCBA00   1AD6
   6    1B00 UCBA05   1AF2
   4    1B0E UCBA10
   2    1B22 UCBA15
   4    1B2C UCBA17   1B1E
   2    1B4A UCBA20
   4    1854 UCBB00   1B46
   4    185C UCBC00
   2    1B78 UCBC05   1D40
   2    1B86 UCBC50   1B74
   4    1B90 UCBD00   1868
   4    1BAE UCBD20   1BA0
   4    1BBA UCBD25
   4    1BC4 UCBD30   1BB6
   2    1BCC UCBD32
   4    1BD6 UCBD40   1BC8
   2    1BDE UCBD50
   4    1BE8 UCBE00   1B60,  1B94,  1BDA
   6    1BFE UCBE10   1BEC
   6    1C08 UCBE20   1BFA
   6    1C2A UCBE25   1C18
   2    1C34 UCBE30   1C26
   4    1C3A UCBE50   1C22,  1C30
   4    1C42 UCBE52   1C50
   2    1C5E UCBE60   1C46
   4    1C68 UCBF00   1BF6,  1C04
   2    1C70 UCBF05
   4    1C7A UCBF10   1C6C
   4    1C82 UCBF15   1C90
   2    1C98 UCBF20   1C86
   6    1CA2 UCBG00   1C94
   6    1CAC UCBG10   1D4E
   4    1CE4 UCBG25   1CD8
   2    1D06 UCBG40   1CF4
   2    1D10 UCBG50   1CEC
   4    1D1A UCBH00   1CE0
   2    1D2A UCBH30   1D1E
   4    1D34 UCBK00   1CD0
   4    1D44 UCBK10   1D26,  1D3C
   4    1D52 UCBL00
   6    1D8A UCBL40   1D78
   2    1D94 UCBL50   1D82
   6    1D9E UCBL60   1D86,  1D90
   6    1DD2 UCBL70   1DC0
   4    1DDC UCBL72   1DCE
   2    1DE4 UCBL75   1DCA,  1DD8
   1    176C WRAREA   193E,  1948,  1B00,  1B00,  1BF0,  1BFE,  1CA2
                      1CA2,  1CAC,  1CCA,  1CD4,  1D1A,  1D52,  1D56
                      1D56,  1D7C,  1D8A,  1D9E,  1D9E,  1DC4,  1DD2
                      1DF0,  1DF8,  1E00
   1    1000 XF80C5
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

```
                        80C5    TITLE  F80C5  CONTROL ROUTINE OVERLAY 2
                        XF80C5  START  4096
  001000                        USING  *,15
                        **********************************************************
                        *       RESIDENT LABELS ADDRESSED BY OVERLAYS
                        **********************************************************
  001000       SECNO    EQU    *
  001004       SNSW     EQU    SECNO+4
  001040       CSW      EQU    SECNO+64
  001048       CAW      EQU    SECNO+72
  0010E0       UNIT1    EQU    SECNO+224
  0010E2       U1ADDR   EQU    SECNO+226
  001118       SIOVR3   EQU    SECNO+280
  001108       SIOVR4   EQU    SECNO+264
  00110C       SIOVR9   EQU    SECNO+268
  001122       SIOSWS   EQU    SECNO+290
  00119F       STATSV   EQU    SECNO+415
  0011A4       CSWAG    EQU    SECNO+420
  001121       CAWKEY   EQU    SECNO+289
  001120       SENSE    EQU    SECNO+288
  001228       SIO      EQU    SECNO+552
  00157C       SCPDAT   EQU    SECNO+1404
  001678       SCPR00   EQU    SECNO+1656
  001751       SCHNUM   EQU    SECNO+1873
  001753       UAPRT    EQU    SECNO+1875
                        *
                        **********************************************************
                        * ROUTINE OVERLAY 1 LABELS ADDRESSED BY ROUTINE OVERLAY 2
                        **********************************************************
  00176C       WRAREA   EQU    SECNO+1900     WRITE AREA 153 POSITIONS
  001805       CESTAT   EQU    WRAREA+153     CHAN END STATUS - 1 POSITION
  001806       DESTAT   EQU    WRAREA+154     DEVICE END STATUS - 1 POSITION
  001807       AGSTAT   EQU    WRAREA+155     COMBINED CHAN + DEV END STATUS-1 POS
  001808       SNSE     EQU    WRAREA+156     SENSE DATA - 1 POSITION
  001809       CKRDAR   EQU    WRAREA+157     CHECK READ AREA - 133 POSITIONS
  00188E       RDAR     EQU    WRAREA+290     DATA READ AREA - 153 POSITIONS
  001927       CKDATA   EQU    WRAREA+443     TEMPORARY CK READ DATA STORAGE-1 POS
  001928       EXPECT   EQU    WRAREA+444     AREA TO TEST FOR EXPECTED BIT- 1 POS
  001929       PROGSW   EQU    WRAREA+445     PROGRAM SWITCHES
                        *                     ,, BIT 0 - 1ST PRINT PASS
                        *                     ,, BIT 1 - RUN ROUTINE SWITCH
                        *                     ,, BIT 7 -PARITY AT WRITE CHAN-END
  00157C       UCSAR    EQU    SCPDAT         UCS BUFFER LOAD AREA - 241 POSITIONS
  00157C       CMPAR    EQU    SCPDAT         COMPARE DATA AREA - 133 POSITIONS
  00192A       EXIT     EQU    WRAREA+446
  0019A4       EXIT2    EQU    EXIT+122       SVC D6 EXIT FROM ROUTINE
  0019D8       BITCKO   EQU    EXIT2+52       CHECK BIT ROUTINE
  0019FA       SAVSTA   EQU    BITCK0+34      SAVE STATUS + SENSE DATA
  001A14       READS    EQU    SAVSTA+26      DO CHECK READ + DATA READ
  001A2A       READS2   EQU    READS+22       DO DATA READ
                        *
                        *
  001015                        ORG    SECNO+21       INITIALIZE OVERLAY
  001015  001A8C                 DC     AL3(RTN02)
  001A8C                        ORG    SECNO+2700     START OF CNTRL PROG RTNE OVERLAY 2
                        *
                        *               ROUTINE PREFIX
                        *
                        *               ROUTINE OVERLAY 2
  001A8C                        CNOP   0,4            FULL WORD ALIGNMENT
  001A8C   02            RTN02  DC     XL1'02'        ROUTINE NUMBER
  001A8D   .00                  DC     XL1'00'        FLAGS
  001A8E   FFFE                 DC     XL2'FFFE'      LAST ROUTINE
                        *
                        *       IF HERE, PRINT BUFFER + ASSOCIATED CIRCUITRY O.K.
```

```
                                    *
                                    *   START CHECKOUT OF UCB CIRCUITRY OF PRINTER ICU
                                    *
001A90  91 40 F 929    ENTRY  TM   PROGSW,X'40'        IS RUN ROUTINE SWITCH ON
001A94  47 80 F A9C           BC   NONE,ENTRY1         BRANCH IF OFF
001A98  92 82 F 751           MVI  SCHNUM,X'82'        RESET SEARCH NUMBER TO THIS ROUTINE
001A9C  95 82 F 751    ENTRY1 CLI  SCHNUM,X'82'        IS SEARCH NUMBER FOR THIS ROUTINE
001AA0  47 60 F 9A4           BC   UNEQ,EXIT2          GO SEARCH FOR FLT OVERLAY
001AA4  96 40 F 929           OI   PROGSW,X'40'        TURN RUN ROUTINE SWITCH ON
001AA8  41 50 0 084           LA   R5,132(0,0)         SET REG 5 FOR 132 POSITION PRINTER
001AAC  91 04 F 0E1           TM   UNIT1+1,X'04'       IS 120 POSITION PRINTER USED
001AB0  47 80 F AB8           BC   NONE,*+8            BRANCH IF NOT 120 POSITION PRINTER
001AB4  41 50 0 078           LA   R5,120(0,0)         SET GEN REG 5 FOR 120 POSITION PRINT
                                    *
                                    *
001AB8  D7 81 F 57C F 57C  UCBM00 XC  UCSAR(130),UCSAR    RESET UCB LOAD AREA TO NULL
001ABE  D7 6E F 5FE F 5FE         XC  UCSAR+130(111),UCSAR+130 ,,
001AC4  D2 83 F 76D F 570        MVC  WRAREA+1(132),UCSAR+1    USED FOR LOGOUT OF DATA
001ACA  96 20 F 929              OI   PROGSW,X'20'        SET SW TO IGNORE LOGOUT OF READ DATA
001ACE  41 00 F E30              LA   R0,LDUCS1           LOAD ADDR OF UCB LOAD CCW-NO FOLDING
001AD2  50 00 F 048              ST   R0,CAW              STORE CCW ADDRESS IN CAW
                                                          THIS IS A PRELOAD UCS COMMAND,
                                                          CHAINED TO A UCS LOAD COMMAND
001AD6  92 04 F 122              MVI  SIOSWS,X'04'        RESET SIO SWITCHES- WAIT FOR SYNC CK
001ADA  45 B0 F 228              BAL  R11,SIO             GO TO START I/O ROUTINE
001ADE  45 B0 F 9FA              BAL  R11,SAVSTA          GO SAVE STATUS + SENSE DATA
                                    *
001AE2  95 14 F 11F              CLI  CSWSAV+7,X'14'      IS CSW RESIDUAL COUNT OK
001AE6  47 80 F AF4              BC   EQ,UCBM05           BRANCH IF OK
001AEA  0A D0                    SVC  X'D0'               PRINT MESSAGE - WRONG RESIDUAL COUNT
001AEC  44                       DC   X'44'               ,,
001AED  07                       DC   X'07'               ,,
001AEE  FED0                     DC   AL2(ERRO36-BASE+REG) ,,
001AF0  47 F0 F 92A              BC   UNC,EXIT
                                    *
001AF4  91 01 F 122    UCBM05 TM   SIOSWS,X'01'        IS INTERVENTION REQ SWITCH SET
001AF8  47 80 F B06           BC   NONE,UCBM20         BRANCH IF OFF
001AFC  0A D0          UCBM10 SVC  X'D0'               PRINT MESSAGE - SYNC CHECK
001AFE  44                    DC   X'44'               ,,
001AFF  07                    DC   X'07'               ,,
001B00  FED7                  DC   AL2(ERRO37-BASE+REG) ,,
001B02  47 F0 F 92A           BC   UNC,EXIT
                                    *
001B06  91 02 F 807    UCBM20 TM   AGSTAT,X'02'        WAS UNIT CK STATUS PRESENT
001B0A  47 80 F B46           BC   NONE,UCBN00         BRANCH IF NO UNIT CK
                                    *
001B0E  91 04 F 808           TM   SNSE,X'04'          CHECK FOR UCB PARITY
001B12  47 80 F B24           BC   NONE,UCBM50         BRANCH IF NO UCB PARITY
001B16  0A D0          UCBM30 SVC  X'D0'               ERROR MESSAGE- UCB DATA-REG PROBLEM
001B18  44                    DC   X'44'               ,, OR UCB PARITY CIRCUITS PROBLEM
001B19  07                    DC   X'07'               ,,
001B1A  FE6E                  DC   AL2(ERRO22-BASE+REG) ,,
001B1C  92 84 F 751           MVI  SCHNUM,X'84'        SET UP SEARCH FOR UCB DATA REG FLT
001B20  47 F0 F 92A           BC   UNC,EXIT
                                    *
001B24  91 10 F 808    UCBM50 TM   SNSE,X'10'          WAS EQUIP OK ON
001B28  47 10 F DC8           BC   ALL,UCBR80          GO PRINT -FALSE EQUIP CK
001B2C  91 08 F 808           TM   SNSE,X'08'          WAS DATA CK ON
001B30  47 10 F BFC           BC   ALL,UCBN35          GO PRINT -FALSE DATA CK
001B34  91 40 F 808           TM   SNSE,X'40'          WAS UNUSUAL COMMAND SEQ ON
001B38  47 80 F DEA           BC   NONE,UCBS05         GO PRINT FALSE UNIT CK
001B3C  0A D0          UCBM52 SVC  X'D0'               ERROR MESSAGE-FALSE UNUSUAL COMMAND
001B3E  44                    DC   X'44'               ,,
001B3F  07                    DC   X'07'               ,,
001B40  FE67                  DC   AL2(ERRO21-BASE+REG) ,,
001B42  47 F0 F 92A           BC   UNC,EXIT
                                    *
001B46  41 90 F E60    UCBN00 LA   R9,DATA2            INIT INDEX 9 TO START OF UCS DATA
```

```
001B4A  D2 00 F 57D 9 000  UCBN10 MVC  UCSAR+1(1),0(R9)    SET DATA BYTE IN UCS WRITE AREA
001B50  D2 EE F 57E F 57D         MVC  UCSAR+2(239),UCSAR+1 FILL UCS AREA WITH DATA BYTES
001B56  D2 83 F 76D F 57D         MVC  WRAREA+1(132),UCSAR+1 USED FOR LOG OUT OF DATA
001B5C  96 20 F 929               OI   PROGSW,X'20'        SET SW TO IGNORE LOGOUT OF READ DATA
001B60  41 00 F E30               LA   R0,LDUCS1           LOAD ADDRESS OF UCB LOAD CCW-NO FOLD
001B64  50 00 F 048               ST   R0,CAW              STORE CCW ADDR IN CAW
                                                           THIS IS A PRELOAD UCS COMMAND,
                                                           CHAINED TO A UCS LOAD COMMAND
001B68  92 04 F 122               MVI  SIOSWS,X'04'        RESET SIO SWITCHES-WAIT FOR SYNC OK
001B6C  45 B0 F 228               BAL  R11,SIO             GO TO START I/O ROUTINE
001B70  45 B0 F 9FA               BAL  R11,SAVSTA          GO SAVE STATUS + SENSE DATA
                                    *
001B74  91 01 F 122               TM   SIOSWS,X'01'        IS INTERVENTION REQ SWITCH SET
001B78  47 10 F AFC               BC   ALL,UCBM10          GO TO SYNC CK PRINTOUT
                                    *
001B7C  91 02 F 807               TM   AGSTAT,X'02'        CHECK FOR UNIT CK
001B80  47 80 F B8C               BC   NONE,UCBN20         BRANCH IF NO UNIT CK
001B84  91 04 F 808               TM   SNSE,X'04'          WAS UCS PARITY BIT ON
001B88  47 10 F B16               BC   ALL,UCBM30          GO TO ERROR PRINT -UCB DATA-REG PROB
                                    *
001B8C  94 DF F 929    UCBN20 NI   PROGSW,X'DF'        RESET SKIP READS DATA LOGOUT SW.
001B90  D2 00 F 76D 9 000     MVC  WRAREA+1(1),0(R9)   SET WRITE DATA IN PRINT AREA
001B96  D2 82 F 76E F 76D     MVC  WRAREA+2(131),WRAREA+1 ,,
001B9C  41 00 F E20           LA   R0,DPRCCW           LOAD ADDR OF PRINT WRITE CCW
001BA0  50 00 F 048           ST   R0,CAW              STORE PRINT CCW ADDR IN CAW
001BA4  92 00 F 122           MVI  SIOSWS,X'00'        RESET SIO SWITCHES
001BA8  45 B0 F 228           BAL  R11,SIO             GO TO START I/O ROUTINE
                                    *
001BAC  45 B0 F 9FA           BAL  R11,SAVSTA          GO SAVE STATUS + SENSE DATA
001BB0  45 A0 F A14           BAL  R10,READS           GO DO CHECK READ + DATA READ
                                    *
001BB4  91 02 F 807           TM   AGSTAT,X'02'        CHECK FOR UNIT-CK ON DIAG WRITE
001BB8  47 80 F C1C           BC   NONE,UCBP00         BRANCH IF NO UNIT-CK
                                    *
001BBC  91 04 F 808           TM   SNSE,X'04'          CHECK FOR UCB PARITY CHECK
001BC0  47 80 F BCE           BC   NONE,UCBN30         BRANCH IF NOT UCB PARITY CK
001BC4  0A D0          UCBN25 SVC  X'D0'               ERROR MESSAGE- UCS BUFFER PROBLEM
001BC6  44                    DC   X'44'               ,,
001BC7  07                    DC   X'07'               ,,
001BC8  FE75                  DC   AL2(ERRO23-BASE+REG) ,,
001BCA  47 F0 F 92A           BC   UNC,EXIT
                                    *
001BCE  91 08 F 808    UCBN30 TM   SNSE,X'08'          CHECK FOR DATA-CK
001BD2  47 10 F BFC           BC   ALL,UCBN35          BRANCH IF DATA CK -FALSE-
001BD6  91 02 F 808           TM   SNSE,X'02'          CHECK FOR UNUSUAL COMMAND
001BDA  47 10 F B3C           BC   ALL,UCBM52          BRANCH IF UNUSUAL COMMAND -FALSE-
                                    *
001BDE  91 01 F 808           TM   SNSE,X'01'          CHECK FOR EQUIPMENT CK
001BE2  47 80 F C1C           BC   NONE,UCBP00         BRANCH IF OFF
                                    *
001BE6  41 10 0 002           LA   R1,2(0,0)           CHECK FOR PRINT CHECKS--SET MASK
001BEA  45 B0 F 9D8           BAL  R11,BITCK0          ,, GO CHECK FOR 6 BITS IN CK READ
001BEE  47 F0 F C06           BC   UNC,UCBN40          ,, NO BITS FOUND, BR NO PRINT CK
001BF2  0A D0                 SVC  X'D0'               PRINT MESSAGE - FALSE PRINT CHECK
001BF4  44                    DC   X'44'               ,,
001BF5  07                    DC   X'07'               ,,
001BF6  FEC2                  DC   AL2(ERRO34-BASE+REG) ,,
001BF8  47 F0 F 92A           BC   UNC,EXIT
001BFC  0A D0          UCBN35 SVC  X'D0'               PRINT MESSAGE - FALSE DATA CHECK
001BFE  44                    DC   X'44'               ,,
001BFF  07                    DC   X'07'               ,,
001C00  FEB4                  DC   AL2(ERRO32-BASE+REG) ,,
001C02  47 F0 F 92A           BC   UNC,EXIT
                                    *
001C06  41 10 0 001    UCBN40 LA   R1,1(0,0)           CHECK FOR PARITY CKS-SET MASK
001C0A  45 B0 F 9D8           BAL  R11,BITCK0          ,, GO CHECK FOR 7 BITS IN CK READ
001C0E  47 F0 F DC8           BC   UNC,UCBR80          ,, NO BITS FOUND, BR NO PARITY CK
                                                       ,, GO TO FALSE EQUIP CK MESSAGE
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F80C5 CONTROL ROUTINE OVERLAY 2

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                           *                              RETURN HERE WITH PARITY ERRORS
001C12   0A D0                    SVC   X'D0'              ,, PRINT MESSAGE-INTERMITTANT PRINT
001C14   44                       DC    X'44'             ,,       BUFFER OR PARITY ERRORS
001C15   07                       DC    X'07'             ,,
001C16   FE7C                     DC    AL2(ERRO24-BASE+REG)  ,,
001C18   47 F0 F 92A              BC    UNC,EXIT
                           *
001C1C   41 05 F 80A     UCBP00   LA    R0,CKRDAR+1(R5)    SET UP FOR MAXIMUM COUNT
001C20   41 10 F 80A              LA    R1,CKRDAR+1        INITIALIZE INDEX 1
001C24   91 04 1 000     UCBP05   TM    0(R1),X'04'        CHECK FOR PLC BIT
001C28   47 80 F C3A              BC    NONE,UCBP10        BRANCH IF NO PLC BIT
001C2C   41 11 0 001              LA    R1,1(R1,0)         UPDATE INDEX
001C30   15 01                    CLR   R0,R1              WERE ALL POSITIONS CHECKED
001C32   47 60 F C24              BC    UNEQ,UCBP05        GO CHECK NEXT POSITION
001C36   47 F0 F C44              BC    UNC,UCBP50
                           *
001C3A   0A D0           UCBP10   SVC   X'D0'              PRINT MESSAGE-COMPARE + SET PLC
001C3C   44                       DC    X'44'             ,,          CIRCUITS PROBLEM
001C3D   07                       DC    X'07'             ,,
001C3E   FE83                     DC    AL2(ERRO25-BASE+REG)  ,,
001C40   47 F0 F 92A              BC    UNC,EXIT
                           *
001C44   41 00 F E67     UCBP50   LA    R0,DATA2+7         SET UP MAX ADDRESS
001C48   41 99 0 001              LA    R9,1(R9,0)         UPDATE INDEX 9 BY 1
001C4C   15 09                    CLR   R0,R9              WERE ALL BITS CHECKED
001C4E   47 60 F B4A              BC    UNEQ,UCBN10        GO GET NEXT BITS
                           *
001C52   D7 81 F 57C F 57C  UCBQ00 XC  UCSAR(130),UCSAR    RESET UCS LOAD AREA TO 00
001C58   D7 6E F 5FE F 5FE        XC    UCSAR+130(111),UCSAR+130  ,,
001C5E   D2 83 F 76D F 57D        MVC   WRAREA+1(132),UCSAR+1  USED FOR LOG.OUT OF DATA
001C64   96 20 F 929              OI    PROGSW,X'20'       SET SW TO IGNORE LOGOUT OF READ DATA
001C68   41 00 F E30              LA    R0,LDUCS1          LOAD ADDR OF UCS LOAD CCW
001C6C   50 00 F 048              ST    R0,CAW             STORE CCW ADDR IN CAW
                           *                              THIS IS A PRELOAD UCS COMMAND,
                           *                              CHAINED TO A UCS LOAD COMMAND
001C70   92 00 F 122              MVI   SIOSWS,X'00'       RESET SIO SWITCHES
001C74   45 B0 F 228              BAL   R11,SIO            GO TO START I/O ROUTINE
001C78   45 B0 F 9FA              BAL   R11,SAVSTA         GO SAVE STATUS AND SENSE DATA
                           *
001C7C   91 02 F 807              TM    AGSTAT,X'02'       WAS UNIT-CK ON FROM LOADING UCS
001C80   47 80 F CA0              BC    NONE,UCBR00        BRANCH IF OFF
001C84   91 04 F 808              TM    SNSE,X'04'         WAS UCB PARITY ON
001C88   47 10 F C96              BC    ALL,UCBQ20         BRANCH IF ON
001C8C   0A D0                    SVC   X'D0'              PRINT MESSAGE-UNDEFINED INTERMITTANT
001C8E   44                       DC    X'44'             ,,          ERROR
001C8F   07                       DC    X'07'             ,,
001C90   FE8A                     DC    AL2(ERRO26-BASE+REG)  ,,
001C92   47 F0 F 92A              BC    UNC,EXIT
                           *
001C96   0A D0           UCBQ20   SVC   X'D0'              PRT MSG - UCB PARITY CHECK PROB
001C98   44                       DC    X'44'             ,,
001C99   07                       DC    X'07'             ,,
001C9A   FE91                     DC    AL2(ERRO27-BASE+REG)  ,,
001C9C   47 F0 F 92A              BC    UNC,EXIT
                           *
001CA0   94 DF F 929     UCBR00   NI    PROGSW,X'DF'       RESET SKIP READS DATA LOGOUT SW.
001CA4   92 FF F 76D              MVI   WRAREA+1,X'FF'     SET PRINTER WRITE AREA TO ALL FF
001CA8   D2 82 F 76E F 76D        MVC   WRAREA+2(131),WRAREA+1  ,,
001CAE   41 00 F E20              LA    R0,DPRCCW          LOAD ADDR OF DIAG WRITE CCW
001CB2   50 00 F 048              ST    R0,CAW             STORE CCW ADDR IN CAW
001CB6   92 00 F 122              MVI   SIOSWS,X'00'       RESET SIO SWITCHES
001CBA   45 B0 F 228              BAL   R11,SIO
                           *
001CBE   45 B0 F 9FA              BAL   R11,SAVSTA         GO SAVE STATUS + SENSE DATA
001CC2   45 A0 F A14              BAL   R10,READS          GO DO CHECK READ + DATA READ
                           *
001CC6   91 02 F 807              TM    AGSTAT,X'02'       WAS UNIT-CK ON FROM DIAG WRITE
001CCA   47 80 F CD8              BC    NONE,UCBR20        BRANCH IF OFF
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F80C5 CONTROL ROUTINE OVERLAY 2

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001CCE   0A D0           UCBR10   SVC   X'D0'              PRINT MESSAGE - INTERMITTANT OR
001CD0   44                       DC    X'44'             ,,           FALSE ERRORS
001CD1   07                       DC    X'07'             ,,
001CD2   FE98                     DC    AL2(ERRO28-BASE+REG)  ,,
001CD4   47 F0 F 92A              BC    UNC,EXIT
                           *
001CD8   41 05 F 80A     UCBR20   LA    R0,CKRDAR+1(R5)    SET UP MAX COUNT
001CDC   41 10 F 80A              LA    R1,CKRDAR+1        INIT INDEX TO START OF AREA
001CE0   91 04 1 000     UCBR25   TM    0(R1),X'04'        CHECK FOR PLC BIT
001CE4   47 10 F CF6              BC    ALL,UCBR30         BRANCH IF PLC PRESENT
001CE8   41 11 0 001              LA    R1,1(R1,0)         UPDATE INDEX BY 1
001CEC   15 01                    CLR   R0,R1              WERE ALL POSITIONS CHECKED
001CEE   47 60 F CE0              BC    UNEQ,UCBR25        GO CHECK NEXT POSITION
001CF2   47 F0 F D00              BC    UNC,UCBR40         NO PLC BITS FOUND
                           *
001CF6   0A D0           UCBR30   SVC   X'D0'              PRINT MESSAGE-INSERT UCS BLANKS OR
001CF8   44                       DC    X'44'             ,,          PLC INHIBIT PROBLEM
001CF9   07                       DC    X'07'             ,,
001CFA   FEDE                     DC    AL2(ERRO38-BASE+REG)  ,,
001CFC   47 F0 F 92A              BC    UNC,EXIT
                           *
001D00   41 00 F 66D     UCBR40   LA    R0,UCSAR+241       SET UP MAXIMUM COUNT
001D04   41 20 0 001              LA    R2,1(0,0)          SET CHAR REG TO 01
001D08   41 10 F 57D              LA    R1,UCSAR+1         INITIALIZE INDEX REG 1-LOAD AREA POS
001D0C   42 21 0 000     UCBR50   STC   R2,0(R1)           SET CHARACTER IN BUFFER LOAD AREA
001D10   41 22 0 001              LA    R2,1(R2,0)         CHANGE CHARACTER
001D14   95 40 1 000              CLI   0(R1),X'40'        WAS A BLANK JUST LOADED
001D18   47 80 F D0C              BC    EQ,UCBR50          GO REPLACE BLANK
001D1C   41 11 0 001              LA    R1,1(R1,0)         UPDATE POSITION INDEX BY 1
001D20   15 10                    CLR   R1,R0              IS AREA FULL
001D22   47 60 F D0C              BC    UNEQ,UCBR50        GO SET NEXT CHAR
                           *
001D26   D2 83 F 76D F 57D        MVC   WRAREA+1(132),UCSAR+1  USED FOR LOG OUT DATA
001D2C   96 20 F 929              OI    PROGSW,X'20'       SET SW TO IGNORE LOGOUT OF READ DATA
001D30   41 00 F E30              LA    R0,LDUCS1          LOAD ADDR OF UCB PRELOAD CCW
001D34   50 00 F 048              ST    R0,CAW             STORE CCW ADDRESS IN CAW
                           *                              THIS IS A PRELOAD UCS COMMAND,
                           *                              CHAINED TO A UCS LOAD COMMAND
001D38   92 00 F 122              MVI   SIOSWS,X'00'       RESET SIO SWITCHES
001D3C   45 B0 F 228              BAL   R11,SIO            GO TO START I/O ROUTINE
                           *
001D40   45 B0 F 9FA              BAL   R11,SAVSTA         GO SAVE STATUS + SENSE DATA
001D44   91 02 F 807              TM    AGSTAT,X'02'       WAS UNIT-CK PRESENT
001D48   47 80 F D58              BC    NONE,UCBR55        BRANCH IF NO UNIT CK
001D4C   91 04 F 808              TM    SNSE,X'04'         CHECK FOR UCB PARITY
001D50   47 10 F B16              BC    ALL,UCBM30         BRANCH IF UCB PARITY
001D54   47 F0 F CCE              BC    UNC,UCBR10         BRANCH FOR ERROR MESSAGE
001D58   94 DF F 929     UCBR55   NI    PROGSW,X'DF'       RESET SKIP READS DATA LOGOUT SW.
001D5C   D7 83 F 76D F 76D        XC    WRAREA+1(132),WRAREA+1  CLEAR WRITE AREA
001D62   D2 77 F 76D F 57D        MVC   WRAREA+1(120),UCSAR+1  SET WRITE DATA IN WRITE AREA
001D68   96 80 F 929              OI    PROGSW,X'80'       SET SW. FOR 1ST 120 CHARACTERS
001D6C   41 00 F E40     UCBR60   LA    R0,PRTUCS          LOAD ADDR OF PRINT CCW
001D70   50 00 F 048              ST    R0,CAW             STORE CCW ADDR IN CAW
                           *                              THIS IS A PRELOAD UCS COMMAND,
                           *                              CHAINED TO A PRINT COMMAND.
001D74   92 00 F 122              MVI   SIOSWS,X'00'       RESET SIO SWITCHES
001D78   45 B0 F 228              BAL   R11,SIO            GO TO START I/O ROUTINE
                           *
001D7C   45 B0 F 9FA              BAL   R11,SAVSTA         GO SAVE STATUS + SENSE DATA
001D80   45 A0 F A14              BAL   R10,READS          GO DO CHECK READ + DATA READ
                           *
001D84   91 02 F 807              TM    AGSTAT,X'02'       WAS UNIT-CK ON FOR PRINT
001D88   47 80 F DFE              BC    NONE,UCBT00        BRANCH IF OFF
                           *
001D8C   91 10 F 808              TM    SNSE,X'10'         WAS EQUIP-CK SET
001D90   47 80 F DD2              BC    NONE,UCBS00        BRANCH IF NO
                           *
001D94   41 10 0 001              LA    R1,1(0,0)          CHECK FOR PARITY CKS-SET MASK
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

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001D98  45 80 F 9D8              BAL   R11,BITCKO            ,, GO CHECK FOR 7 BITS IN CK READ
001D9C  47 F0 F DAA              BC    UNC,UCBR70            ,, NO PARITY FOUND RETURN
*
001DA0  0A D0                    SVC   X'D0'                 PARITY BITS FOUND
001DA2  45                       DC    X'45'                 PRINT MESSAGE - INTERMITTANT OR
001DA3  07                       DC    X'07'                 ,,          FALSE PARITY ERRORS
001DA4  FE9F                     DC    AL2(ERR029-BASE+REG)  ,,
001DA6  47 F0 F 92A              BC    UNC,EXIT
*
001DAA  41 10 0 002       UCBR70 LA    R1,2(0,0)             CHECK FOR PRINT CKS-SET MASK
001DAE  45 80 F 9D8              BAL   R11,BITCKO            ,, GO CHECK FOR 6 BITS IN CK READ
001DB2  47 F0 F DC8              BC    UNC,UCBR80            ,, NO PRINT CKS FOUND RETURN
*                                                           ,, GO CHECK FOR UCB PARITY CHECK
*
001DB6  91 04 F 927              TM    CKDATA,X'04'          WAS PLC PRESENT IN PRINT CK POSITION
001DBA  47 80 F C3A              BC    NONE,UCBP10           GO TO COMPARE PROBLEM PRINTOUT
*
001DBE  0A D0                    SVC   X'D0'                 PRINT MESSAGE -HAMMER FIRE PROBLEM
001DC0  44                       DC    X'44'                 ,,
001DC1  07                       DC    X'07'                 ,,
001DC2  FEA6                     DC    AL2(ERR030-BASE+REG)  ,,
001DC4  47 F0 F 92A              BC    UNC,EXIT
*
001DC8  0A D0             UCBR80 SVC   X'D0'                 PRINT MESSAGE - FALSE EQUIP CHECK
001DCA  44                       DC    X'44'                 ,,
001DCB  07                       DC    X'07'                 ,,
001DCC  FEC9                     DC    AL2(ERR035-BASE+REG)  ,,
001DCE  47 F0 F 92A              BC    UNC,EXIT
*
001DD2  91 04 F 808       UCBS00 TM    SNSE,X'04'            WAS UCB PARITY SET ON PRINT
001DD6  47 10 F DF4              BC    ALL,UCBS10            BRANCH IF ON
001DDA  91 08 F 808              TM    SNSE,X'08'            WAS DATA-CK SET ON PRINT
001DDE  47 10 F C3A              BC    ALL,UCBP10            GO TO COMPARE + PLC PROB PRINTOUT
001DE2  91 01 F 808              TM    SNSE,X'01'            WAS CHANNEL 9 DETECTED
001DE6  47 10 F DFE              BC    ALL,UCBT00            BRANCH IF DETECTED
001DEA  0A D0             UCBS05 SVC   X'D0'                 PRINT MESSAGE - FALSE UNIT CHECK
001DEC  44                       DC    X'44'                 ,,
001DED  07                       DC    X'07'                 ,,
001DEE  FEBB                     DC    AL2(ERR033-BASE+REG)  ,,
001DF0  47 F0 F 92A              BC    UNC,EXIT
*
001DF4  0A D0             UCBS10 SVC   X'D0'                 PRINT MESSAGE- BAD CORE POSITION
001DF6  44                       DC    X'44'                 ,,
001DF7  07                       DC    X'07'                 ,,
001DF8  FEAD                     DC    AL2(ERR031-BASE+REG)  ,,
001DFA  47 F0 F 92A              BC    UNC,EXIT
*
001DFE  91 80 F 929       UCBT00 TM    PROGSW,X'80'          IS THIS THE 1ST 120 POSITION PRINT
001E02  47 80 F E14              BC    NONE,OK               BRANCH IF 2ND PASS
001E06  D2 77 F 76D F 5F5        MVC   WRAREA+1(120),UCSAR+121  SET 2ND 120 CHAR IN PRINT AREA
001E0C  94 7F F 929              NI    PROGSW,X'7F'          RESET 1ST PRINT PASS SWITCH
001E10  47 F0 F D6C              BC    UNC,UCBR60            GO PRINT 2ND PASS
*
001E14  0A D0             OK     SVC   X'D0'                 PRINT MESSAGE - NO ERRORS FOUND
001E16  04                       DC    X'04'                 ,,
001E17  0F                       DC    X'0F'                 ,,
001E18  FEE5                     DC    AL2(OKMESS-BASE+REG)  ,,
001E1A  47 F0 F 92A              BC    UNC,EXIT
*
*
*                                CONSTANTS
*                                CCW TABLE
*
                          CNOP  0,8                          DOUBLE WORD ALIGNMENT
001E1E                    BCR   0,0
001E1E  07 00
001E20  05 00176D 2000 0098  DPRCCW CCW X'05',WRAREA+1,X'20',152  DIAG WRITE TO PRINT BUFF, SLI ON
001E28  05 00176D 2000 0001  PRCCW2 CCW X'05',WRAREA+1,X'20',1    DIAG WRITE TO PRINT BUFF, SLI ON
001E30  EB 00157C 6000 0001  LDUCS1 CCW X'EB',UCSAR,X'60',1       PRELOAD UCB,SLI ON,COMMAND CHAIN
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

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001E38  FB 00157D 2000 0104         CCW  X'FB',UCSAR+1,X'20',260  LOAD UCB,NO FOLD,SLI ON,  ,,
*
001E40  EB 00157C 6000 0001  PRTUCS CCW  X'EB',UCSAR,X'60',1      PRELOAD UCB,SLI ON,COMMAND CHAIN
001E48  09 00176D 2000 0078         CCW  X'09',WRAREA+1,X'20',120 NORMAL PRINT,SLI ON    ,,
*
001E50  EB 00157C 6000 0001  LDUCS2 CCW  X'EB',UCSAR,X'60',1      PRELOAD UCB,SLI ON,COMMAND CHAIN
001E58  FB 00157D 2000 0001         CCW  X'FB',UCSAR+1,X'20',1    LOAD UCB,NO FOLD,SLI ON   ,,
*
001E60  C0E0F0F8FCFEFF       DATA2  DC   X'C0E0F0F8FCFEFF'        WRITE UCS BUFFER DATA
*
*                                   ERROR MESSAGES
*
*                                   ERROR CONDITIONS
*
001E67  C5D9D940F0F2F1       ERR021 DC   C'ERR 021'               FALSE UNUSUAL COMMAND SEQUENCE
001E6E  C5D9D940F0F2F2       ERR022 DC   C'ERR 022'               UCS DATA REGISTER PROBLEM
*                                                                 ,, OR UCB PARITY CIRCUITS PROBLEM
001E75  C5D9D940F0F2F3       ERR023 DC   C'ERR 023'               UCS BUFFER PROBLEM
001E7C  C5D9D940F0F2F4       ERR024 DC   C'ERR 024'               INTERMITTANT PRINT BUFFER OR PARITY
*                                                                 ,, ERRORS
001E83  C5D9D940F0F2F5       ERR025 DC   C'ERR 025'               COMPARE PROB + ASSOCIATED SET PLC
*                                                                 ,, CIRCUITS
001E8A  C5D9D940F0F2F6       ERR026 DC   C'ERR 026'               UNDEFINED INTERMITTANT ERROR
001E91  C5D9D940F0F2F7       ERR027 DC   C'ERR 027'               INTERMITTENT UCS DATA REGISTER
*                                                                 ,, PROBLEM OR INTERMITTENT UCB
*                                                                 ,, PARITY CHECK CIRCUITS PROBLEM
001E98  C5D9D940F0F2F8       ERR028 DC   C'ERR 028'               INTERMITTANT OR FALSE ERROR
001E9F  C5D9D940F0F2F9       ERR029 DC   C'ERR 029'               INTERMITTANT OR FALSE PARITY CKS
001EA6  C5D9D940F0F3F0       ERR030 DC   C'ERR 030'               HAMMER FIRE PROBLEM
001EAD  C5D9D940F0F3F1       ERR031 DC   C'ERR 031'               BAD UCS BUFF CORE ABOVE POS 81 OR 89
001EB4  C5D9D940F0F3F2       ERR032 DC   C'ERR 032'               FALSE DATA CHECKS
001EBB  C5D9D940F0F3F3       ERR033 DC   C'ERR 033'               FALSE UNIT CHECK
001EC2  C5D9D940F0F3F4       ERR034 DC   C'ERR 034'               FALSE PRINT CHECK
001EC9  C5D9D940F0F3F5       ERR035 DC   C'ERR 035'               FALSE EQUIPMENT CHECK
001ED0  C5D9D940F0F3F6       ERR036 DC   C'ERR 036'               CSW WRONG COUNT-PROBABLE BAR ADVANCE
*                                                                 PROBLEM - UCB
001ED7  C5D9D940F0F3F7       ERR037 DC   C'ERR 037'               SYNC CHECK- PROBABLE ADV BY 2 PROB.
*                                                                 OR BAR UNITS ENCODE ADV
*                                                                 BY 3 PROBLEM
001EDE  C5D9D940F0F3F8       ERR038 DC   C'ERR 038'               PLC INHIBIT PROBLEM
*
001EE5  D5D640C5D9D9D6D9E2   OKMESS DC   C'NO ERRORS FOUND'
001EEE  40C6D6E4D5C4
*
*                                   EQUATES
*
000040                       HCSW   EQU  64                       HARDWARE CSW LOCATION
000048                       HCAW   EQU  72                       HARDWARE CAW LOCATION
000078                       HION   EQU  120                      HARDWARE I/O NEW PSW LOCATION
001118                       CSWSAV EQU  SIOVR3
00157C                       OUTPUT EQU  SCPDAT                   OUTPUT AREA EQUALS SCOPE DATA AREA
*
*                                   GENERAL REGISTER EQUATES
*
000000                       R0     EQU  0
000001                       R1     EQU  1
000002                       R2     EQU  2
000003                       R3     EQU  3
000004                       R4     EQU  4
000005                       R5     EQU  5
000006                       R6     EQU  6
000007                       R7     EQU  7
000008                       R8     EQU  8
000009                       R9     EQU  9
00000A                       R10    EQU  10
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

```
00000B      R11     EQU     11
00000C      R12     EQU     12
00000D      R13     EQU     13
00000E      R14     EQU     14
00000F      R15     EQU     15
            *
            *                   CONDITION CODE EQUATES
            *
000008      NONE    EQU     8         ALL OFF       0
000005      ANY     EQU     5         ANY ON          1   3
000001      ALL     EQU     1         ALL ON              3
000004      SOME    EQU     4         MIXED         1
000009      NMIXED  EQU     9         NOT MIXED     0     3
000008      EQ      EQU     8         EQUAL         0
000006      UNEQ    EQU     6         NOT EQUAL       1 2
000004      LO      EQU     4         LOW             1
000002      HI      EQU     2         HIGH              2
000008      Z       EQU     8         ZERO          0
000002      POS     EQU     2         GREATER ZERO      2
000008      CC0     EQU     8         AVAILABLE     0
000004      CC1     EQU     4         CSW STORED      1
000002      CC2     EQU     2         BUSY              2
00000F      UNC     EQU     15        UNCONDITIONL  0 1 2 3
00000D      NOTBSY  EQU     13        NOT BUSY      0 1   3
000007      NZ      EQU     7         NOT CC 0        1 2 3
000004      NEG     EQU     4         NOT ZERO -AND-  1
00000C      ZNEG    EQU     12        MIXED OR NONE 0 1
00000B      CSWNST  EQU     11        CSW NOT STORED 0   2 3
00000D      NHIGH   EQU     13        NOT HIGH      0 1   3
001000      BASE    EQU     SECNO
00F000      REG     EQU     X'F000'
                    END
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
1      8      Z
1      8      EQ    1AE6,  1D18
1      2      HI
1      4      LO
1      7      NZ
2      1E14   OK    1E02
1      0      R0    1ACE,  1AD2,  1B60,  1B64,  1B9C,  1BA0,  1C1C
                    1C30,  1C44,  1C4C,  1C68,  1C6C,  1CAE,  1CB2
                    1CD8,  1CEC,  1D00,  1D20,  1D30,  1D34,  1D6C
                    1D70
1      1      R1    1BE6,  1C06,  1C20,  1C24,  1C2C,  1C2C,  1C30
                    1CDC,  1CE0,  1CE8,  1CEC,  1CEC,  1D08,  1D0C
                    1D14,  1D1C,  1D1C,  1D20,  1D94,  1DAA
1      2      R2    1D04,  1D0C,  1D10,  1D10
1      3      R3
1      4      R4
1      5      R5    1AA8,  1AB4,  1C1C,  1CD8
1      6      R6
1      7      R7
1      8      R8
1      9      R9    1B46,  1B4A,  1B90,  1C48,  1C48,  1C4C
1      1      ALL   1B28,  1B30,  1B78,  1B88,  1BD2,  1BDA,  1C88
                    1CE4,  1D50,  1DD6,  1DDE,  1DE6
1      5      ANY
1      1048   CAW   1AD2,  1B64,  1BA0,  1C6C,  1CB2,  1D34,  1D70
1      8      CC0
1      4      CC1
1      2      CC2
1      1040   CSW
1      4      NEG
1      2      POS
1      A      R10   1BB0,  1CC2,  1D80
1      B      R11   1ADA,  1ADE,  1B6C,  1B70,  1BA8,  1BAC,  1BEA
                    1C0A,  1C74,  1C78,  1CBA,  1CBE,  1D3C,  1D40
                    1D78,  1D7C,  1D98,  1DAE
1      C      R12
1      D      R13
1      E      R14
1      F      R15
1      F000   REG   1AEE,  1B00,  1B1A,  1B40,  1BC8,  1BF6,  1C00
                    1C16,  1C3E,  1C90,  1C9A,  1CD2,  1CFA,  1DA4
                    1DC2,  1DCC,  1DEE,  1DF8,  1E18
1      1228   SIO   1ADA,  1B6C,  1BA8,  1C74,  1CBA,  1D3C,  1D78
1      F      UNC   1AF0,  1B02,  1B20,  1B42,  1BCA,  1BEE,  1BF8
                    1C02,  1C0E,  1C18,  1C36,  1C40,  1C92,  1C9C
                    1CD4,  1CF2,  1CFC,  1D54,  1D9C,  1DA6,  1DB2
                    1DC4,  1DCE,  1DF0,  1DFA,  1E10,  1E1A
1      1000   BASE  1AEE,  1B00,  1B1A,  1B40,  1BC8,  1BF6,  1C00
                    1C16,  1C3E,  1C90,  1C9A,  1CD2,  1CFA,  1DA4
                    1DC2,  1DCC,  1DEE,  1DF8,  1E18
1      192A   EXIT  1000,  1AF0,  1B02,  1B20,  1B42,  1BCA,  1BF8
                    1C02,  1C18,  1C40,  1C92,  1C9C,  1CD4,  1CFC
                    1DA6,  1DC4,  1DCE,  1DF0,  1DFA,  1E1A
1      48     HCAW
1      40     HCSW
1      78     HION
1      8      NONE  1A94,  1AB0,  1AF8,  1B0A,  1B12,  1B38,  1B80
                    1BB8,  1BC0,  1BE2,  1C28,  1C80,  1CCA,  1D48
                    1D88,  1D90,  1DBA,  1E02
1      188E   RDAR
1      1808   SNSE  1B0E,  1B24,  1B2C,  1B34,  1B84,  1BBC,  1BCE
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

			References
			1BD6, 1BDE, 1C84, 1D4C, 1D8C, 1DD2, 1DDA
			1DE2
1	1004	SNSW	
1	4	SOME	
1	6	UNEQ	1AA0, 1C32, 1C4E, 1CEE, 1D22
1	C	ZNEG	
1	157C	CMPAR	
1	11A4	CSWAG	
7	1E60	DATA2	1B46, 1C44
4	1A90	ENTRY	
1	19A4	EXIT2	1000, 1AA0
1	D	NHIGH	
1	1A14	READS	1000, 1B80, 1CC2, 1D80
1	1A8C	RTNO2	1015
1	1000	SECNO	1000, 1000, 1000, 1000, 1000, 1000, 1000
			1000, 1000, 1000, 1000, 1000, 1000, 1000
			1000, 1000, 1000, 1000, 1000, 1000, 1018
			1EF4
1	1120	SENSE	
1	1753	UAPRT	
1	157C	UCSAR	1AB8, 1AB8, 1ABE, 1ABE, 1AC4, 1B4A, 1850
			1850, 1B56, 1C52, 1C52, 1C58, 1C58, 1C5E
			1D00, 1D08, 1D26, 1D62, 1E06, 1E30, 1E38
			1E40, 1E50, 1E58
1	10E0	UNIT1	1AAC
1	1807	AGSTAT	1B06, 1B7C, 1BB4, 1C7C, 1CC6, 1D44, 1D84
1	19D8	BITCKO	1000, 1BEA, 1C0A, 1D98, 1DAE
1	1121	CAWKEY	
1	1805	CESTAT	
1	1927	CKDATA	1DB6
1	1809	CKRDAR	1C1C, 1C20, 1CD8, 1CDC
1	B	CSWNST	
1	1118	CSWSAV	1AE2
1	1806	DESTAT	
8	1E20	DPRCCW	1B9C, 1CAE
4	1A9C	ENTRY1	1A94
7	1E67	ERRO21	1B40
7	1E6E	ERRO22	1B1A
7	1E75	ERRO23	1BC8
7	1E7C	ERRO24	1C16
7	1E83	ERRO25	1C3E
7	1E8A	ERRO26	1C90
7	1E91	ERRO27	1C9A
7	1E98	ERRO28	1CD2
7	1E9F	ERRO29	1DA4
7	1EA6	ERRO30	1DC2
7	1EAD	ERRO31	1DF8
7	1EB4	ERRO32	1C00
7	1EBB	ERRO33	1DEE
7	1EC2	ERRO34	1BF6
7	1EC9	ERRO35	1DCC
7	1ED0	ERRO36	1AEE
7	1ED7	ERRO37	1B00
7	1EDE	ERRO38	1CFA
1	1928	EXPECT	
8	1E30	LDUCS1	1ACE, 1B60, 1C68, 1D30
8	1E50	LDUCS2	
1	9	NMIXED	
1	D	NOTBSY	
15	1EE5	OKMESS	1E18
1	157C	OUTPUT	
8	1E28	PRCCW2	
1	1929	PROGSW	1A90, 1AA4, 1ACA, 1B5C, 1B8C, 1C64, 1CAO
			1D2C, 1D58, 1D68, 1DFE, 1E0C
8	1E40	PRTUCS	1D6C
1	1A2A	READS2	
1	19FA	SAVSTA	1000, 1ADE, 1B70, 1BAC, 1C78, 1CBE, 1D40
			1D7C

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80C5 CONTROL ROUTINE OVERLAY 2

			References
1	1751	SCHNUM	1A98, 1A9C, 1B1C
1	157C	SCPDAT	1000, 1000, 1EF4
1	1678	SCPR00	
1	1122	SIOSWS	1AD6, 1AF4, 1868, 1874, 1BA4, 1C70, 1CB6
			1D38, 1D74
1	1118	SIOVR3	1EF4
1	1108	SIOVR4	
1	110C	SIOVR9	
1	119F	STATSV	
1	10E2	U1ADDR	
6	1AB8	UCBM00	
4	1AF4	UCBM05	1AE6
2	1AFC	UCBM10	1B78
4	1B06	UCBM20	1AF8
2	1B16	UCBM30	1B88, 1D50
4	1B24	UCBM50	1B12
2	1B3C	UCBM52	1BDA
4	1B46	UCBN00	1B0A
6	1B4A	UCBN10	1C4E
4	1B8C	UCBN20	1B80
2	1BC4	UCBN25	
4	1BCE	UCBN30	1BC0
2	1BFC	UCBN35	1B30, 1BD2
4	1C06	UCBN40	1BEE
4	1C1C	UCBP00	1BB8, 1BE2
4	1C24	UCBP05	1C32
2	1C3A	UCBP10	1C28, 1DBA, 1DDE
4	1C44	UCBP50	1C36
6	1C52	UCBQ00	
2	1C96	UCBQ20	1C88
4	1CA0	UCBR00	1C80
2	1CCE	UCBR10	1D54
4	1CD8	UCBR20	1CCA
4	1CE0	UCBR25	1CEE
2	1CF6	UCBR30	1CE4
4	1D00	UCBR40	1CF2
4	1D0C	UCBR50	1D18, 1D22
4	1D58	UCBR55	1D48
4	1D6C	UCBR60	1E10
4	1DAA	UCBR70	1D9C
2	1DC8	UCBR80	1B28, 1C0E, 1DB2
4	1DD2	UCBS00	1D90
2	1DEA	UCBS05	1B38
2	1DF4	UCBS10	1DD6
4	1DFE	UCBT00	1D88, 1DE6
1	176C	WRAREA	1000, 1000, 1000, 1000, 1000, 1000, 1000
			1000, 1000, 1000, 1AC4, 1B56, 1890, 1B96
			1B96, 1C5E, 1CA4, 1CA8, 1CA8, 1B26, 1D5C
			1D5C, 1D62, 1E06, 1E20, 1E28, 1E48
1	1000	XF80C5	

NO ERROR DETECTED IN ABOVE ASSEMBLY

F80C 2821 SCAN 1403 UCS OVERLAY 1 + 2

PERIODS CORRESPOND TO BLANK COLUMNS.

COLS. 1 THROUGH 20	COLS. 21 THROUGH 40	COLS. 41 THROUGH 60	COLS. 61 THROUGH 80
BESD......AA..AAXF80 9 YQ Y9 99 9	C5..AAAA.AGA........ YYQY Y89 9999 99	840	224.125655..80C50001
BTXT.AAA..A8..AA8D+A 9 YQY Y9 Y9 8 Y 999 9 9 9 9	AAAAAAAAAAAAAADAAGAK- YYYYYYYYYYYYYYYYYYYYY 999999999 9 99999	AAAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50002 YYYYYYYYYYYY 999999999999
BTXT.AA8..A8..AAAAAA 9 YQ9 Y9 Y9YYYY 99 9 9 9999	AAAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAADAAGAPMAAAA YYYYYYYY99Y8Y98YYYY 99999999 9999 9999	AAAAAAAAAAAA80C50003 YYYYYYYYYYYY 999999999999
BTXT.AAO..AA..AAAAAA 9 YQ+ YQ Y9YYYY 99- 9 9 9999	AAAAADAAGALB......... YYYY99Y8Y9Y 9999 9999	....	............80C50004
BTXT.AAS..A8..AACAAA 9 YQ8 Y9 Y90YYY 99 9 9 9 9	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50005 YYYYYYYYYYYY 999999999999
BTXT.AJQ..A8..AAAAAA 9 Y99 Y9 Y9YYYY 9 9 9999	AAAAAAAI/O.ADDR.XXX. YYYYYYYY 9999999	CAW.XXXXXXXX.GOT.CCO 	.BUT.NO.INTE80C50006
BTXT.AJ+..A8..AARRUP 9 Y9 Y9 Y9 9	TAI/O.ADDR.XXX.CAW.X Y 9	XXXXXXX.GOT.CC1.CSW. 	STATUS.XXXX.80C50007
BTXT.AJH..A8..AASNS. 9 Y90 Y9 Y9 9 9 9	XX.MAKE.PRINTER.RDYA Y 9	AAAAAAAAAAAI/O.ADDR YYYYYYYYYYYY 999999999999	.XXX.CAW.XXX80C50008
BTXT.AJO..A8..AAXXXX 9 Y9+ Y9 Y9 9 9 9	X.GOT.CCO.CSW.XXXXXX 	XXXXXXXXXX.SNS.XX.I/ 	O.ADDR.XXX.C80C50009
BTXT.AJ8..A8..AAAW.X 9 Y9 Y9 Y9 9 9 9	XXXXXXX.GOT.CCO.CSW. 	XXXXXXXXXXXXXXXXAAAA YYYY 9999	AAAAAJOUKC1M80C50010 YYYYQ8 9 9 9999 9
BTXT.AKA..A8..AAOHPG 9 Y9Q Y9 Y9 Z 9 9 Z 9 9	1Q1QPA1J1JDO7HKAOH1/ 9 9 Y Y YR+ R Y Z 9 999 9	KCOHOHDAOAEA2F+A1HAA 9-Z ZQY+YZQ R Q 9-Y 999 9	1SGA48AA1HG+80C50011 9ZQ 9-Q 9Z 9 Z
BTXT.AKQ..A8..AA2MBQ 9 Y9Z Y9 Y9 08 9 9 9	AAODGA2HH+JHEAOAGA22 -Y 9ZY OR Z-QY+YZY 9 9 9	F+2HGO22KB1U7CBEADAH Z RZ 9 9 8 R8QY9YZ 0 9 999 9	A4B01CB0.21T80C50012 99- Z8- 9 9 9
BTXT.AKJ..A8..AAGO2D 9 Y9Y Y9 Y9Z R 9 9 9 0	G.2DAAODGA22BEADAHA4 Z Y-Y 9ZQ 98QY9YZ99 9 9 9 999 9	KB1U7CB31CB0./1TG022 9 8 R- Z8- 9 9Z 9 9 9	AA1HGA28AA0D80C50013 -Q 9ZQ .-Y 9 9 9
BTXT.AKQ..A8..AAGA2D 9 Y9 Y9 Y9ZQ R 9 9 9 9 0	BEADAHA4KB1U7CB21CB0 8QY9YZ99 9 8 R- Z8- 999 9 9 9	./1TGO2DAAODGA3FAGOE 9 9Z R-Y 9ZY Z-Q-Z 0 Z	G+2DGO22KB1P80C50014 Z RZ 9 9 8 0
BTXT.ALA..A8..AA7CBE 9 Y9Q Y9 Y9 R8Q 999 9 9 99	ADAHAPKG1QO.BEABAMAC Y9YZ9Z 9 9- 8QY99890 9 9 999 9	B11FAB1MGA3KB0.11FAG - R-9 8ZQ Z8- 9 R-Q 0 999 Z	1NG+2DGO22AG80C50015 8Z RZ 9-Q 9 0 Z
BTXT.ALH..A8..AAOEG+ 9 Y9Z Y9 Y9-ZZ 9 9 9 9	3DEDODG-3DA.1SGA48GO 8-8-ZZ 8- 9ZQ 9Z 9 9 9 9	3BE046BEAAAJADA.1JGA Z+ 88QY99Y9Y- YZQ - 999 9 9 9	3AB0.81FGO3280C50016 Y8- 9 RZ 8 9 9

BTXT.ALA..A8..AABO.A 9 Y9Y Y9 Y98- 8 9 9 99	1FGO2DAAODGA2DKG1QO. RZ R-Y 9ZQ R 9 9- 0 9 0	AJ1SGA48PA1G1GH.1DF. -Y 9ZQ 9 9 Q QR 8Z 9 9 9	3BGO3DEAOAGA80C50017 OZ YQY+YZY - 999
BTXT.ALH..A8..AA3DG. 9 Y90 Y9 Y9 YZ 9- 9 9	3BGO3KOA1GODGO3KAD1S Z Y 9 Q-ZZ Y-9 9 9- 9 9 9	GA3KH.1DEAOAGA3WOA1G ZY YR 8QY+YZQ 9 Q 9 9990	ODF-3QKG1M1Q80C50018 -ZZ 9 0 9
BTXT.ALO..A8..AAOA1Q 9 Y9 Y9 Y9 9 0 9 9	1GAD1QGA4DEA4KB0.61M Q-8 0ZQ 8ZQ 88- 9 Y 9 99Z 9	GO2DAG1RG+4DAB1QGA48 Z R-Q OZ 8-9 0ZY 9 0 Z	E046AK1JG+4680C50019 Z+ 8-0 YZ 8 9 8
BTXT.AMY..A8..AAFA1S 9 Y9 Y9 Y9-9 9 9	A.1JGA48GA1SHJOUGCEA - YZQ 9-9 9-8 9QZQ 99 9 ZZ	4KB0.71MGO2DEA4KB0.6 88- 8 YZ RZQ 88- 9 9 9 0 Z 9	1MGO2DKB1E7C80C50020 YZ R 9 O R 0 -
BTXT.AM-..A8..AABEAD 9 Y9Y Y9 Y98QY9 9 9 9 999	AHAEBEAHAMAKBEAAAJAX YZ9Q8OY9909 8QY99Y9 9 0999 999 9	B01DG3KB137CAA5Q+AOH - Y9 9 RZY Z Y Z 9 9 9	KAOH1/BEADAH80C50021 Y Z 98QY9YZ 9 999 9
BTXT.AMH..A8..AAACKC 9 Y9- Y9 Y9ZQ 9 9 9 Z	OHOHDAOAEA4QAAODGA5B -Z ZQY+YZY O-Y 9ZQ R 999 9	+A1AB02BAA1AGA5AB32B Y Q- 8-Q QZY Y- 8 99 9Z9 9 9	GA46B22BAJ1A80C50022 ZQ - 8-Y Q 9 9 9
BTXT.AMO..A8..AAGA46 9 Y9- Y9 Y9ZQ 9 9 9	B12BKB2A14KG2JO.BEAB - 8 8 Q 8 9 Y- 8QY9 99998- 9 YZ R8- 9 Y	BUBPB0.11KGO5BB0./1K 99998- 9 YZ R8- 9 Y 9 9	GO5BPG2J2JH.80C50023 Z R 9 Y YR 9 9
BTXT.ANH..A8..AAJHEA 9 Y99 Y9 Y9Z-QY 9 9 9	OAG.5KF.5BGO5JOG2JO. +YZ 8Z 8Z Y 9 Y- 9 9	AG2VG+58AD2UGO58A32U -Q 9Z 9-8 9Z+ 9- 9 Z 9	GA58BEAHBJBA80C50024 ZY 88QY99Y9Q 999 9
BTXT.AN-..A8..AABO.6 9 Y9 Y9 Y98- 9 9 9 9	1KGO5BKCOH1MG7H.JHEA YZ R 9 Z 99 R Z-QY 9 9	OAGA4BF.5FGO4BAADAJJ +YZY QZ RZ QYY9Y9Y 9 9	AAAAAAAN4AAA80C50025 YYYY9YY98YYYY 999 99 9999
BTXT.ANH..A8..AAAAAA 9 Y9R Y9 Y9YYYY 9 0 9 9 9999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50026 YYYYYYYYYYYY 999999999999
BTXT.ANA..A8..AAAAAA 9 Y9Q Y9 Y9YYYY 9 0 9 9 9999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50027 YYYYYYYYYYYY 999999999999
BTXT.ANY..A8..AAAAAA 9 Y9 Y9 Y9YYYY 9 9 9 9999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50028 YYYYYYYYYYYY 999999999999
BTXT.ADJ..A8..AAAAAA 9 Y9Y Y9 Y9YYYY 9 9 9 9 9999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA80C50029 YYYYYYYYYYYY 999999999999
BTXT.AOH..A8..AAAAAA 9 Y9R Y9 Y9YYYY 9 9 9 9999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAGAADOUBOAX7YHO YYYYYY9YQQ 8-Y9 9R+ 999999 9 9	7JE07JGA6KA.80C50030 YR+ YZY 0- 9 9
BTXT.AOA..A8..AAODGA 9 Y9Q Y9 Y9 9ZQ 9 9 9	60HD0UKCOH1MG8A.ODGA Y-Q 9 Z 99 - 9ZQ 9	6FGO6F+J5HKA5052BA5D OZ - Y R Y + 8-Q R 09 - Z 0	MA5D53+05HKA80C50031 Y R 8 + R 9 9 0 0
BTXT.AOH..A8..AA5F5H 9 Y9 Y9 Y9 R R 9 9 9 00	NA5H7GGO6DKA5F7G+A5H 9 R 8Z- Q 9 R 8 Q R 0 9 0 0	KC545HK55A54AA50+AOH 9 8 R Y 8ZQ + Q Z 0 -	KAOH1/KCOHOH80C50032 Y Z 9 9-Z Z 9
BTXT.APA..A8..AADAOA 9 Y9Y Y9 Y9QY+Y 9 9 9 999	EAOAGO7DAAODGA6BA.OD QY+YZ+ 9-Y 9ZQ Q- 9 9 9- 9 Z	GA64GO6FGGGGAAAMPRES ZQ 8Z -QQQQYYY9 9 ZZZZ999	S.CONSOLE.ST80C50033

F80C 2821 SCAN 1403 UCS OVERLAY 1 + 2

```
BTXT.AP8..AS..AAOP.F   .ENTER.UTILITY.DATAA   BAAAAAGAAAGGBG7ABO..   ............80C50034
9   Y99  Y8  Y9  8                     Y     QYYYYY9YYY9Q-Q R8
    9   99  9                                Z99999 999 Z Z  9              9

BTXT.AQE..AD..AAAAAA   ...................   ...................   ............80C50035
9   Y99  Y9  Y9YYYY
    9   9   9 9999

BTXT.AJX..A8..AAAAAA   .ODGA96EA6HAJODGA9MK   A547VEA9OKA547PEA9OK   C548EBEADE4E80C50036
9   Y89  Y9  Y9YYY-     9ZY 9ZY R-Y 9ZY 0     Z 8 8ZQ 0 Z 8 YZQ 0   9 8 98QY9989
    99  9   9 999                   0              0      0                 999

BTXT.AJP..A8..AA4AJ9   /GA9BBOJH54KA548BEA9   OKA548DEA9OKA548GEA9   QKA548JGO9D880C50037
9   Y88  Y9  Y98-Y      8ZQ Y8-Y9 8 Z 8 8ZQ   0 Z 8 8ZQ 0 Z 8 YZQ   0 Z 8  Z  Q8
    99  9   9 99         9 999        9 0                                   09

BTXT.AJG..A8..AABA.O   DGA9MEA6HBOBEABE4E4B   OJB54BOJB5FGCEA9OBOA   A1WGO9FBOAH580C50038
9   Y8-  Y9  Y9Q-      9ZY OZY R8 8QYZ98988   -YZ 88-YZ 9QZQ 08-Y    9 9Z  -8-Y9
    99  9   9            09 999         9 0   0 Z  0 9            9

BTXT.AJG..A8..AA4DG9   /GO9FQVCB8ABA9XDA96G   A90FJ9BGCACADGCAA9XK   ABE1MKA8F1GK80C50039
9   Y8Y  Y9  Y98-Q      8Z  -99Z9 8ZY 9ZQ  Z   Q  ZY Q9QZQY99Q-Y 9   Y 98 Y 9 Q
    99  9   9           9         9  9   9 9   9 999 09 Z9   9       9 9

BTXT.AKG..A8..AAA8G1   QKA8H1JGCPD8A8AAABH+   AOHBA1SEA2YPH8F8FAAB   ++AOHBA1SEA280C50040
9   Y89  Y9  Y9Y 9      0 Y 9 Y9Q 0 8 8ZYQR   Y Z-Y 9ZQ 9 - Y YZYQ   Y Z-Y 9ZQ
    99  9   9  9 9Z  9 9 9Z    9 9       9 9  0 9            9Z       9 9 0

BTXT.AK7..A8..AAYGBA   AAAAA3AQG-AAABAQGJAA   HFAQBJAADAAGFLDHOOSA   AOJGAB2BODQF80C50041
9   Y88  Y9  Y999QY     YYYYY8Y9Y YY99Y9YYYY   -9Y98YYYO9YQQ8YZ+ -   Q ZZQQ88-99Q
    999  9    Z9       99999 9  99 9  999      9 9999 9ZZ99         9  9Z 9   Z

BTXT.AKG..A8..AA1BNL   EA.JFGABFQGGABDABODB   OAJFHBODUFALAAAJAGAB   KAGBA1/BEABA80C50042
9   Y8R  Y9  Y998 8     Q- Z-ZYQO9QZYQ--9 98   -YYQ98-98Q88Y-QZYZYQ   Y88ZY 98QY9Y
    990  9   9  9         9    Z 9Z    9       9Z 9  9Z 999      Z    99 9  999 9

BTXT.AKP..A8..AASGBA   +ADADOJGABBA+AHLAHAJ   HAJAMNB+A1DA.ODGABFE   A6HAABH+AOHB80C50043
9   Y8Y  Y9  Y9 9RZ     YO-9 ZZYQ Z YR8YRQZ   -ZYYZ89 Q 8- 9ZYQQZ    Y RZYQZ Y Z-
    99  9   9           .9      Z  9099 9      99 99   Z9       Z9      0 9Z 9

BTXT.AKX..A8..AAA1SE   A2YEM1PGACABODGF4GO9   SPH7U7UAAEO+AOHBD1SE   A2YEA9BAA1SG80C50044
9   Y8   Y9  Y9Y 9Z     Q 9-9 8ZYQY8-Z9Q8Z   8 - 8 8ZYQ  Y Z-9 9Z    Q 9ZQ Q-9 9Z
    99  9   9  9         0  9  Z99  Z          9      9Z 9              0  0 Z

BTXT.ALP..A8..AAACUB   ODGFEGO9SAAE8+AOHBA1   SEA2YGA8E1MEM1PGACDB   ODGF4GO9SEA980C50045
9   Y88  Y9  Y9YQ88    -Z9QRZ  8ZYQ  Y Z-Y   9ZQ 9 Y 9 8-9 8ZYQR8   -Z9Q8Z  8ZQ
    999  9   9 Z99      ZO   9 9Z  9  9         0   9 9  9  Z         Z   9 0

BTXT.ALG..A8..AABEJB   MAD8HGACYAB8EGACAAAA   AEA9QGOCFBODGFBBC7AG   09SBODGFAGO980C50046
9   Y8R  Y9  Y9QZYQ     9-9 9ZQQ -9 9ZYQQZQY   9ZQ Z Q08-Z9QY-O RZ   88-Z9Q-Z
    99  9   9 Z Z          9Z        Z  99     0    Z 9     Z         99  Z

BTXT.ALG..A8..AASAB8   FGACYAAAAEA9QGOCOBOD   GFHGO9SAAABEA9QGOCDB   ODGFGGO9SAA880C50047
9   Y8Y  Y9  Y98-9      9ZYQ ZQY9ZQ  Z QY8-Z   9Q-Z  9 99 0   Z Q 8   -Z9QQZ  8-Q
    99  9   9 9         Z  99 0   Z 9   Z       9       0         Z      9  9

BTXT.ALG..A8..AAHGAC   OBODGFOGO9SAH8HGACYB   ODGFAGO9SADOJGACFNC8   G7VGADQGODHN80C50048
9   Y8   Y9  Y99ZYQ     8-Z9QQZ  8-9 9ZQQ 8   -Z9Q-Z  8-9 ZZQQQ 0    Y 8ZYQZZ Q9
    99  9    9  Z             9Z  9   9Z 9      9        9ZZ                9

BTXT.ALG..A8..AAG8G7   VGADQKA558GKB5655ADO   JGADSNC558GGAD2GOD4N   G558GGAD2BOD80C50049
9   Y8Q  Y9  Y9R Y      8ZYQZ Y 8 Y 0 8 8-9   ZZQQ8 0 8 YZYQ8Z Q9   R 8 YZYQ88-Z
    99Z  9   9 0         9Z9      Z 9 9         9Z9       0    Z 9    0     Z9Q

BTXT.AM7..A8..AAGFDA   E8GAA8GA.AAGADOAJAAN   AG-DBBODGFCGO9SBODGF   8GO9SAH8HGAD80C50050
9   Y89  Y9  Y99QQZ     9 YZQ Y- QYZYQ8Z9Y99   9Z QZ8-Z9QQZ 88-Z9Q   Z 8-9 9ZYQ
    99  9   9 Z-         9      99 Z  9         Z 9 ZO  99   Z         9     Z
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F80C 2821 SCAN 1403 UCS OVERLAY 1 + 2

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BTXT.AMX..A8..AA2BOD   GFIGO9SAE8BAA8BADAAG   ADHAJAANAG-DBGODKBOD   GFOGO9SPH7U780C50051
9   Y88  Y9  Y988-Z     9Q Z 8Z9 8ZQ 8-9QYZ   YQ-Z9Y999Z QOZ Q08-Z   9Q-Z 8 - 8
    99  9   9            Z  9  9 999 99         Z 9  Z Z 9              Z  9

BTXT.AMP..A8..AAUAAF   YKA7VAAAAFA+AOHBA1SE   A2YEA9BEJBMNA8G7VGAE   4EG7VGADUEA880C50052
9   Y80  Y9  Y98ZQQ    9 Y 8QYZYQY Y Z-Y 9Z   Q 9ZQ QZYQ9 Y Y 8ZYQ   9-Q 8ZYQ -Y
    99  9   9 Z         9    9 9Z9 9           0   0 ZZ 9   Z           Z   Z 9

BTXT.AMG..A8..AAGG-E   KAAAAEA9QGOEAAB8EGAE   FBODGFPBC7AGO9SBODGF   FGO9SBODGFVG80C50053
9   Y8Q  Y9  Y9YZ Q     8ZQY9ZQ  Z QQ-9 9ZYQ   98-Z9Q -0 RZ  88-Z9Q   QZ  88-Z9Q Z
    999  9   9           9 99 0   Z9       Z     9 Z        99  Z       9   99  Z

BTXT.ANP..A8..AAO9SA   A7VGAESEO8GGAEDBODGF   MGO9SAAAAEA9QGOEDGOC   HAIAAAAF1NAG80C50054
9   Y89  Y9  Y9 8-     Y 8ZYQ8-+ YZYQZ8-Z9Q   YZ  8ZQY9ZQ  Z QZZ Q   RZ-Y9ZYQ99QZ
    99  9   9           Z   Z9 Z                9 999 0   Z  Z          0 9 9Z

BTXT.ANG..A8..AA-DMB   G7VKB7W7VAAE8+AOHBA1   SEA2YEA9BEJBMADOJGAE   BNC7V8GG-EDG80C50055
9   Y88  Y9  Y9 QY-    Q 8 0 8 8ZYQ  Y Z-Y    9ZQ 9ZQ QZYQ9-9 ZZQQ    Y 0 8 YZ Q-Z
    99  9   9 Z         Z    9Z 9             9  0 ZZ    9Z              Z

BTXT.ANG..A8..AAOEFN   G7V8GGAEFBODGF3GO9SP   B7W7WAAFA+AOHBA1SEA2   YEA9BEJBMAD080C50056
9   Y80  Y9  Y9 QQ     R 8 YZYQQ8-Z9Q Z  8    0 8 8ZYQY Y Z-Y 9ZQ     9ZQ QZYQ9-9
    99  9   9 Z         0    Z9  Z             9Z9  9  9               0 Z Z

BTXT.ANG..A8..AAJGAE   KNB7W8AG-EUGOEDNF7W8   AG-EUBB7AGO9MBODGFBG   O9SGAEAPVJAA80C50057
9   Y8Q  Y9  Y9ZZQQ    0 8 QZ Q Z QQ R 8      QZ Q -0 RZ  08-Z9QQZ    89Y9Y98YYY
    990  9    Z         Z Z9 0                  Z      9 ZZ             9 9 9  999

BTXT.AN7..A8..AACEAP   VJAAHEAPVJAAA2821.SC   AN/1403.UCST.CONTROL   .PROGABDHAJ.80C50058
9   Y8   Y9  Y909Y9    8YYY-9Y98YYY9                            8      9999QY
    99  9   9           999 9 999                                        99

BTXT.AOX..A8..AAAGBY   PASSED-UCS.NOT.DEFIN   EDNOTE-DO.NOT.USE.DE   VICE.UNDER.T80C50059
9   Y88  Y9  Y9YQ
    999  9   9 Z

BTXT.AOP..A8..AAEST.   FOR.OUTPUTERR.OO1ERR   .OO2ERR.OO3ERR.OO4ER   R.OO5ERR.OO680C50060
9   Y8Z  Y9  Y9
    99  9   9

BTXT.AOG..A8..AAERR.   OO7ERR.OO8ERR.OO9ERR   .O1OERR.O11ERR.O12ER   R.O13ERR.O1480C50061
9   Y8Q  Y9  Y9
    99  9   9

BTXT.AOP..AS..AAERR.   O15ERR.O16ERR.O17ERR   .O18ERR.O19ERR.O2O..   ............80C50062
9   Y8   Y9  Y9
    99  99  9

BRLD......AA....AAAA   AAANAAANAAA5AAN/AANA   AAKAAAKAAAKJAAN1AAN9   HAOA........80C50063
9         YQ   Y9Y9   8YQ98YQ08Y98Y988Y9R   8Y888Y8R8Y888Y8 8Y8    9Y89
          9Z   9 9    999 999 999 99 99 0   999 999 999 999 999     99

BEND........AA....   ...................   ...................   ............80C50064
9           Y9
            9

BDAT.............   ...................   ...................   ............80C50065
9

BESD......AA..AAXF80   C5..AAAA.AF4........   ...................   ............80C50066
9         YQ  Y9     YYQY Y8
          99  9      9999 99

BTXT.AAN..AC..AAAKD.   ...................   ...................   ............80C50067
9   YQ9  Y9  Y9Y8Y
    99  9   9
```

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BTXT.AKD..A8..AABAGF    A.9/GABDBB7AEB7AG-9M    F.9/A+ADADOJGABHA+AH    PA5454PW5F5F80C50068
9   Y8Y  Y9  Y99YQQ     -  8ZYQQ-0 R-0 RZ  0    -  8Z YO-9 ZZYQOZ YR    0 8 8 8 Q Q
    99   9   9  9ZZ          9 Z                     9  9       Z- 90              Z Z

BTXT.AKD..A8..AAKC7V    55FJ9/AAFA+AOHBD1SEA    2YEA9BEM1PGAB4BODGFO    G09SAA1SGACF80C50069
9   Y8   Y9  Y9 0 8     8-Y 8ZYQQ Y Z-9 9ZQ    9ZQ Q-9 8ZYQ 8-Z9Q-    Z  8-9 9ZYQ9
    99   9   9               9 9 9ZZ 9       0     0 Z  9 Z 9  Z           9      Z

BTXT.AKD..A8..AABODG    FPG09SABB8GGACFAD8HGA   CUBODGFWBD7AG09SAA8H    GAEHAH8HGACD80C50070
9   Y8Q  Y9  Y98-Z9     Q Z  8-9 9ZYQZ-9 9ZY    Q98-Z9Q8-0 RZ  8-Q 9   ZQQ -9 9ZQQQ
    99Z  9   9  9            Z  9       Z           Z 9  Z      9  9       9Z      9ZZ

BTXT.AL4..A8..AAA.8H    GAEKBODGFPG09SAAF-KA    55AAKO5655KC7V55FJ9/    AAFA+AOHBD1S80C50071
9   Y89  Y9  Y9- 9      ZYQY8-Z9QZZ  8ZQQ  Y    8QY Y 8 8 0 8-Y 8     ZYQQ Y Z-9 9
    99   9   9               Z99   Z    9 Z  Y      9 9                 9ZZ 9

BTXT.ALU..A8..AAEA2Y    EA9BAA1SGABDAB8GGACD    AD8HGACODG9/KA7VAAKB    7W7VAAFJ+AOH80C50072
9   Y88  Y9  Y9ZQ 9     ZQ Q-9 9ZQQQ-9 9ZYQY    -9 9ZQQ9-8 Y 8QY 0    8 8ZYQY Y Z
    99   9   9  0            0 Z       9ZZ   Z       9Z 9 9 9                9Z9 9

BTXT.ALM..A8..AABA1S    EA2YEA9BEJ8MAB8GGADM    AD8HGACFBODGFEGO9SAH    8HGACDAB8HGA80C50073
9   Y80  Y9  Y9-Y 9     ZQ 9ZQ QZYQ9-9 9ZYQ8    -9 9ZYQY8-Z9QRZ  8-9   9ZQQQ-9 9ZQ
    99   9   9  9            0  0 Z Z      Z9        Z99  Z0  9             9ZZ     9

BTXT.ALD..A8..AAC4AA    8HGADMAAABEA9QGODFBO    DGFBG09SBODGFDGO9SAA    AAEA9QGOEHB080C50074
9   Y80  Y9  Y9Q8-9     9ZYQ8ZQY9ZQ  Z Q98-     Z9Q Z 88-Z9QOZ  8ZQ    Y9ZQ  Z Q 8-
    999  9   9 Z9             Z99 9 0    Z 9        Z    99  Z- 99        9  0  Z 9

BTXT.AMM..A8..AADGF4    G09SAE8BAA8BADAAGAD2    AJAANAG-DUGODDBODGFC    G09SAAFPAIAA80C50075
9   Y89  Y9  Y9Z9Q8     Z  8Z9 8ZQ 8-9QYZYQ8    Z9Y999Z Q9Z QZ8-Z9QO   Z  8ZYQZZ-Y9
    99   9   9  Z            9  9 9 9 99 Z9          Z  Z 9 Z             9 9Z  9

BTXT.AMD..A8..AANAG-    CBPA5454PW5F5FKC7V55    FJ9/AAFA+AOHBA1SEA2Y    EA9BAB8GGADJ80C50076
9   Y88  Y9  Y998Z      Q8 0 888 Q Q 0 88       -Y 8ZYQQ Y Z-Y 9ZQ 9   ZQ Q-9 9ZYQY
    99   9   9          Z          Z Z              9 9ZZ 9  9  0           0 Z    Z

BTXT.AMD..A8..AAAD8H    GADFBODGFBGO9SBODGFA    G09SDG9/BG7VKB7W7VAA    FJ+AOHBA1SEA80C50077
9   Y80  Y9  Y9-9 9     ZQQ-8-Z9QYZ  88-Z9Q-    Z  8-Q 8-Q 8 0 8 8ZY   QY Y Z-Y 9ZQ
    99   9   9               9Z 9  Z    99 Z        9 9 9       Z        Z99  9   0

BTXT.AMD..A8..AA2YEA    9BEJ8MAB8GGADQBODGFH    G09SAE8BAA8BADAAGAD6    AJAANAG-DSG080C50078
9   Y80Q Y9  Y9 9ZQ     QZYQ9-9 9ZYQ 8-Z9Q-     Z  8Z9 8ZQ 8-9QYZQQ    Z9Y999Z Q8Z
    990  9   9  0            Z Z      Z 9 Z         9  9 9 9 99 9Z         9    Z

BTXT.AM4..A8..AAEABO    DGFFG09SAA6VAJAAAA55    8/AAASAAE.AAGAEDAJAA    NAG-EDKC7V5580C50079
9   Y8   Y9  Y9QY8-     Z9QQZ  8ZY 8ZYY9ZQ 8    Z9YYZ9Y9- QYZYQ8Z9Y9   9QZ Q8 0 8 8
    99   9   9 Z99           9 9  9  Z9             99 9  99 Z 9          9 Z9

BTXT.ANU..A8..AAFJ9/    AAFA+AOHBA1SEA2YEA9B    AB8GGAEHAD8HGACOGODF    DG9/PC7V7VKG80C50080
9   Y88  Y9  Y9-Y 8     ZYQQ Y Z-Y 9ZQ 9ZQ Q    -9 9ZYQR-9 9ZQQ9Z QY   -Q 8 0 88 R
    999  9   9               9ZZ 9   9  0  0 Z         Z       9Z  Z9     9 9      0

BTXT.ANM..A8..AA7V55    FA9/AAF.+AOHBA1SEA2Y    EA9BEJ8MAB8GGAEFAA8H   GAEKAAAAEA9Q80C50081
9   Y8Z  Y9  Y9 8 8     -Y 8ZYQ  Y Z-Y 9ZQ 9    ZQ QZYQ9-9 9ZYQQ-Q 9   ZYQ ZQY9ZQ
    99   9   9               0 Z Z       ZZ 9       0 Z Z       ZZ 9     Z  99 0

BTXT.AND..A8..AAGOEK    BOEGFGGO9SAAABEA9QGO    EHAD9XGAD2BODGFOGO9S    BODGFIGO9SAD80C50082
9   Y8Q  Y9  Y9Z QY     8-Z9QQZ  8ZQY9ZQ  Z     Q -9 9ZYQ88-Z9QOZ  8   8-Z9Q Z 8-9
    99   9   9  Z            9  Z   9 99 0          Z    Z99   Z   9      9  Z    9

BTXT.ANM..A8..AA8HGA    E4AH8HGAD2AA8HGAEFBO    DGFCG09SBODGFNGO9SAA    9/GAFMKG7V5580C50083
9   Y8   Y9  Y9 9ZQ     Q -9 9ZQQ8-9 9ZQQQ8-    Z9QQZ  88-Z9QYZ  8-Y   8ZYQ9 R 8
    99   9   9  9            Z      9Z9     9ZZ9    Z0   99  Z     9      9 Z  0

BTXT.AOD..A8..AAD79/    GOEUBODGFVGO9SGAEAPV    JAAHEAPVJAAALAN4-AAA    CAN5JAADLAN480C50084
9   Y88  Y9  Y9-8 8     Z Q88-98Q Z  89Y9Y98    YYY-9Y98YYY9YY98 YY9   QY98YY99YY98
    999  9   9  9            Z 9  9   9 9 9          999  9 9 99  99     Z9  99  99
```

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BTXT.AOD..A8..AA-AAA    AAPVJAAHLAN4-AAACAN5    JAAAOS08DFGERR.021ER   R.022ERR.02380C50085
9   Y8Z  Y9  Y9 YY9     8Y98YYYRYY98 YY9QY98    YYY9+8  QQQ
    99   9   9  99          99 999099  99 Z9        999     ZZZ

BTXT.AO4..A8..AAERR.    024ERR.025ERR.026ERR    .027ERR.028ERR.029ER   R.030ERR.03180C50086
9   Y88  Y9  Y9
    99   9   9

BTXT.AOD..A8..AAERR.    032ERR.033ERR.034ERR    .035ERR.036ERR.037ER   R.038NO.ERRO80C50087
9   Y80  Y9  Y9
    99-  9   9

BTXT.AOM..AH..AARS.F    OUND................    ..................     ...........80C50088
9   Y8Y  Y9  Y9
    999  9   9

BRLD......AY....AAAA    AAANAAO/AAO/AAO1AAO1    AAOAAAQAAAQAHAOJ....   ...........80C50089
9        Y9   Y9Y9      8YQ98Y898Y888Y898Y88    8Y8Z8Y888Y8R9Y88
         9    9  9          999 999 9999999 9999    999 999 999  99

BEND..........AA....    ..................     ..................     ...........80C50090
9             Y9
              9

BDAT................    ..................     ..................     ...........80C50091
9
```

```
                        80D3    TITLE F80D3  PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3
                        *****************************************************************************
                        *                                                                          *
                        *       MODIFICATIONS                                                       *
                        *                                                                          *
                        *       REVISION LEVEL 3.  THIS REVISION DIFFERS FROM VERSION 2 AS          *
                        *       FOLLOWS...                                                          *
                        *                                                                          *
                        *          1. PRINT BUFFER DATA REG FLT -ROUTINE OVERLAY 03-                *
                        *             THIS ROUTINE WAS NOT MODIFIED.                                *
                        *          2. UCS DATA REG FLT -ROUTINE OVERLAY 04-                         *
                        *             A MESSAGE WAS ADDED TO INDICATE THAT THE CONTENTS OF          *
                        *             THE UCS BUFFER WAS DESTROYED, AND COULD BE RESTORED           *
                        *             BY PROGRAM F837.                                              *
                        *          3. UCS BUFFER RESTORE RTN -ROUTINE OVERLAY FF-                    *
                        *             THIS ROUTINE WAS DELETED FROM THE PROGRAM PACKAGE.            *
                        *             THE SCAN PROGRAMS NO LONGER RESTORE THE UCS BUFFER--          *
                        *             THEREFORE,  DATA CARDS DEFINING THE UCS CHAIN                 *
                        *             CONFIGURATION ARE NOT TO BE ADDED TO F80C/F8/D.               *
                        *             PROGRAM F837 IS TO BE USED TO RESTORE THE UCS BUFFER.         *
                        *                                                                          *
                        *       ENGINEERING CHANGE PREREQUISITES                                    *
                        *          1. MACHINE                                                       *
                        *             2821 CONTROL UNIT WITH 1403 UCS ATTACHMENT AT MINIMUM         *
                        *             E.C. LEVEL 125655                                             *
                        *          2. PROGRAM                                                       *
                        *             NONE                                                          *
                        *                                                                          *
                        *       USE DESCRIPTION F80C* AT E.C. 125655, DATED 1 NOV 66 OR LATER       *
                        *                                                                          *
                        *****************************************************************************
                        *                                                                          *
                        *       REVISION LEVEL 2.  THIS REVISION DIFFERS FROM VERSION 1 AS          *
                        *       FOLLOWS...                                                          *
                        *                                                                          *
                        *          1. PRINT BUFFER DATA REG FLT -ROUTINE OVERLAY 03-                *
                        *             THIS ROUTINE WAS NOT MODIFIED                                 *
                        *          2. UCS DATA REG FLT -ROUTINE OVERLAY 04-                         *
                        *             THIS ROUTINE WAS NOT MODIFIED                                 *
                        *          3. UCS BUFFER RESTORE RTN -ROUTINE OVERLAY FF-                   *
                        *             THE OPTION TO RESTORE THE UCS BUFFER WITH THE DATA            *
                        *             CHECK LATCH -ON- OR -OFF- WAS INCLUDED.  IF SECTION           *
                        *             SENSE SWITCH 28 IS SET TO 1, THE DATA CHECK LATCH             *
                        *             WILL BE TURNED -ON-OTHERWISE, THIS LATCH WILL REMAIN          *
                        *             IN THE -OFF- STATE.                                           *
                        *                                                                          *
                        *       ENGINEERING CHANGE PREREQUISITES                                    *
                        *          1. MACHINE                                                       *
                        *             2821 CONTROL UNIT WITH UCS ATTACHMENT AT MINIMUM              *
                        *             E.C. LEVEL 125632                                             *
                        *          2. PROGRAM                                                       *
                        *             NONE                                                          *
                        *                                                                          *
                        *       USE DESCRIPTION F80C* AT E.C. 125632, DATED 15 MAR 66 OR LATER      *
                        *                                                                          *
                        *****************************************************************************
                        XF80D3  START 4096
              001000             USING *,15
                        *****************************************************************************
                        *                         ROUTINE OVERLAY 3                                *
                        *****************************************************************************
                        *           RESIDENT LABELS ADDRESSED BY OVERLAYS                           *
                        *****************************************************************************
              001000    SECNO   EQU   *
              001004    SNSW    EQU   SECNO+4
              001040    CSW     EQU   SECNO+64
```

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              001048            CAW     EQU   SECNO+72
              0010E0            UNIT1   EQU   SECNO+224
              0010E2            U1ADDR  EQU   SECNO+226
              001118            SIOVR3  EQU   SECNO+280
              001108            SIOVR4  EQU   SECNO+264
              001122            SIOSWS  EQU   SECNO+290
              00119F            STATSV  EQU   SECNO+415
              0011A4            CSWAG   EQU   SECNO+420
              001121            CAWKEY  EQU   SECNO+289
              001120            SENSE   EQU   SECNO+288
              00157C            SCPDAT  EQU   SECNO+1404
              001678            SCPR00  EQU   SECNO+1656
              001228            SIO     EQU   SECNO+552
              001751            SCHNUM  EQU   SECNO+1873
              001753            UAPRT   EQU   SECNO+1875
                        *****************************************************************************
              001015            ORG   SECNO+21
001015  001830            DC    AL3(RTN03)          INITIAL PSW STARTING ADDR FOR RTN 03
              00176C            ORG   SECNO+1900
                        *****************************************************************************
                        *       VARIABLES FOR ROUTINE 03 - DOUBLE WORD BOUNDARY                     *
                        *****************************************************************************
00176C                          CNOP  0,8                ALIGN ON DOUBLE WORD BOUNDARY
00176C  07 00                   BCR   0,0
00176E  07 00                   BCR   0,0
001770  00000000        WKAR    DC    3F'00'
001774  00000000
001778  00000000

                        *****************************************************************************
                        *       VARIABLES FOR ROUTINE 03 - NO BOUNDARY                              *
                        *****************************************************************************
00177C  000000000000000000  DATWK   DC    XL10'00'
001785  00
001786  80              DAT80   DC    X'80'
001787  000000000000000000          DC    XL9'00'
001790  40              DAT40   DC    X'40'
001791  000000000000000000          DC    XL9'00'
00179A  20              DAT20   DC    X'20'
00179B  000000000000000000          DC    XL9'00'
0017A4  10              DAT10   DC    X'10'
0017A5  000000000000000000          DC    XL9'00'
0017AE  08              DAT08   DC    X'08'
0017AF  000000000000000000          DC    XL9'00'
0017B8  04              DAT04   DC    X'04'
0017B9  000000000000000000          DC    XL9'00'
0017C2  02              DAT02   DC    X'02'
0017C3  000000000000000000          DC    XL9'00'
0017CC  01              DAT01   DC    X'01'
0017CD  000000000000000000          DC    XL9'00'
0017D6  00              DAT00   DC    X'00'
0017D7  000000000000000000          DC    XL9'00'
0017E0  FF              DATFF   DC    X'FF'
0017E1  000000000000000000          DC    XL9'00'
0017EA  D5D640C4C1E3C140E3  MSG1    DC    C'NO DATA TRANSFER'
0017F3  D9C1D5E2C6C5D9
0017FA  D9C5C440C2E840C4C9          DC    C'RED BY DIAGNOSTI'
001803  C1C7D5D6E2E3C9
00180A  C340C3C8C5C3D240D9          DC    C'C CHECK READ FOR'
001813  C5C1C440C6D6D9
00181A  40C4C5E5C9C3C540C7          DC    C' DEVICE XXX'
001823  E7E7
001825  C5D9D940F0F0F040  ERRXX   DC    C'ERR 000 '
                        *****************************************************************************
                        *                         ROUTINE 03 PREFIX                                *
                        *****************************************************************************
00182E                          CNOP  0,4                FULL WORD ALIGNMENT
00182E  07 00                   BCR   0,0
001830  03              RTN03   DC    XL1'03'            ROUTINE NUMBER
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```
001831  00                      DC    XL1'00'              FLAGS
001832  FFFE                    DC    X'FFFE'              ADDRESS OF NEXT ROUTINE
                                *
001834  95 83 F 751   PBDR00    CLI   SCHNUM,X'83'         SEE IF SEARCHING FOR ROUTINE 03
001838  47 80 F 83E             BC    EQ,PBDR01            RUN RTN 03 IF YES
00183C  0A D6                   SVC   X'D6'                ROUTINE EXIT
00183E  91 02 F 004   PBDR01    TM    SNSW,X'02'           BR IF SEC SS 06 IS 1 - PRINT TITLE
001842  47 80 F 84C             BC    NONE,PBDR02          BR IF NO
001846  0A D0                   SVC   X'D0'                PRINT TITLE
001848  80                      DC    X'80'                ,, NORMAL OUTPUT
001849  2D                      DC    X'2D'                ,, 45 CHARACTERS
00184A  FB08                    DC    AL2(TITLE-BASE+REG)  ,, ADDRESS OF MESSAGE
00184C  91 40 F 004   PBDR02    TM    SNSW,X'40'           SEE IF SEC SS 01 IS 1 - WANT UTILITY
001850  47 80 F 858             BC    NONE,PBDR10          BR IF NO
001854  45 80 F 678             BAL   R8,SCPR00            BR TO UTILITY ROUTINE
                                *
                                *     DATA COLLECTION ROUTINE
                                *
001858  41 10 F 786   PBDR10    LA    R1,DAT80             INITIALIZE
00185C  41 20 F 7EA             LA    R2,DATFF+10          ,,
001860  D2 00 F 77C 1 000 PBDR11 MVC  DATWK(1),0(R1)       MOVE DATA TO WORK AREA
001866  D2 00 F 57C F 77C       MVC   SCPDAT(1),DAWR       SET CHAR TO BE WRITTEN IN WRITE AREA
00186C  D2 00 F 57D F 57C       MVC   SCPDAT+1(1),SCPDAT   ,,
001872  92 00 F 122             MVI   SIOSWS,X'00'         SET SIO PROGRAM SWITCHES
001876  41 00 F AF0             LA    R0,WRCCW             LOAD DIAG WR CCW ADDR IN CAW
00187A  50 00 F 048             ST    R0,CAW               ,,
00187E  48 C0 F 0E2             LH    R12,U1ADDR           LOAD PRINTER I/O ADDR IN GR 12
001882  45 B0 F 228             BAL   R11,SIO              GO PERFORM DIAG WR
001886  D2 00 F 77D F 11C       MVC   STAT1(1),CSWSAV+4    SAVE DIAG WR CH END STATUS
00188C  D2 00 F 77E F 19F       MVC   STAT2(1),STATSV      SAVE DIAG WR DEV END STATUS
001892  D2 00 F 77F F 120       MVC   WRSNS(1),SENSE       SAVE DIAG WR SENSE DATA
001898  45 80 F 8E2             BAL   R8,PBDR20            GO DO DIAG CK READ
00189C  D2 00 F 780 F 57C       MVC   WCKRD(1),SCPDAT      SAVE DIAG CK READ DATA
                                *
                                *
0018A2  41 00 F AF8             LA    R0,RDCCW             LOAD DIAG DATA RD CCW ADDR IN CAW
0018A6  50 00 F 048             ST    R0,CAW               ,,
0018AA  92 00 F 57C             MVI   SCPDAT,X'00'         CLEAR READ AREA
0018AE  45 B0 F 228             BAL   R11,SIO              GO PERFORM DIAG DATA READ
0018B2  D2 00 F 781 F 57C       MVC   DARD(1),SCPDAT       SAVE READ DATA
0018B8  D2 00 F 782 F 1A8       MVC   STATRD(1),CSWAG+4    SAVE READ STATUS
0018BE  D2 00 F 783 F 120       MVC   RDSNS(1),SENSE       SAVE READ SENSE DATA
0018C4  45 80 F 8E2             BAL   R8,PBDR20            GO DO DIAG CK READ
0018C8  D2 00 F 784 F 57C       MVC   RCKRD(1),SCPDAT      SAVE DIAG CK READ DATA
                                *
                                *
0018CE  D2 09 1 000 F 77C       MVC   0(10,R1),DATWK       SAVE COLLECTED DATA
0018D4  41 10 1 00A             LA    R1,10(R0,R1)         ADD 10 TO GR 1
0018D8  15 12                   CLR   R1,R2                SEE IF END OF DATA COLLECTION
0018DA  47 60 F 860             BC    UNEQ,PBDR11          BR IF NO
0018DE  47 F0 F 924             BC    UNC,PBDR30           GO ANALYZE COLLECTED DATA
                                *
                                *
0018E2  41 00 F B00   PBDR20    LA    R0,CKRCCW            LOAD DIAG CK RD CCW ADDR IN CAW
0018E6  50 00 F 048             ST    R0,CAW               ,,
0018EA  D2 01 F 57C F B35       MVC   SCPDAT(2),PBDRK1     SET 00FF IN DATA FIELD
0018F0  45 B0 F 228             BAL   R11,SIO              GO DO DIAG CK READ
0018F4  D5 01 F 57C F B35       CLC   SCPDAT(2),PBDRK1     SEE IF ANY DATA WAS XFERRED
0018FA  47 80 F 914             BC    EQ,PBDR21            GO PRINT ERROR
0018FE  D2 01 F 57C F B35       MVC   SCPDAT(2),PBDRK1     SET 00FF IN DATA FIELD
001904  45 B0 F 228             BAL   R11,SIO              GO DO SECOND DIAG CK READ
001908  D5 01 F 57C F B35       CLC   SCPDAT(2),PBDRK1     SEE IF ANY DATA WAS XFERRED
00190E  47 80 F 914             BC    EQ,PBDR21            GO PRINT ERROR
001912  07 F8                   BCR   UNC,R8               RETURN
001914  D2 02 F 822 F 753 PBDR21 MVC  MSG1+56(3),UAPRT     SET PRINTER ADDR IN OUTPUT MSG
00191A  0A D0                   SVC   X'D0'                NO DATA TRANSFERRED BY DIAG CHECK RD
00191C  40                      DC    X'40'                ,, PRINT ERR
00191D  31                      DC    X'31'                ,, 49 CHARACTERS
```

```
00191E  F7EA                    DC    AL2(MSG1-BASE+REG)   ,, ADDRESS OF MESSAGE
001920  47 F0 F 8E2             BC    UNC,PBDR20           GO TRY DIAG CK READ AGAIN
                                ***************************************************************
                                *     DATA ANALYSIS ROUTINE                                   *
                                ***************************************************************
001924  41 10 F 786   PBDR30    LA    R1,DAT80             INITIALIZE ANALYSIS ROUTINE
001928  41 30 F 57C             LA    R3,SCPDAT
00192C  D2 09 F 77C 1 000 PBDR31 MVC  DATWK(10),0(R1)      MOVE DATA GROUP INTO WORK AREA
001932  43 40 F 77C             IC    R4,DAWR              SET UP MASK
001936  92 00 3 000             MVI   0(R3),X'00'          SET SW SAYING EXPECTED BIT OFF
00193A  44 40 F 974             EX    R4,PBDR37            SEE IF EXPECTED BIT ON
00193E  47 80 F 946             BC    NONE,PBDR32          BR IF NO
001942  92 FF 3 000             MVI   0(R3),X'FF'          SET UP TO SAY EXPECTED BIT ON
001946  92 00 3 014   PBDR32    MVI   20(R3),X'00'         SET SW SAYING DID NOT GET CH END PAR
00194A  91 01 F 780             TM    WCKRD,X'01'          SEE IF GOT PARITY
00194E  47 80 F 95E             BC    NONE,PBDR33          BR IF NO
001952  91 02 F 77D             TM    STAT1,X'02'          SEE IF GOT UC WITH CE
001956  47 80 F 95E             BC    NONE,PBDR33          BR IF NO
00195A  92 FF 3 014             MVI   20(R3),X'FF'         SET SW SAYING GOT PARITY WITH CE
00195E  41 10 1 00A   PBDR33    LA    R1,10(R0,R1)         UPDATE ADDRESSES
001962  41 30 3 001             LA    R3,1(R0,R3)          ,,
001966  15 12                   CLR   R1,R2                SEE IF FINISHED
001968  47 60 F 92C             BC    UNEQ,PBDR31          CONTINUE
00196C  41 20 F 7E0             LA    R2,DAT00+10          SET UP GR 2
001970  47 F0 F 978             BC    UNC,PBDR40
001974  91 00 F 781   PBDR37    TM    DARD,X'00'           TEST IF BIT READ OK - USED WITH EX
                                *
                                *
001978  92 00 F 5AE   PBDR40    MVI   SCPDAT+50,X'00'      SET UP COMPARE FIELDS
00197C  D2 08 F 5AF F 5AE       MVC   SCPDAT+51(9),SCPDAT+50 ,,
001982  92 FF F 5C2             MVI   SCPDAT+70,X'FF'      ,,
001986  D2 08 F 5C3 F 5C2       MVC   SCPDAT+71(9),SCPDAT+70 ,,
00198C  D5 07 F 57C F 5AE       CLC   SCPDAT(8),SCPDAT+50  SEE IF UNABLE TO TURN ON ANY DR BIT
001992  47 60 F 9A0             BC    UNEQ,PBDR50          BR IF NO
001996  0A D0                   SVC   X'D0'                ERR 050 - NO PR BUF DAT REG BITS CAN
                                *                          ,, BE TURNED ON - PRINT BUFFER DATA
                                *                          ,, REG RESET MAY BE ON SOLID
001998  44                      DC    X'44'                ,, ERROR OUTPUT
001999  07                      DC    X'07'                ,, 7 CHARACTERS
00199A  FB49                    DC    AL2(ERRO50-BASE+REG) ,, ADDRESS OF MESSAGE
00199C  47 F0 F A70             BC    UNC,LGOUT            GO SEE IF WANT LOG OUT
                                *
                                *
0019A0  91 FF F 7DB   PBDR50    TM    DAT00+5,X'FF'        SEE IF ALL DATA REG BITS ON SOLID
0019A4  47 10 F 9AC             BC    ALL,PBDR51           BR IF YES
0019A8  47 F0 F 9B6             BC    UNC,PBDR60           CONTINUE ANALYSIS
0019AC  0A D0         PBDR51    SVC   X'D0'                ERR 051 - ALL PRINT BUFFER DATA REG
                                *                          ,, BUTS ON SOLID - POSSIBLY NOT
                                *                          ,, GETTING PRINT BUFFER DATA REG
                                *                          ,, RESET
0019AE  44                      DC    X'44'                ,, ERROR OUTPUT
0019AF  07                      DC    X'07'                ,, 7 CHARACTERS
0019B0  FB50                    DC    AL2(ERRO51-BASE+REG) ,, ADDRESS OF MESSAGE
0019B2  47 F0 F A70             BC    UNC,LGOUT            GO SEE IF WANT LOG OUT
                                *
                                *
0019B6  41 10 F 786   PBDR60    LA    R1,DAT80             INITIALIZE ROUTINE
0019BA  41 50 0 034             LA    R5,52                ,,
0019BE  41 20 F 7CC             LA    R2,DAT01
0019C2  D2 09 F 77C 1 000 PBDR61 MVC  DATWK(10),0(R1)      MOVE DATA TO WORK AREA
0019C8  41 90 5 000             LA    R9,0(R0,R5)          SET UP ERROR NUMBER
0019CC  43 40 F 77C             IC    R4,DAWR              SET UP MASK
0019D0  44 40 F 974             EX    R4,PBDR37            SEE IF BIT READ
0019D4  47 80 F 9FA             BC    NONE,PBDR63          BR IF NO
0019D8  41 90 9 001             LA    R9,1(R0,R9)          SET UP ERROR NUMBER
0019DC  44 40 F 9F6             EX    R4,PBDR62
0019E0  47 10 F 9FA             BC    ALL,PBDR63
0019E4  15 12                   CLR   R1,R2                SEE IF FINISHED HERE
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

```
0019E6   47 80 F A10          BC    EQ,PBDR70           BR IF YES
0019EA   41 10 1 00A          LA    R1,10(R0,R1)        UPDATE ADDRESS
0019EE   41 50 5 002          LA    R5,2(R0,R5)         UPDATE ERROR NUMBER
0019F2   47 F0 F 9C2          BC    UNC,PBDR61          CONTINUE
0019F6   91 00 F 7DB  PBDR62  TM    DAT00+5,X'00'       SEE IF BIT IN OFF STATE - USED BY EX
0019FA   4E 90 F 770  PBDR63  CVD   R9,WKAR             CONVERT ERR NO. TO PRINTABLE
0019FE   0A DD                SVC   X'DD'               ,,
001A00   0002                 DC    AL2(2)              ,,
001A02   0776                 DC    AL2(WKAR+6-SECNO)   ,,
001A04   0829                 DC    AL2(ERRXX+4-SECNO)  ,,
001A06   0A D0                SVC   X'D0'               ERROR - DATA REG BIT HOT OR CANNOT
                             *                          ,, BE TURNED ON - ERR NO. IN GR 9
                             *                          ,, BYTE 3
001A08   44                   DC    X'44'               ,, PRINT ERR
001A09   07                   DC    X'07'               ,, 7 CHARACTERS
001A0A   F825                 DC    AL2(ERRXX-BASE+REG) ,, ADDRESS OF MESSAGE
001A0C   47 F0 F A70          BC    UNC,LGOUT           GO SEE IF WANT LOG OUT
                             *
                             *
001A10   91 FF F 598  PBDR70  TM    SCPDAT+28,X'FF'     BR IF GOT PARITY WITH CE FOR DAT 00
001A14   47 10 F A48          BC    ALL,PBDR72
001A18   D5 07 F 590 F 5C2    CLC   SCPDAT+20(8),SCPDAT+70  BR IF GOT PARITY WITH CE FOR ALL
                             *                          ,, OTHER BIT SETS
001A1E   47 80 F A3E          BC    EQ,PBDR71           ,,
001A22   D5 07 F 590 F 5AE    CLC   SCPDAT+20(8),SCPDAT+50  SEE IF GOT PARITY WITH CE ANYWHERE
001A28   47 60 F A66          BC    UNEQ,PBDR73         GR IF YES
001A2C   91 FF F 599          TM    SCPDAT+29,X'FF'     BR IF GOT PARITY WITH CE FOR DAT FF
001A30   47 10 F A66          BC    ALL,PBDR73          ,,
001A34   0A D0                SVC   X'D0'               PRINT -NO ERRORS DETECTED-
001A36   84                   DC    X'84'               ,,
001A37   12                   DC    X'12'               ,, 18 CHARACTERS
001A38   FB37                 DC    AL2(NERDET-BASE+REG) ,, ADDRESS OF MESSAGE
001A3A   47 F0 F A70          BC    UNC,LGOUT           GO SEE IF WANT LOG OUT
001A3E   0A D0        PBDR71  SVC   X'D0'               ERROR 068 - PRINT BUFFER DATA REG
                             *                          ,, PARITY BIT ALWAYS ACTIVE
001A40   44                   DC    X'44'               ,,
001A41   07                   DC    X'07'               ,, 7 CHARACTERS
001A42   FBC7                 DC    AL2(ERR068-BASE+REG) ,, ADDRESS OF MESSAGE
001A44   47 F0 F A70          BC    UNC,LGOUT           GO SEE IF WANT LOG OUT
001A48   D5 07 F 590 F 5C2 PBDR72 CLC SCPDAT+20(8),SCPDAT+70  BR IF GOT PARITY WITH CE FOR ALL
                             *                          ,, OTHER BIT SETS
001A4E   47 80 F A66          BC    EQ,PBDR73           ,,
001A52   D5 07 F 590 F 5AE    CLC   SCPDAT+20(8),SCPDAT+50  BR IF GOT PARITY WITH CE FOR ANY
                             *                          ,, OTHER BITS
001A58   47 60 F A66          BC    UNEQ,PBDR73
001A5C   0A D0                SVC   X'D0'               ERROR 069 - PRINT BUFFER DATA REG
                             *                          ,, PARITY BIT NEVER ACTIVE
001A5E   44                   DC    X'44'               ,,
001A5F   07                   DC    X'07'               ,, 7 CHARACTERS
001A60   FBCE                 DC    AL2(ERR069-BASE+REG) ,, ADDRESS OF MESSAGE
001A62   47 F0 F A70          BC    UNC,LGOUT           GO SEE IF WANT LGGOUT
001A66   0A D0        PBDR73  SVC   X'D0'               ERROR 070 - FALSE PRINT BUFFER DATA
                             *                          ,, DATA REG PARITY ERRORS
001A68   44                   DC    X'44'               ,,
001A69   07                   DC    X'07'               ,, 7 CHARACTERS
001A6A   FBD5                 DC    AL2(ERR070-BASE+REG) ,, ADDRESS OF MESSAGE
001A6C   47 F0 F A70          BC    UNC,LGOUT           GO SEE IF WANT LOG OUT
                             ***********************************************************
                             *      LOG OUT ROUTINE                                     *
                             ***********************************************************
001A70   91 20 F 004  LGOUT   TM    SNSW,X'20'          BR IF SEC SS 02 IS 0 - DO NOT WANT
                             *                          ,, LOG OUT
001A74   47 80 F A02          BC    NONE,LGOUTE
001A78   41 10 F 786          LA    R1,DAT80            INITIALIZE
001A7C   41 20 F 7E0          LA    R2,DATFF
001A80   D2 09 F 77C 1 000 LGOUTA MVC DATWK(10),0(R1)   MOVE DATA
001A86   0A DD                SVC   X'DD'               CONVERT DATA TO PRINTABLE
001A88   0009                 DC    AL2(9)              ,, CONVERT 9 BYTES
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

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001A8A   077C                 DC    AL2(DATWK-SECNO)     ,, HEX DATA ADDRESS
001A8C   057C                 DC    AL2(SCPDAT-SECNO)    ,, PRINTABLE DATA ADDRESS
001A8E   41 30 F 57C          LA    R3,SCPDAT           INITIALIZE
001A92   41 40 F 590          LA    R4,SCPDAT+20        ,,
001A96   41 50 F 5E0          LA    R5,SCPDAT+100       ,,
001A9A   92 40 F 5E0          MVI   SCPDAT+100,X'40'    SET UP PRINT FIELD
001A9E   D2 30 F 5E1 F 5E0    MVC   SCPDAT+101(49),SCPDAT+100  ,,
001AA4   D2 01 5 000 3 000 LGOUTB MVC 0(2,R5),0(R3)     ,,
001AAA   15 34                CLR   R3,R4               BR IF END
001AAC   47 80 F ABC          BC    EQ,LGOUTC           ,,
001AB0   41 50 5 003          LA    R5,3(R0,R5)         UPDATE ADDRESSES
001AB4   41 30 3 002          LA    R3,2(R0,R3)         ,,
001AB8   47 F0 F AA4          BC    UNC,LGOUTB          CONTINUE
001ABC   0A D0        LGOUTC  SVC   X'D0'               LOG OUT OF ACCUMULATED DATA
001ABE   80                   DC    X'80'               ,,
001ABF   1A                   DC    X'1A'               ,, 26 CHARACTERS
001AC0   F5E0                 DC    AL2(PRTLOG-BASE+REG) ,, ADDRESS OF MESSAGE
001AC2   15 12                CLR   R1,R2               SEE IF END OF LOG OUT
001AC4   47 80 F AD0          BC    EQ,LGOUTD           BR IF YES
001AC8   41 10 1 00A          LA    R1,10(R0,R1)        UPDATE ADDRESSES
001ACC   47 F0 F A80          BC    UNC,LGOUTA          CONTINUE
001AD0   0A DA        LGOUTD  SVC   X'DA'               HALT + WAIT FOR ACTION
001AD2   91 40 F 004  LGOUTE  TM    SNSW,X'40'          BR IF SEC SS 01 IS 0 - DO NOT WANT
                             *                          ,, UTILITY ROUTINE
001AD6   47 80 F ADE          BC    NONE,LGOUTF         ,,
001ADA   45 80 F 678          BAL   R8,SCPR00           BR TO UTILITY ROUTINE
001ADE   91 20 E 1A3  LGOUTF  TM    419(R14),X'20'      IS LOOP ON SEC SS ON
001AE2   47 10 F AEA          BC    ALL,LGOUTG          BR IF YES
001AE6   96 40 F 751          OI    SCHNUM,X'40'        SET UP TO BYPASS ALL REMAINING OVLYS
001AEA   0A D6        LGOUTG  SVC   X'D6'               ROUTINE EXIT
                             ***********************************************************
                             *    CCW,S USED BY ROUTINE 03                              *
                             ***********************************************************
001AF0   05 00157C 2000 0002 WRCCW CCW X'05',SCPDAT,X'20',2  DIAGNOSTIC WRITE - SILI ON -
001AF8   02 00157C 2000 0001 RDCCW CCW X'02',SCPDAT,X'20',1  DIAGNOSTIC DATA READ - SILI ON -
001B00   06 00157C 2000 0002 CKRCCW CCW X'06',SCPDAT,X'20',2  DIAGNOSTIC CHECK READ - SILI ON -
                             ***********************************************************
                             *    CONSTANTS FOR ROUTINE 03 - NO BOUNDARY                *
                             ***********************************************************
001B08   F2F8F2F140E2C3C1D5 TITLE DC C'2821 SCAN/1403 U'
001B11   61F1F4F0F340E4
001B18   C3E26B40D7D9C9D5E3      DC   C'CS, PRINT BUFFER'
001B21   40C2E4C6C6C5D9
001B28   40C4C1E3C140D9C5C7      DC   C' DATA REG FLT'
001B31   40C6D3E3
001B35   00FF         PBDRK1  DC    X'00FF'
001B37   D5D640C5D9D9D6D9E2 NERDET DC C'NO ERRORS DETECT'
001B40   40C4C5E3C5C3E3
001B47   C5C4                 DC    C'ED'
                             ***********************************************************
                             *    EQUATES                                               *
                             ***********************************************************
                             *
                             *    GENERAL REGISTER EQUATES
                             *
         000000      R0       EQU   0
         000001      R1       EQU   1
         000002      R2       EQU   2
         000003      R3       EQU   3
         000004      R4       EQU   4
         000005      R5       EQU   5
         000006      R6       EQU   6
         000007      R7       EQU   7
         000008      R8       EQU   8
         000009      R9       EQU   9
         00000A      R10      EQU   10
         00000B      R11      EQU   11
         00000C      R12      EQU   12
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F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

```
                     00000D        R13     EQU   13
                     00000E        R14     EQU   14
                     00000F        R15     EQU   15
                                   *
                                   *        CONDITION CODE EQUATES
                                   *
                     000008        NONE    EQU   8       ALL OFF        0
                     000005        ANY     EQU   5       ANY ON          1   3
                     000001        ALL     EQU   1       ALL ON              3
                     000004        SOME    EQU   4       MIXED           1
                     000009        NMIXED  EQU   9       NOT MIXED      0    3
                     000008        EQ      EQU   8       EQUAL          0
                     000006        UNEQ    EQU   6       NOT EQUAL       1 2
                     000004        LO      EQU   4       LOW             1
                     000002        HI      EQU   2       HIGH              2
                     000008        Z       EQU   8       ZERO           0
                     000002        POS     EQU   2       GREATER ZERO      2
                     000008        CCO     EQU   8       AVAILABLE      0
                     000004        CC1     EQU   4       CSW STORED      1
                     000002        CC2     EQU   2       BUSY              2
                     00000F        UNC     EQU   15      UNCONDITIONAL  0 1 2 3
                     00000D        NOTBSY  EQU   13      NOT BUSY       0 1   3
                     000007        NZ      EQU   7       NOT CC 0         1 2 3
                     000004        NEG     EQU   4       NOT ZERO -AND-   1
                     00000C        ZNEG    EQU   12      MIXED OR NONE  0 1
                     00000B        CSWNST  EQU   11      CSW NOT STORED 0   2 3
                                   *
                                   *        GENERAL EQUATES
                                   *
                     000040        HCSW    EQU   64      HARDWARE CSW LOCATION
                     000048        HCAW    EQU   72      HARDWARE CAW LOCATION
                     000078        HION    EQU   120     HARDWARE I/O NEW PSW LOCATION
                     001118        CSWSAV  EQU   SIOVR3
                                   *
                                   *        EQUATES FOR ROUTINE 03 EXCLUSIVELY
                                   *
                     00177D        STAT1   EQU   DATWK+1
                     00177E        STAT2   EQU   DATWK+2
                     00177F        WRSNS   EQU   DATWK+3
                     001780        WCKRD   EQU   DATWK+4
                     001781        DARD    EQU   DATWK+5
                     001782        STATRD  EQU   DATWK+6
                     001783        RDSNS   EQU   DATWK+7
                     001784        RCKRD   EQU   DATWK+8
                     001785        STSW    EQU   DATWK+9
                     00177C        DAWR    EQU   DATWK
                     0015E0        PRTLOG  EQU   SCPDAT+100
                     ****************************************************************
                                   *        ERROR DEFINITION FOR ROUTINE 03         *
                     ****************************************************************
001B49  C5D9D940F0F5F0       ERR050  DC    C'ERR 050'     NO PRINT BUFFER DATA REG BITS CAN
                                   *                      ,, BE TURNED ON - PRINT BUFFER
                                   *                      ,, DATA REG RESET MAY BE ON SOLID
001B50  C5D9D940F0F5F1       ERR051  DC    C'ERR 051'     ALL PRINT BUFFER DATA REG BITS ARE
                                   *                      ,, ON SOLID - NOT GETTING PRINT
                                   *                      ,, BUFFER DATA REG RESET
001B57  C5D9D940F0F5F2       ERR052  DC    C'ERR 052'     PRINT BUFFER DATA REG BIT 0 NEVER
                                   *                      ,, ACTIVE
001B5E  C5D9D940F0F5F3       ERR053  DC    C'ERR 053'     PRINT BUFFER DATA REG BIT 0 ALWAYS
                                   *                      ,, ACTIVE
001B65  C5D9D940F0F5F4       ERR054  DC    C'ERR 054'     PRINT BUFFER DATA REG BIT 1 NEVER
                                   *                      ,, ACTIVE
001B6C  C5D9D940F0F5F5       ERR055  DC    C'ERR 055'     PRINT BUFFER DATA REG BIT 1 ALWAYS
                                   *                      ,, ACTIVE
001B73  C5D9D940F0F5F6       ERR056  DC    C'ERR 056'     PRINT BUFFER DATA REG BIT 2 NEVER
                                   *                      ,, ACTIVE
001B7A  C5D9D940F0F5F7       ERR057  DC    C'ERR 057'     PRINT BUFFER DATA REG BIT 2 ALWAYS
                                   *                      ,, ACTIVE
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

```
001B81  C5D9D940F0F5F8       ERR058  DC    C'ERR 058'     PRINT BUFFER DATA REG BIT 3 NEVER
                                   *                      ,, ACTIVE
001B88  C5D9D940F0F5F9       ERR059  DC    C'ERR 059'     PRINT BUFFER DATA REG BIT 3 ALWAYS
                                   *                      ,, ACTIVE
001B8F  C5D9D940F0F6F0       ERR060  DC    C'ERR 060'     PRINT BUFFER DATA REG BIT 4 NEVER
                                   *                      ,, ACTIVE
001B96  C5D9D940F0F6F1       ERR061  DC    C'ERR 061'     PRINT BUFFER DATA REG BIT 4 ALWAYS
                                   *                      ,, ACTIVE
001B9D  C5D9D940F0F6F2       ERR062  DC    C'ERR 062'     PRINT BUFFER DATA REG BIT 5 NEVER
                                   *                      ,, ACTIVE
001BA4  C5D9D940F0F6F3       ERR063  DC    C'ERR 063'     PRINT BUFFER DATA REG BIT 5 ALWAYS
                                   *                      ,, ACTIVE
001BAB  C5D9D940F0F6F4       ERR064  DC    C'ERR 064'     PRINT BUFFER DATA REG BIT 6 NEVER
                                   *                      ,, ACTIVE
001BB2  C5D9D940F0F6F5       ERR065  DC    C'ERR 065'     PRINT BUFFER DATA REG BIT 6 ALWAYS
                                   *                      ,, ACTIVE
001BB9  C5D9D940F0F6F6       ERR066  DC    C'ERR 066'     PRINT BUFFER DATA REG BIT 7 NEVER
                                   *                      ,, ACTIVE
001BC0  C5D9D940F0F6F7       ERR067  DC    C'ERR 067'     PRINT BUFFER DATA REG BIT 7 ALWAYS
                                   *                      ,, ACTIVE
001BC7  C5D9D940F0F6F8       ERR068  DC    C'ERR 068'     PRINT BUFFER DATA REG PARITY BIT
                                   *                      ,, ALWAYS ACTIVE
001BCE  C5D9D940F0F6F9       ERR069  DC    C'ERR 069'     PRINT BUFFER DATA REG PARITY BIT
                                   *                      ,, NEVER ACTIVE
001BD5  C5D9D940F0F7F0       ERR070  DC    C'ERR 070'     FALSE PRINT BUFFER DATA REG PARITY
                                   *                      ,, ERRORS
                     ****************************************************************
                     001000        BASE    EQU   SECNO
                     00F000        REG     EQU   X'F000'
                                   END
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3   PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
 1      8     Z
 1      8     EQ     1838,  18FA,  190E,  19E6,  1A1E,  1A4E,  1AAC
                     1AC4
 1      2     HI
 1      4     LO
 1      7     NZ
 1      0     RO     1876,  187A,  18A2,  18A6,  18D4,  18E2,  18E6
                     195E,  1962,  19C8,  19D8,  19EA,  19EE,  1AB0
                     1AB4,  1AC8
 1      1     R1     1858,  1860,  18CE,  18D4,  18D8,  1924
                     192C,  195E,  195E,  1966,  19B6,  19C2,  19E4
                     19EA,  19EA,  1A78,  1A80,  1AC2,  1AC8,  1AC8
 1      2     R2     185C,  18D8,  1966,  196C,  19BE,  19E4,  1A7C
                     1AC2
 1      3     R3     1928,  1936,  1942,  1946,  195A,  1962,  1962
                     1A8E,  1AA4,  1AAA,  1AB4,  1AB4
 1      4     R4     1932,  193A,  19CC,  19D0,  19DC,  1A92,  1AAA
 1      5     R5     19BA,  19C8,  19EE,  19EE,  1A96,  1AA4,  1AB0
                     1AB0
 1      6     R6
 1      7     R7
 1      8.    R8     1854,  1898,  18C4,  1912,  1ADA
 1      9     R9     19C8,  19D8,  19D8,  19FA
 1      1     ALL    19A4,  19E0,  1A14,  1A30,  1AE2
 1      5     ANY
 1   1048     CAW    187A,  18A6,  18E6
 1      8     CC0
 1      4     CC1
 1      2     CC2
 1   1040     CSW
 1      4     NEG
 1      2     POS
 1      A     R10
 1      B     R11    1882,  18AE,  18F0,  1904
 1      C     R12    187E
 1      D     R13
 1      E     R14    1ADE
 1      F     R15
 1   F000     REG    184A,  191E,  199A,  19B0,  1A0A,  1A38,  1A42
                     1A60,  1A6A,  1AC0
 1   1228     SIO    1882,  18AE,  18F0,  1904
 1      F     UNC    18DE,  1912,  1920,  1970,  199C,  19A8,  19B2
                     19F2,  1A0C,  1A3A,  1A44,  1A62,  1A6C,  1AB8
                     1ACC
 1   1000     BASE   184A,  191E,  199A,  19B0,  1A0A,  1A38,  1A42
                     1A60,  1A6A,  1AC0
10   1781     DARD   18B2,  1974
10   177C     DAWR   1866,  1932,  19CC
 1     48     HCAW
 1     40     HCSW
 1     78     HION
16   17EA     MSG1   1914,  191E
 1      8     NONE   1842,  1850,  193E,  194E,  1956,  19D4,  1A74
                     1AD6
 1   1004     SNSW   183E,  184C,  1A70,  1AD2
 1      4     SOME
10   1785     STSW
 1      6     UNEQ   18DA,  1968,  1992,  1A28,  1A58
 4   1770     WKAR   19FA,  1A02
 1      C     ZNEG
 1   11A4     CSWAG  18B8
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3   PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

```
 1   17D6   DAT00   196C,  19A0,  19F6
 1   17CC   DAT01   19BE
 1   17C2   DAT02
 1   17B8   DAT04
 1   17AE   DAT08
 1   17A4   DAT10
 1   179A   DAT20
 1   1790   DAT40
 1   1786   DAT80   1858,  1924,  19B6,  1A78
 1   17E0   DATFF   185C,  1A7C
10   177C   DATWK   1860,  18CE,  192C,  19C2,  1A80,  1A8A,  1849
                    1849,  1849,  1849,  1849,  1849,  1849,  1849
                    1849,  1849
 8   1825   ERRXX   1A04,  1A0A
 4   1A70   LGOUT   199C,  19B2,  1A0C,  1A3A,  1A44,  1A62,  1A6C
10   1784   RCKRD   18C8
 8   1AF8   RDCCW   18A2
10   1783   RDSNS   18BE
 1   1830   RTNO3   1015
 1   1000   SECNO   1000,  1000,  1000,  1000,  1000,  1000,  1000
                    1000,  1000,  1000,  1000,  1000,  1000,  1000
                    1000,  1000,  1000,  1018,  1A02,  1A04
                    1A8A,  1A8C,  1BDC
 1   1120   SENSE   1892,  18BE
10   177D   STAT1   1886,  1952
10   177E   STAT2   188C
16   1808   TITLE   184A
 1   1753   UAPRT   1914
 1   10E0   UNIT1
10   1780   WCKRD   189C,  194A
 8   1AF0   WRCCW   1876
10   177F   WRSNS   1892
 1   1121   CAWKEY
 8   1800   CKRCCW  18E2
 1      B   CSWNST
 1   1118   CSWSAV  1886
 7   1849   ERR050  199A
 7   1850   ERR051  19B0
 7   1857   ERR052
 7   185E   ERR053
 7   1865   ERR054
 7   186C   ERR055
 7   1873   ERR056
 7   187A   ERR057
 7   1881   ERR058
 7   1888   ERR059
 7   188F   ERR060
 7   1896   ERR061
 7   189D   ERR062
 7   18A4   ERR063
 7   18AB   ERR064
 7   18B2   ERR065
 7   18B9   ERR066
 7   18C0   ERR067
 7   18C7   ERR068  1A42
 7   18CE   ERR069  1A60
 7   18D5   ERR070  1A6A
 6   1A80   LGOUTA  1ACC
 6   1AA4   LGOUTB  1AB8
 2   1ABC   LGOUTC  1AAC
 2   1AD0   LGOUTD  1AC4
 4   1AD2   LGOUTE  1A74
 4   1ADE   LGOUTF  1AD6
 2   1AEA   LGOUTG  1AE2
16   1837   NERDET  1A38
 1      9   NMIXED
 1      D   NOTBSY
 4   1834   PBDR00
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 PRINT BUFFER DATA REGISTER ROUTINE OVERLAY 3

```
        4    183E PBDRO1      1838
        4    184C PBDRO2      1842
        4    1858 PBDR10      1850
        6    1860 PBDR11      18DA
        4    18E2 PBDR20      1898,  18C4,  1920
        6    1914 PBDR21      18FA,  190E
        4    1924 PBDR30      18DE
        6    192C PBDR31      1968
        4    1946 PBDR32      193E
        4    195E PBDR33      194E,  1956
        4    1974 PBDR37      193A,  19D0
        4    1978 PBDR40      1970
        4    19A0 PBDR50      1992
        2    19AC PBDR51      19A4
        4    19B6 PBDR60      19A8
        6    19C2 PBDR61      19F2
        4    19F6 PBDR62      19DC
        4    19FA PBDR63      19D4,  19E0
        4    1A10 PBDR70      19E6
        2    1A3E PBDR71      1A1E
        6    1A48 PBDR72      1A14
        2    1A66 PBDR73      1A28,  1A30,  1A4E,  1A58
        2    1B35 PBDRK1      18EA,  18F4,  18FE,  1908
        1    15E0 PRTLOG      1AC0
        1    1751 SCHNUM      1834,  1AE6
        1    157C SCPDAT      1866,  186C,  186C,  189C,  18AA,  18B2,  18C8
                             18EA,  18F4,  18FE,  1908,  1928,  1978,  197C
                             197C,  1982,  1986,  1986,  198C,  198C,  1A10
                             1A18,  1A18,  1A22,  1A22,  1A2C,  1A48,  1A48
                             1A52,  1A52,  1A8C,  1A8E,  1A92,  1A96,  1A9A
                             1A9E,  1A9E,  1AF0,  1AF8,  1B00,  1B49
        1    1678 SCPROO      1854,  1ADA
        1    1122 SIOSWS      1872
        1    1118 SIOVR3      1B49
        1    1108 SIOVR4
       10    1782 STATRD      18B8
        1    119F STATSV      188C
        1    10E2 U1ADDR      187E
        1    1000 XF80D3
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
                          80D3    TITLE F80D3  UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4
                          XF80D3  START 4096
        001000                    USING *,15
                  *****************************************************************************
                  *                                                                          *
                  *                      ROUTINE OVERLAY 4                                    *
                  *                                                                          *
                  *****************************************************************************
                  *           RESIDENT LABELS ADDRESSED BY OVERLAYS                          *
                  *****************************************************************************
        001000    SECNO    EQU   *
        001004    SNSW     EQU   SECNO+4
        001040    CSW      EQU   SECNO+64
        001048    CAW      EQU   SECNO+72
        0010E0    UNIT1    EQU   SECNO+224
        0010E2    U1ADDR   EQU   SECNO+226
        001118    SIOVR3   EQU   SECNO+280
        001108    SIOVR4   EQU   SECNO+264
        001122    SIOSWS   EQU   SECNO+290
        00119F    STATSV   EQU   SECNO+415
        0011A4    CSWAG    EQU   SECNO+420
        001121    CAWKEY   EQU   SECNO+289
        001120    SENSE    EQU   SECNO+288
        00157C    SCPDAT   EQU   SECNO+1404
        001678    SCPROO   EQU   SECNO+1656
        001228    SIO      EQU   SECNO+552
        001751    SCHNUM   EQU   SECNO+1873
        001753    UAPRT    EQU   SECNO+1875
                  *****************************************************************************
        001015             ORG   SECNO+21
001015 001898             DC    AL3(RTN04)         INITIAL PSW STARTING ADDR FOR RTN 04
        00176C            ORG   SECNO+1900
                  *****************************************************************************
                  *        VARIABLES FOR ROUTINE 04 - DOUBLE WORD BOUNDARY                    *
                  *****************************************************************************
00176C                     CNOP  0,8                    ALIGN ON DOUBLE WORD BOUNDARY
00176C 07 00               BCR   0,0
00176E 07 00               BCR   0,0
001770 00000000    WKAR    DC    3F'00'
001774 00000000
001778 00000000

                  *****************************************************************************
                  *        VARIABLES FOR ROUTINE 04 - NO BOUNDARY                             *
                  *****************************************************************************
00177C D5D640C4C1E3C140E3  MSG1    DC    C'NO DATA TRANSFER'
001785 D9C1D5E2C6C5D9
00178C D9C5C440C2E840C4C9          DC    C'RED BY DIAGNOSTI'
001795 C1C7D5D6E2E3C9
00179C C340C3C8C5C3D240D9          DC    C'C CHECK READ FOR'
0017A5 C5C1C440C6D6D9
0017AC 40C4C5E5C9C3C540C7          DC    C' DEVICE XXX'
0017B5 E7E7
0017B7 000000000000000000  DATWK   DC    XL10'00'
0017C0 00
0017C1 80                  DAT80   DC    X'80'
0017C2 000000000000000000          DC    XL9'00'
0017CB 20                  DAT20   DC    X'20'
0017CC 000000000000000000          DC    XL9'00'
0017D5 10                  DAT10   DC    X'10'
0017D6 000000000000000000          DC    XL9'00'
0017DF 08                  DAT08   DC    X'08'
0017E0 000000000000000000          DC    XL9'00'
0017E9 04                  DAT04   DC    X'04'
0017EA 000000000000000000          DC    XL9'00'
0017F3 02                  DAT02   DC    X'02'
0017F4 000000000000000000          DC    XL9'00'
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
0017FD   01                            DAT01  DC    X'01'
0017FE   000000000000000000                   DC    XL9'00'
001807   00                            DAT00  DC    X'00'
001808   000000000000000000                   DC    XL9'00'
001811   40                            DAT40  DC    X'40'
001812   000000000000000000                   DC    XL9'00'
00181B   FF                            DATFF  DC    X'FF'
00181C   000000000000000000                   DC    XL9'00'
001825   00                            CDG    DC    X'00'
001826   00000000000000000000          PLCB   DC    XL10'00'
00182F   00
001830   00000000000000000000          UCBP   DC    XL10'00'
001839   00
00183A   C5D9D940F0F0F0F0               ERRX   DC    C'ERR 0000'
001842   D6D9C9C7C9D5C1D340             RMSG   DC    C'ORIGINAL CONTENT'
00184B   C3D6D5E3C5D5E3
001852   E240D6C640E4C3E240                    DC    C'S OF UCS BUFFER '
00185B   C2E4C6C6C5D940
001862   C6D6D940D7D9C9D5E3                    DC    C'FOR PRINTER'
00186B   C5D9
00186D   40404040C4C5E2E3D9             RMSG1  DC    C'   DESTROYED, R'
001876   D6E8C5C46840D9
00187D   C5E2E3D6D9C540E6C9                    DC    C'ESTORE WITH PROG'
001886   E3C840D7D9D6C7
00188D   D9C1D440C6F8F3F7                      DC    C'RAM F837'
         ***********************************************************************
         *         ROUTINE 04 PREFIX                                           *
         ***********************************************************************
001896                                        CNOP  0,4                        FULL WORD ALIGNMENT
001896   07 00                                BCR   0,0
001898   04                            RTN04  DC    XL1'04'                     ROUTINE NUMBER
001899   00                                   DC    XL1'00'                     FLAGS
00189A   FFFF                                 DC    X'FFFF'                     ADDRESS OF NEXT ROUTINE
         *
00189C   95 84 F 751                   UBDR00 CLI   SCHNUM,X'84'                SEE IF SEARCHING FOR ROUTINE 04
0018A0   47 80 F 8A8                          BC    EQ,UBDR01                   RUN ROUTINE 04 IF YES
0018A4   47 F0 F CBA                          BC    UNC,LGOUTG                  GO PRINT MESSAGE   ROUTINE EXIT
0018A8   91 03 F 004                   UBDR01 TM    SNSW,X'03'                  BR IF SEC SS 06 IS 1 - PRINT TITLE
0018AC   47 80 F 8B6                          BC    NONE,UBDR02                 BR IF NO
0018B0   0A D0                                SVC   X'D0'                       PRINT TITLE
0018B2   80                                   DC    X'80'                       ,, NORMAL OUTPUT
0018B3   24                                   DC    X'24'                       ,, 36 CHARACTERS
0018B4   FCF0                                 DC    AL2(TITLE-BASE+REG)         ,, ADDRESS OF MESSAGE
0018B6   91 40 F 004                   UBDR02 TM    SNSW,X'40'                  SEE IF SEC SS 01 IS 1 - WANT UTILITY
0018BA   47 80 F 8C2                          BC    NONE,UBDR10                 BR IF NO
0018BE   45 80 F 678                          BAL   R8,SCPR00                   BR TO UTILITY ROUTINE
         *
         *      DATA COLLECTION ROUTINE
         *
0018C2   41 10 F 7C1                   UBDR10 LA    R1,DAT80                    INITIALIZE ROUTINE
0018C6   41 90 F 81B                          LA    R9,DATFF                    ,,
0018CA   41 20 F 811                          LA    R2,DAT40                    ,,
0018CE   41 50 F 807                          LA    R5,DAT00                    ,,
0018D2   D2 09 F 787 1 000             UBDR11 MVC   DATWK(10),0(R1)             MOVE DATA TO WORK AREA
0018D8   15 12                                CLR   R1,R2                       SEE IF WANT TO WRITE BLANK
0018DA   47 60 F 910                          BC    UNEQ,UBDR15                 BR IF NO
0018DE   41 30 F 7C1                          LA    R3,DAT80                    DETERMINE CHAR TO USE INSTEAD OF 40
0018E2   41 40 F 7FD                          LA    R4,DAT01                    ,,
0018E6   92 40 F 787                          MVI   DATWK,X'40'                 ,,
0018EA   91 04 3 008                   UBDR12 TM    8(R3),X'04'                 ,,
0018EE   47 10 F 90A                          BC    ALL,UBDR14                  ,,
0018F2   15 34                                CLR   R3,R4                       ,,
0018F4   47 80 F 900                          BC    EQ,UBDR13                   ,,
0018F8   41 30 3 00A                          LA    R3,10(R0,R3)                ,,
0018FC   47 F0 F 8EA                          BC    UNC,UBDR12                  ,,
001900   D6 00 F 787 F 80B             UBDR13 OC    DATWK(1),DAT00+4            ,,
001906   47 F0 F 910                          BC    UNC,UBDR15                  ,,
00190A   D6 00 F 787 3 000             UBDR14 OC    DATWK(1),0(R3)              ,,
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001910   D2 00 F 7BB F 7B7             UBDR15 MVC   PW(1),UCBWR                 SET UP DATA TO BE LOADED IN UCB
001916   45 80 F 98E                          BAL   R8,UCSL                     GO LOAD UCS BUFFER
00191A   45 80 F 9FA                          BAL   R8,DCKRD                    GO PERFORM 1ST DIAG CHECK READ
00191E   45 80 F 9FA                          BAL   R8,DCKRD                    GO PERFORM 2ND DIAG CHECK READ
001922   D2 00 F 7BA F 57C                    MVC   UCBWCR(1),SCPDAT            SAVE DIAG CHECK READ DATA
001928   47 F0 F 94E                          BC    UNC,UBDR18                  GO PERFORM DIAG WRITE
00192C   45 80 F 9FA                   UBDR16 BAL   R8,DCKRD                    GO PERFORM 1ST DIAG CHECK READ
001930   45 80 F 9FA                          BAL   R8,DCKRD                    GO PERFORM 2ND DIAG CHECK READ
001934   D2 00 F 7BF F 57C             UBDR17 MVC   PWCR(1),SCPDAT             SAVE DIAG CHECK READ DATA
00193A   D2 09 1 000 F 7B7                    MVC   0(10,R1),DATWK             SAVE ALL COLLECTED DATA
001940   15 19                                CLR   R1,R9                       SEE IF END OF COLLECTION
001942   47 80 F A36                          BC    EQ,UBDR20                   BR IF YES
001946   41 10 1 00A                          LA    R1,10(R0,R1)                UPDATE ADDRESSES
00194A   47 F0 F 8D2                          BC    UNC,UBDR11                  CONTINUE
         *
00194E   15 15                         UBDR18 CLR   R1,R5                       SEE IF WANT TO LAOD UCB WITH NULLS
001950   47 80 F 95C                          BC    EQ,UBDR19                   BR IF YES
001954   45 80 F 9BC                          BAL   R8,UCSDW                    GO PERFORM DIAG WRITE
001958   47 F0 F 92C                          BC    UNC,UBDR16                  RETURN
         *
00195C   1B 66                         UBDR19 SR    R6,R6                       CLEAR GR 6
00195E   41 60 6 001                   UBDR1A LA    R6,1(R0,R6)                 GENERATE NEW CODE
001962   42 60 F 7BB                          STC   R6,PW                       SAVE NEW CODE
001966   95 40 F 7BB                          CLI   PW,X'40'                    SEE IF BLANK CODE
00196A   47 80 F 95E                          BC    EQ,UBDR1A                   BR IF YES
00196E   45 80 F 9BC                          BAL   R8,UCSDW                    GO PERFORM DIAG WRITE
001972   45 80 F 9FA                          BAL   R8,DCKRD                    GO PERFORM 1ST DIAG CHECK READ
001976   45 80 F 9FA                          BAL   R8,DCKRD                    GO PERFORM 2ND DIAG CHECK READ
00197A   91 04 F 57C                          TM    SCPDAT,X'04'                SEE IF GOT PLC
00197E   47 10 F 934                          BC    ALL,UBDR17                  GR IF YES
001982   95 FF F 7BB                          CLI   PW,X'FF'                    SEE IF USED ALL CODES
001986   47 60 F 95E                          BC    UNEQ,UBDR1A                 BR IF NO
00198A   47 F0 F 934                          BC    UNC,UBDR17                  END OF GENERATING CODES
         *
         *
         *      ROUTINE TO LOAD UCS BUFFER
         *
00198E   D2 00 F 57C F 7B7             UCSL   MVC   SCPDAT(1),UCBWR             SET UP CHAR TO BE WRITTEN
001994   D2 EE F 57D F 57C                    MVC   SCPDAT+1(239),SCPDAT        ,,
00199A   92 00 F 122                          MVI   SIOSWS,X'00'                RESET SIO PGM SWITCHES
00199E   41 00 F CDO                          LA    R0,LUBCCW                   LOAD CCW ADDR IN CAW
0019A2   50 00 F 048                          ST    R0,CAW                      ,,
0019A6   48 C0 F 0E2                          LH    R12,U1ADDR                  LOAD PRNT I/O ADDR IN GR 12
0019AA   45 B0 F 228                          BAL   R11,SIO                     GO LOAD UCS BUFFER
0019AE   D2 00 F 7B8 F 1A8                    MVC   UCBST(1),CSWAG+4            SAVE WR UCB STATUS
0019B4   D2 00 F 7B9 F 120                    MVC   UCBSNS(1),SENSE             SAVE WR UCB SENSE DATA
0019BA   07 F8                                BCR   UNC,R8                      RETURN
         *
         *      ROUTINE TO PERFORM DIAGNOSTIC WRITE
         *
0019BC   D2 00 F 57C F 7BB             UCSDW  MVC   SCPDAT(1),PW                SET UP CHARACTER TO BE WRITTEN
0019C2   D2 00 F 57D F 57C                    MVC   SCPDAT+1(1),SCPDAT          ,,
0019C8   92 00 F 57E                          MVI   SCPDAT+2,X'00'              SET NULLS IN REMAINING POSITIONS
0019CC   D2 81 F 57F F 57E                    MVC   SCPDAT+3(130),SCPDAT+2      ,,
0019D2   92 00 F 122                          MVI   SIOSWS,X'00'                RESET SIO PGM SWITCHES
0019D6   41 00 F CEO                          LA    R0,DWRCCW                   LOAD DIAG WR CCW ADDR IN CAW
0019DA   50 00 F 048                          ST    R0,CAW                      ,,
0019DE   48 C0 F 0E2                          LH    R12,U1ADDR                  LOAD PRNT I/O ADDR IN GR 12
0019E2   45 B0 F 228                          BAL   R11,SIO                     GO PERFORM DIAG WRITE
0019E6   D2 00 F 7BC F 11C                    MVC   PW1ST(1),CSWSAV+4           SAVE DIAG WR CHAN END STATUS
0019EC   D2 00 F 7BD F 19F                    MVC   PW2ST(1),STATSV             SAVE DIAG WR DEV END STATUS
0019F2   D2 00 F 7BE F 120                    MVC   PWSNS(1),SENSE             SAVE DIAG WR SENSE DATA
0019F8   07 F8                                BCR   UNC,R8                      RETURN
         *
         *      ROUTINE TO PERFORM DIAGNOSTIC CHECK READ
         *
0019FA   D2 01 F 57C F D14             DCKRD  MVC   SCPDAT(2),PBDRK1            INITIALIZE CHECK READ FIELD
001A00   D2 82 F 57D F 57C                    MVC   SCPDAT+1(131),SCPDAT        ,,
001A06   92 00 F 122                          MVI   SIOSWS,X'00'                RESET SIO PGM SWITCHES
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001A0A   41 00 F CE8              LA    R0,DCRCCW       LOAD DIAG CK RD CCW ADDR IN CAW
001A0E   50 00 F 048              ST    R0,CAW          ,,
001A12   48 C0 F 0E2              LH    R12,U1ADDR      LOAD PRNT I/O ADDR IN GR 12
001A16   45 B0 F SIO              BAL   R11,SIO         GO PERFORM DIAG CHECK READ
001A1A   D5 01 F 57C F D14        CLC   SCPDAT(2),PBDRK1  SEE IF ANY DATA DATA WAS TRANSFERRED
001A20   47 80 F A26              BC    EQ,DCKRD1       BR IF NO
001A24   07 F8                    BCR   UNC,R8          RETURN
001A26   D2 02 F 784 F 753 DCKRD1 MVC   MSG1+56(3),UAPRT  SET PRINTER ADDR IN OUTPUT MSG
001A2C   0A D0                    SVC   X'D0'           NO DATA TRANSFERRED BY DIAG CK READ
001A2E   44                       DC    X'44'           ,,
001A2F   31                       DC    X'31'           ,, 49 CHARACTERS
001A30   F77C                     DC    AL2(MSG1-BASE+REG)  ,, ADDRESS OF MESSAGE
001A32   47 F0 F 9FA              BC    UNC,DCKRD       GO TRY DIAG CK READ AGAIN
*
*           DATA ANALYSIS ROUTINE
*
001A36   41 10 F 7C1       UBDR20 LA    R1,DAT80        INITIALIZE
001A3A   41 20 F 81B              LA    R2,DATFF        ,,
001A3E   41 30 F 826              LA    R3,PLCB         ,,
001A42   41 40 F 830              LA    R4,UCBP         ,,
001A46   D2 09 F 7B7 1 000 UBDR21 MVC   DATWK(10),0(R1) MOVE DATA
001A4C   92 00 3 000              MVI   0(R3),X'00'     SET SW SAYING NO PLC
001A50   91 04 F 7BF              TM    PWCR,X'04'      SEE IF GOT PLC
001A54   47 80 F A5C              BC    NONE,UBDR22     BR IF NO
001A58   92 FF 3 000              MVI   0(R3),X'FF'     SET SW SAYING GOT PLC
001A5C   92 00 4 000       UBDR22 MVI   0(R4),X'00'     SET SW SAYING NO UCB PARITY
001A60   91 04 F 789              TM    UCBSNS,X'04'    SEE IF GOT UCB PARITY
001A64   47 80 F A6C              BC    NONE,UBDR23     BR IF NO
001A68   92 FF 4 000              MVI   0(R4),X'FF'     SET SW SAYING GOT UCB PARITY
001A6C   15 12             UBDR23 CLR   R1,R2           SEE IF END
001A6E   47 80 F A82              BC    EQ,UBDR30       BR IF YES
001A72   41 10 1 00A              LA    R1,10(R0,R1)    UPDATE ADDRESSES
001A76   41 30 3 001              LA    R3,1(R0,R3)     ,,
001A7A   41 40 4 001              LA    R4,1(R0,R4)     ,,
001A7E   47 F0 F A46              BC    UNC,UBDR21      CONTINUE
*
*
001A82   D5 06 F D20 F 826 UBDR30 CLC   PBDRK3(7),PLCB  SEE IF GOT PLC FOR SEPARATE BITS
001A88   47 60 F B52              BC    UNEQ,UBDR40     BR IF NO
001A8C   91 04 F 819              TM    DAT40+8,X'04'   ,,
001A90   47 80 F B52              BC    NONE,UBDR40     ,,
001A94   91 FF F 82D              TM    PLCB+7,X'FF'    SEE IF GOT PLC FOR DAT 00
001A98   47 10 F C36              BC    ALL,UBDR80      BR IF YES
001A9C   D5 08 F 830 F D20        CLC   UCBP(9),PBDRK3  SEE IF GOT UCB PARITY FOR ALL BITS
001AA2   47 60 F AB0              BC    UNEQ,UBDR31     BR IF NO
001AA6   0A D0                    SVC   X'D0'           ERROR 080 - FALSE UCB DATA REG PARTY
001AA8   41                       DC    X'41'           ,, PRINT ON ALTERNATE DEVICE
001AA9   07                       DC    X'07'           ,, 7 CHARACTERS
001AAA   FD42                     DC    AL2(ERRO80-BASE+REG)  ,, ADDRESS OF MESSAGE
001AAC   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
001AB0   D5 06 F 830 F D20 UBDR31 CLC   UCBP(7),PBDRK3  SEE IF GOT UCB PARITY FOR ALL BUT
001AB6   47 60 F ACE              BC    UNEQ,UBDR32     ,, 00 + 40 - BR IF NO
001ABA   D5 01 F 837 F D16        CLC   UCBP+7(2),PBDRK2  ,,
001AC0   47 60 F ACE              BC    UNEQ,UBDR32     ,, BR IF NO
001AC4   0A D0                    SVC   X'D0'           ERROR 081 - UCB DATA REG PARITY
*                                                       ,, LATCH ON SOLID
001AC6   44                       DC    X'44'           ,,
001AC7   07                       DC    X'07'           ,, 7 CHARACTERS
001AC8   FD49                     DC    AL2(ERRO81-BASE+REG)  ,, ADDRESS OF MESSAGE
001ACA   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
001ACE   D5 06 F 830 F D16 UBDR32 CLC   UCBP(7),PBDRK2  SEE IF GOT UCB PARITY FOR 00 + 40
001AD4   47 60 F AEC              BC    UNEQ,UBDR33     ,, ONLY - BR IF NO
001AD8   D5 01 F 837 F D20        CLC   UCBP+7(2),PBDRK3  ,,
001ADE   47 60 F AEC              BC    UNEQ,UBDR33     ,, BR IF NO
```

F80C   2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001AE2   0A D0                    SVC   X'D0'           ERROR 082 - CAN NOT TURN ON UCB DATA
*                                                       ,, REG PARITY LATCH
001AE4   44                       DC    X'44'           ,,
001AE5   07                       DC    X'07'           ,, 7 CHARACTERS
001AE6   FD50                     DC    AL2(ERRO82-BASE+REG)  ,, ADDRESS OF MESSAGE
001AE8   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
001AEC   D5 08 F 830 F D16 UBDR33 CLC   UCBP(9),PBDRK2  SEE IF GOT ANY UCB DATA REG PARITY
*                                                       ERRORS
001AF2   47 60 F B08              BC    UNEQ,UBDR34     BR IF YES
001AF6   91 FF F 839              TM    UCBP+9,X'FF'    SEE IF GOT UCB PARITY FOR DAT FF
001AFA   47 10 F B48              BC    ALL,UBDR37      BR IF YES
001AFE   0A D0                    SVC   X'D0'           NO ERRORS DETECTED
001B00   84                       DC    X'84'           ,,
001B01   10                       DC    X'10'           ,, 16 CHARACTERS
001B02   FD2A                     DC    AL2(NERDET-BASE+REG)  ,, ADDRESS OF MESSAGE
001B04   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
*
001B08   41 10 F 830       UBDR34 LA    R1,UCBP         INITIALIZE
001B0C   41 20 F 838              LA    R2,UCBP+8       ,,
001B10   41 90 0 053              LA    R9,083          ,,
001B14   91 FF 1 000       UBDR35 TM    0(R1),X'FF'     SEE IF GOT UCB DATA REG PARITY
001B18   47 80 F B32              BC    ALL,UBDR36      BR IF YES
001B1C   15 12                    CLR   R1,R2           SEE IF END
001B1E   47 80 F B2E              BC    EQ,PGMER        BR IF YES
001B22   41 10 1 001              LA    R1,1(R0,R1)     UPDATE ADDRESSES
001B26   41 90 7 001              LA    R9,1(R0,R9)     UPDATE ERROR NUMBER
001B2A   47 F0 F B14              BC    UNC,UBDR35      CONTINUE
001B2E   47 F0 F B2E        PGMER BC    UNC,*           **** PROGRAM ERROR ****
001B32   4E 90 F 770       UBDR36 CVD   R9,WKAR         CONVERT ERR NO. TO PRINTABLE
001B36   0A DD                    SVC   X'DD'           ,,
001B38   0002                     DC    AL2(2)          ,,
001B3A   0776                     DC    AL2(WKAR+6-SECNO)  ,,
001B3C   083E                     DC    AL2(ERRX+4-SECNO)  ,,
001B3E   0A D0                    SVC   X'D0'           ERROR - GETTING FALSE UCB DATA REG
*                                                       ,, PARITY FOR DATA REG BIT(S) XX
001B40   44                       DC    X'44'           ,,
001B41   07                       DC    X'07'           ,, 7 CHARACTERS
001B42   F83A                     DC    AL2(ERRX-BASE+REG)  ,, ADDRESS OF MESSAGE
001B44   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
001B48   0A D0             UBDR37 SVC   X'D0'           ERROR 111 - FALSE UCB PARITY WITH
*                                                       ,, ALL DATA REG BITS ACTIVE
001B4A   44                       DC    X'44'           ,,
001B4B   07                       DC    X'07'           ,, 7 CHARACTERS
001B4C   FE1B                     DC    AL2(ERR111-BASE+REG)  ,, ADDRESS OF MESSAGE
001B4E   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
001B52   91 04 F 80F       UBDR40 TM    DAT00+8,X'04'   SEE IF GOT PLC FOR DAT00
001B56   47 80 F BBC              BC    NONE,UBDR50     BR IF NO
001B5A   91 FF F 80B              TM    DAT00+4,X'FF'   SEE IF GOT PLC WITH FF
001B5E   47 10 F B6A              BC    ALL,UBDR41      BR IF YES
001B62   91 BF F 80B              TM    DAT00+4,X'BF'   SEE IF GOT PLC WITH BF
001B66   47 60 F B74              BC    UNEQ,UBDR42     BR IF NO
001B6A   0A D0             UBDR41 SVC   X'D0'           ERROR 092 - NOT GETTING UCB DATA REG
*                                                       ,, RESET
001B6C   44                       DC    X'44'           ,,
001B6D   07                       DC    X'07'           ,, 7 CHARACTERS
001B6E   FD96                     DC    AL2(ERRO92-BASE+REG)  ,, ADDRESS OF MESSAGE
001B70   47 F0 F C40              BC    UNC,LGOUT       GO SEE IF WANT LOG OUT
*
001B74   41 10 F D3A       UBDR42 LA    R1,HBIT         INITIALIZE
001B78   41 20 F D41              LA    R2,HBIT+7       ,,
001B7C   41 90 0 05D              LA    R9,93           ,,
001B80   43 50 1 000       UBDR43 IC    R5,0(R0,R1)     SET UP MASK
```

W.L.O

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001B84   44 50 F BA2              EX    R5,UBDR44          FIND HOT BITS
001B88   47 10 F BA6              BC    ALL,UBDR45         BR IF THIS BIT IS HOT
001B8C   15 12                    CLR   R1,R2              SEE IF END
001B8E   47 60 F 896              BC    UNEQ,*+8           BR IF NO
001B92   47 F0 F B92              BC    UNC,*              PROGRAM OR MACHINE ERROR
001B96   41 10 1 001              LA    R1,1(R0,R1)        UPDATE ADDRESS
001B9A   41 90 9 001              LA    R9,1(R0,R9)        UPDATE ERROR NUMBER
001B9E   47 F0 F B80              BC    UNC,UBDR43         CONTINUE
001BA2   91 00 F 80B      UBDR44  TM    DAT00+4,X'00'      USED BY EXECUTE OP
001BA6   4E 90 F 770      UBDR45  CVD   R9,WKAR            CONVERT ERROR NO TO PRINTABLE
001BAA   0A DD                    SVC   X'DD'              ,,
001BAC   0002                     DC    AL2(2)             ,,
001BAE   0776                     DC    AL2(WKAR+6-SECNO)  ,,
001BB0   083E                     DC    AL2(ERRX+4-SECNO)  ,,
001BB2   0A D0                    SVC   X'D0'              ERROR - HAVE UCB DATA REG HOT BIT
001BB4   44                       DC    X'44'              ,,
001BB5   07                       DC    X'07'              ,, 7 CHARACTERS
001BB6   F83A                     DC    AL2(ERRX-BASE+REG) ,, ADDRESS OF MESSAGE
001BB8   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
001BBC   D5 06 F D16 F 826 UBDR50 CLC  PBDRK2(7),PLCB     SEE IF DID NOT GET PLC FOR 80-01
001BC2   47 60 F C22              BC    UNEQ,UBDR70        ,, BR IF DID GET ALL OR MIXED
001BC6   91 04 F 819              TM    DAT40+8,X'04'      ,,
001BCA   47 80 F BD8              BC    NONE,UBDR51        ,, BR IF DID GET ALL OR MIXED
001BCE   0A D0                    SVC   X'D0'              ERROR 094 - UCB DATA REG 1 BIT ON
                                  *                       ,, SOLID
001BD0   44                       DC    X'44'              ,,
001BD1   07                       DC    X'07'              ,, 7 CHARACTERS
001BD2   FDA4                     DC    AL2(ERR094-BASE+REG) ,, ADDRESS OF MESSAGE
001BD4   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
                                  *
001BD8   0A D0            UBDR51  SVC   X'D0'              ERROR 101 - NOT GETTING UCB DATA REG
                                  *                       ,, LOAD FORMAT SET OR UCB DATA REG
                                  *                       ,, RESET ON SOLID
001BDA   44                       DC    X'44'              ,,
001BDB   07                       DC    X'07'              ,, 7 CHARACTERS
001BDC   FDD5                     DC    AL2(ERR101-BASE+REG) ,, ADDRESS OF MESSAGE
001BDE   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
                                  *
001BE2   41 10 F 826      UBDR60  LA    R1,PLCB            INITIALIZE
001BE6   41 20 F 82C              LA    R2,PLCB+6          ,,
001BEA   41 90 0 066              LA    R9,102             ,,
001BEE   91 FF 1 000      UBDR61  TM    0(R1),X'FF'        BR IF NO PLC
001BF2   47 80 F C0C              BC    NONE,UBDR63        ,,
001BF6   15 12                    CLR   R1,R2              SEE IF END
001BF8   47 80 F C08              BC    EQ,UBDR62          BR IF YES
001BFC   41 10 1 001              LA    R1,1(R0,R1)        UPDATE ADDRESS
001C00   41 90 9 001              LA    R9,1(R0,R9)        UPDATE ERROR NUMBER
001C04   47 F0 F BEE              BC    UNC,UBDR61         CONTINUE
001C08   47 F0 F C08      UBDR62  BC    UNC,*              **** PROGRAM OR MACHINE ERROR ****
001C0C   4E 90 F 770      UBDR63  CVD   R9,WKAR            CONVERT ERR NO. TO PRINTABLE
001C10   0A DD                    SVC   X'DD'              ,,
001C12   0002                     DC    AL2(2)             ,,
001C14   0776                     DC    AL2(WKAR+6-SECNO)  ,,
001C16   083E                     DC    AL2(ERRX+4-SECNO)  ,,
001C18   0A D0                    SVC   X'D0'              ERROR - CAN NOT TURN ON UCB DATA REG
                                  *                       ,, BIT X
001C1A   44                       DC    X'44'              ,,
001C1B   07                       DC    X'07'              ,, 7 CHARACTERS
001C1C   F83A                     DC    AL2(ERRX-BASE+REG) ,, ADDRESS OF MESSAGE
001C1E   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
                                  *
001C22   D5 06 F D20 F 826 UBDR70 CLC  PBDRK3(7),PLCB     GET PLC FOR ALL BUT DAT40
001C28   47 60 F BE2              BC    UNEQ,UBDR60        BR IF NO
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001C2C   0A D0                    SVC   X'D0'              ERROR 109 - CANNOT TURN ON UCB DATA
                                  *                       ,, REG 1 BIT
001C2E   44                       DC    X'44'              ,,
001C2F   07                       DC    X'07'              ,, 7 CHARACTERS
001C30   FE0D                     DC    AL2(ERR109-BASE+REG) ,, ADDRESS OF MESSAGE
001C32   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
                                  *
001C36   0A D0            UBDR80  SVC   X'D0'              ERROR 110 - PLC OR COMPARE PROBLEM
001C38   44                       DC    X'44'              ,,
001C39   07                       DC    X'07'              ,, 7 CHARACTERS
001C3A   FE14                     DC    AL2(ERR110-BASE+REG) ,, ADDRESS OF MESSAGE
001C3C   47 F0 F C40              BC    UNC,LGOUT          GO SEE IF WANT LOG OUT
                                  *
                                  *                       LOG OUT ROUTINE
                                  *
001C40   91 20 F 004      LGOUT   TM    SNSW,X'20'         BR IF SEC SS 02 IS 0 - DO NOT WANT
001C44   47 80 F CA2              BC    NONE,LGOUTE        ,, LOG OUT
001C48   41 10 F 7C1              LA    R1,DAT80           INITIALIZE
001C4C   41 20 F 81B              LA    R2,DATFF           ,,
001C50   D2 09 F 7B7 1 000 LGOUTA MVC  DATWK(10),0(R1)    MOVE DATA
001C56   0A DD                    SVC   X'DD'              CONVERT DATA TO PRINTABLE
001C58   0009                     DC    AL2(9)             ,, CONVERT 9 BYTES
001C5A   07B7                     DC    AL2(DATWK-SECNO)   ,, HEX DATA ADDRESS
001C5C   057C                     DC    AL2(SCPDAT-SECNO)  ,, PRINTABLE DATA ADDRESS
001C5E   41 30 F 57C              LA    R3,SCPDAT          INITIALIZE
001C62   41 40 F 590              LA    R4,SCPDAT+20       ,,
001C66   41 50 F 5E0              LA    R5,SCPDAT+100      ,,
001C6A   92 40 F 5E0              MVI   SCPDAT+100,X'40'   SET UP PRINT FIELD
001C6E   D2 30 F 5E1 F 5E0        MVC   SCPDAT+101(49),SCPDAT+100 ,,
001C74   D2 01 5 000 3 000 LGOUTB MVC  0(2,R5),0(R3)      ,,
001C7A   15 34                    CLR   R3,R4              BR IF END
001C7C   47 80 F C8C              BC    EQ,LGOUTC          ,,
001C80   41 50 5 003              LA    R5,3(R0,R5)        UPDATE ADDRESSES
001C84   41 30 2 002              LA    R3,2(R0,R3)        ,,
001C88   47 F0 F C74              BC    UNC,LGOUTB         CONTINUE
001C8C   0A D0            LGOUTC  SVC   X'D0'              LOG OUT OF ACCUMULATED DATA
001C8E   80                       DC    X'80'              ,,
001C8F   1A                       DC    X'1A'              ,, 26 CHARACTERS
001C90   F 5E0                    DC    S(SCPDAT+100)      ,, ADDRESS OF MESSAGE
001C92   15 12                    CLR   R1,R2              SEE IF END OF LOG OUT
001C94   47 80 F CA0              BC    EQ,LGOUTD          BR IF YES
001C98   41 10 1 00A              LA    R1,10(R0,R1)       UPDATE ADDRESSES
001C9C   47 F0 F C50              BC    UNC,LGOUTA         CONTINUE
001CA0   0A DA            LGOUTD  SVC   X'DA'              HALT + WAIT FOR ACTION
001CA2   91 40 F 004      LGOUTE  TM    SNSW,X'40'         BR IF SEC SS 01 IS 0 - DO NOT WANT
                                  *                       ,, UTILITY ROUTINE
001CA6   47 80 F CAE              BC    NONE,LGOUTF        ,,
001CAA   45 80 F 678              BAL   R8,SCPROO          BR TO UTILITY ROUTINE
001CAE   91 20 E 1A3      LGOUTF  TM    419(R14),X'20'     IS LOOP ON SEC SS ON
001CB2   47 10 F CBA              BC    ALL,LGOUTG         BR IF YES
001CB6   96 40 F 751              OI    SCHNUM,X'40'       SET UP TO BYPASS ALL REMAINING OVLYS
001CBA   D2 02 F 86D F 753 LGOUTG MVC  RMSG1(3),UAPRT     MOVE PRINTER ADDR TO OUTPUT MESSAGE
001CC0   0A D0                    SVC   X'D0'              PRINT MESSAGE INDICATING TO RESTORE
001CC2   80                       DC    X'80'              ,, UCS BUFFER WITH PROGRAM F837
001CC3   2B                       DC    X'2B'              ,,
001CC4   F842                     DC    AL2(RMSG-BASE+REG) ,,
001CC6   0A D0                    SVC   X'D0'              ,,
001CC8   80                       DC    X'80'              ,,
001CC9   28                       DC    X'28'              ,,
001CCA   F86D                     DC    AL2(RMSG1-BASE+REG) ,,
001CCC   0A D6                    SVC   X'D6'              ROUTINE EXIT
                 ****************************************************************
                 *              CCW,S USED BY ROUTINE 04                       *
                 ****************************************************************
001CD0   EB 00157C 6000 0001 LUBCCW CCW X'EB',SCPDAT,X'60',1 COND LD FMT CCW - SLI + CC ON
001CD8   FB 00157C 2000 00F0      CCW   X'FB',SCPDAT,X'20',240 LOAD UCS BUFFER - SLI ON
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
001CE0   05 00157C 2000 0084      DWRCCW CCW   X'05',SCPDAT,X'20',132  DIAGNOSTIC WRITE - SLI ON
001CE8   06 00157C 2000 0084      DCRCCW CCW   X'06',SCPDAT,X'20',132  DIAGNOSTIC CHECK READ - SLI ON
                                  ***********************************************************************
                                  *          CONSTANTS FOR ROUTINE 04 - NO BOUNDARY
                                  ***********************************************************************
001CF0   F2F8F2F140E2C3C1D5       TITLE  DC    C'2821 SCAN/1403 U'
001CF9   61F1F4F0F340E4
001D00   C3E26B40E4C3C240C4              DC    C'CS, UCB DATA REG'
001D09   C1E3C140D9C5C7
001D10   40C6D3E3                        DC    C' FLT'
001D14   00FF                     P8DRK1 DC    X'00FF'
001D16   000000000000000000       PBDRK2 DC    XL10'00'
001D1F   00
001D20   FFFFFFFFFFFFFFFFFF       PBDRK3 DC    X'FFFFFFFFFFFFFFFFFFFF'
001D29   FF
001D2A   D5D640C5D9D9E240C4       NERDET DC    C'NO ERRS DETECTED'
001D33   C5E3C5C3E3C5C4
001D3A   8040201008040201         HBIT   DC    X'8040201008040201'
                                  ***********************************************************************
                                  *                EQUATES                                              *
                                  ***********************************************************************
                                  *
                                  *          GENERAL REGISTER EQUATES
                                  *
         000000                   R0     EQU   0
         000001                   R1     EQU   1
         000002                   R2     EQU   2
         000003                   R3     EQU   3
         000004                   R4     EQU   4
         000005                   R5     EQU   5
         000006                   R6     EQU   6
         000007                   R7     EQU   7
         000008                   R8     EQU   8
         000009                   R9     EQU   9
         00000A                   R10    EQU   10
         00000B                   R11    EQU   11
         00000C                   R12    EQU   12
         00000D                   R13    EQU   13
         00000E                   R14    EQU   14
         00000F                   R15    EQU   15
                                  *
                                  *          CONDITION CODE EQUATES
                                  *
         000008                   NONE   EQU   8        ALL OFF         0
         000005                   ANY    EQU   5        ANY ON           1   3
         000001                   ALL    EQU   1        ALL ON               3
         000004                   SOME   EQU   4        MIXED          1
         000009                   NMIXED EQU   9        NOT MIXED      0     3
         000008                   EQ     EQU   8        EQUAL          0
         000006                   UNEQ   EQU   6        NOT EQUAL        1 2
         000004                   LO     EQU   4        LOW            1
         000002                   HI     EQU   2        HIGH               2
         000008                   Z      EQU   8        ZERO           0
         000002                   POS    EQU   2        GREATER ZERO       2
         000008                   CC0    EQU   8        AVAILABLE      0
         000004                   CC1    EQU   4        CSW STORED       1
         000002                   CC2    EQU   2        BUSY               2
         00000F                   UNC    EQU   15       UNCONDITIONAL  0 1 2 3
         000000                   NOTBSY EQU   13       NOT BUSY       0 1   3
         000007                   NZ     EQU   7        NOT CC 0         1 2 3
         000004                   NEG    EQU   4        NOT ZERO -AND-   1
         00000C                   ZNEG   EQU   12       MIXED OR NONE  0 1
         00000B                   CSWNST EQU   11       CSW NOT STORED 0   2 3
                                  *
                                  *          GENERAL EQUATES
                                  *
         000040                   HCSW   EQU   64       HARDWARE CSW LOCATION
         000048                   HCAW   EQU   72       HARDWARE CAW LOCATION
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
         000078                   HION   EQU   120             HARDWARE I/O NEW PSW LOCATION
         001118                   CSWSAV EQU   SIOVR3
                                  *
                                  *      EQUATES USED EXCLUSIVELY BY ROUTINE 04
                                  *
         0017B7                   UCBWR  EQU   DATWK
         0017B8                   UCBST  EQU   DATWK+1
         0017B9                   UCBSNS EQU   DATWK+2
         0017BA                   UCBWCR EQU   DATWK+3
         0017BB                   PW     EQU   DATWK+4
         0017BC                   PW1ST  EQU   DATWK+5
         0017BD                   PW2ST  EQU   DATWK+6
         0017BE                   PWSNS  EQU   DATWK+7
         0017BF                   PWCR   EQU   DATWK+8
                                  ***********************************************************************
                                  *          ERROR DEFINITIONS FOR ROUTINE 04                           *
                                  ***********************************************************************
001D42   C5D9D940F0F8F0           ERR080 DC    C'ERR 080'       FALSE UCB DATA REG PARITY ERRORS
001D49   C5D9D940F0F8F1           ERR081 DC    C'ERR 081'       UCB DATA REG PARITY LATCH ON SOLID
001D50   C5D9D940F0F8F2           ERR082 DC    C'ERR 082'       CAN NOT TURN ON UCB DATA REG PARITY
                                  *                                     LATCH
001D57   C5D9D940F0F8F3           ERR083 DC    C'ERR 083'       FALSE UCB DATA REG PARITY FOR 0 BIT
001D5E   C5D9D940F0F8F4           ERR084 DC    C'ERR 084'       FALSE UCB DATA REG PARITY FOR 2 BIT
001D65   C5D9D940F0F8F5           ERR085 DC    C'ERR 085'       FALSE UCB DATA REG PARITY FOR 3 BIT
001D6C   C5D9D940F0F8F6           ERR086 DC    C'ERR 086'       FALSE UCB DATA REG PARITY FOR 4 BIT
001D73   C5D9D940F0F8F7           ERR087 DC    C'ERR 087'       FALSE UCB DATA REG PARITY FOR 5 BIT
001D7A   C5D9D940F0F8F8           ERR088 DC    C'ERR 088'       FALSE UCB DATA REG PARITY FOR 6 BIT
001D81   C5D9D940F0F8F9           ERR089 DC    C'ERR 089'       FALSE UCB DATA REG PARITY FOR 7 BIT
001D88   C5D9D940F0F9F0           ERR090 DC    C'ERR 090'       FALSE UCB DATA REG PARITY FOR P BIT
001D8F   C5D9D940F0F9F1           ERR091 DC    C'ERR 091'       FALSE UCB DATA REG PARITY FOR 0 AND
                                  *                                     1 BITS
001D96   C5D9D940F0F9F2           ERR092 DC    C'ERR 092'       NEVER GETTING UCB DATA REG RESET
001D9D   C5D9D940F0F9F3           ERR093 DC    C'ERR 093'       UCB DATA REG 0 BIT ON SOLID
001DA4   C5D9D940F0F9F4           ERR094 DC    C'ERR 094'       UCB DATA REG 1 BIT ON SOLID
001DAB   C5D9D940F0F9F5           ERR095 DC    C'ERR 095'       UCB DATA REG 2 BIT ON SOLID
001DB2   C5D9D940F0F9F6           ERR096 DC    C'ERR 096'       UCB DATA REG 3 BIT ON SOLID
001DB9   C5D9D940F0F9F7           ERR097 DC    C'ERR 097'       UCB DATA REG 4 BIT ON SOLID
001DC0   C5D9D940F0F9F8           ERR098 DC    C'ERR 098'       UCB DATA REG 5 BIT ON SOLID
001DC7   C5D9D940F0F9F9           ERR099 DC    C'ERR 099'       UCB DATA REG 6 BIT ON SOLID
001DCE   C5D9D940F1F0F0           ERR100 DC    C'ERR 100'       UCB DATA REG 7 BIT ON SOLID
001DD5   C5D9D940F1F0F1           ERR101 DC    C'ERR 101'       NOT GETTING UCB DATA REG SET OR UCB
                                  *                                     DATA REG RESET ON SOLID
001DDC   C5D9D940F1F0F2           ERR102 DC    C'ERR 102'       CAN NOT TURN ON UCB DATA REG 0 LATCH
001DE3   C5D9D940F1F0F3           ERR103 DC    C'ERR 103'       CAN NOT TURN ON UCB DATA REG 2 LATCH
001DEA   C5D9D940F1F0F4           ERR104 DC    C'ERR 104'       CAN NOT TURN ON UCB DATA REG 3 LATCH
001DF1   C5D9D940F1F0F5           ERR105 DC    C'ERR 105'       CAN NOT TURN ON UCB DATA REG 4 LATCH
001DF8   C5D9D940F1F0F6           ERR106 DC    C'ERR 106'       CAN NOT TURN ON UCB DATA REG 5 LATCH
001DFF   C5D9D940F1F0F7           ERR107 DC    C'ERR 107'       CAN NOT TURN ON UCB DATA REG 6 LATCH
001E06   C5D9D940F1F0F8           ERR108 DC    C'ERR 108'       CAN NOT TURN ON UCB DATA REG 7 LATCH
001E0D   C5D9D940F1F0F9           ERR109 DC    C'ERR 109'       CAN NOT TURN ON UCB DATA REG 1 LATCH
001E14   C5D9D940F1F1F0           ERR110 DC    C'ERR 110'       PLC OR COMPARE PROBLEM
001E1B   C5D9D940F1F1F1           ERR111 DC    C'ERR 111'       FALSE UCB DATA REG PARITY WITH ALL
                                  *                                     DATA REG BITS ACTIVE
                                  ***********************************************************************
         001000                   BASE   EQU   SECNO
         00F000                   REG    EQU   X'F000'
                                         END
```

W.L.D.

POST ASSEMBLY DATA.

REFERENCES TO DEFINED SYMBOLS.

```
1     8     Z
1     8     EQ    18A0,  18F4,  1942,  1950,  196A,  1A20,  1A6E
                  1B1E,  1BF8,  1C7C,  1C94
1     2     HI
1     4     LO
1     7     NZ
10    17BB  PW    1910,  1962,  1966,  1982,  19BC
1     0     RO    18F8,  1946,  195E,  199E,  19A2,  19D6,  19DA
                  1A0A,  1A0E,  1A72,  1A76,  1A7A,  1B22,  1B26
                  1B80,  1B96,  1B9A,  1BFC,  1C00,  1C80,  1C84
                  1C98
1     1     R1    18C2,  18D2,  18D8,  193A,  1940,  1946,  1946
                  194E,  1A36,  1A46,  1A6C,  1A72,  1A72,  1B08
                  1B14,  1B1C,  1B22,  1B22,  1B74,  1B80,  1B8C
                  1B96,  1B96,  1BE2,  1BEE,  1BF6,  1BFC,  1BFC
                  1C48,  1C50,  1C92,  1C98,  1C98
1     2     R2    18CA,  18D8,  1A3A,  1A6C,  1B0C,  1B1C,  1B78
                  1B8C,  1BE6,  1BF6,  1C4C,  1C92
1     3     R3    18DE,  18EA,  18F2,  18F8,  18F8,  190A,  1A3E
                  1A4C,  1A58,  1A76,  1A76,  1C5E,  1C74,  1C7A
                  1C84,  1C84
1     4     R4    18E2,  18F2,  1A42,  1A5C,  1A68,  1A7A,  1A7A
                  1C62,  1C7A
1     5     R5    18CE,  194E,  1B80,  1B84,  1C66,  1C74,  1C80
                  1C80
1     6     R6    195C,  195C,  195E,  195E,  1962
1     7     R7
1     8     R8    18BE,  1916,  191A,  191E,  192C,  1930,  1954
                  196E,  1972,  1976,  19BA,  19F8,  1A24,  1CAA
1     9     R9    18C6,  1940,  1B10,  1B26,  1B26,  1B32,  187C
                  1B9A,  1B9A,  1BA6,  1BEA,  1C00,  1C00,  1C0C
1     1     ALL   18EE,  197E,  1A98,  1AFA,  1B18,  185E,  1B88
                  1CB2
1     5     ANY
1     1048  CAW   19A2,  19DA,  1A0E
1     8     CC0
1     4     CC1
1     2     CC2
1     1825  CDG
1     1040  CSW
1     4     NEG
1     2     POS
1     A     R10
1     B     R11   19AA,  19E2,  1A16
1     C     R12   19A6,  19DE,  1A12
1     D     R13
1     E     R14   1CAE
1     F     R15
1     F000  REG   18B4,  1A30,  1AAA,  1AC8,  1AE6,  1B02,  1B42
                  1B4C,  1B6E,  1BB6,  1BD2,  1BDC,  1C1C,  1C30
                  1C3A,  1CC4,  1CCA
1     1228  SIO   19AA,  19E2,  1A16
1     F     UNC   18A4,  18FC,  1906,  1928,  194A,  1958,  198A
                  19BA,  19F8,  1A24,  1A32,  1A7E,  1AAC,  1ACA
                  1AE8,  1B04,  1B2A,  1B2E,  1B44,  1B4E,  1B70
                  1B92,  189E,  1BB8,  1BD4,  1BDE,  1C04,  1C08
                  1C1E,  1C32,  1C3C,  1C88,  1C9C
1     1000  BASE  18B4,  1A30,  1AAA,  1AC8,  1AE6,  1B02,  1B42
                  1B4C,  1B6E,  1BB6,  1BD2,  1BDC,  1C1C,  1C30
                  1C3A,  1CC4,  1CCA
8     183A  ERRX  1B3C,  1B42,  1B80,  1BB6,  1C16,  1C1C
```

```
8     1D3A  HBIT   1B74,  1B78
1     48    HCAW
1     40    HCSW
1     78    HION
16    177C  MSG1   1A26,  1A30
1     8     NONE   18AC,  18BA,  1A54,  1A64,  1A90,  1B56,  1BCA
                   1BF2,  1C44,  1CA6
10    1826  PLCB   1A3E,  1A82,  1A94,  1BBC,  18E2,  1BE6,  1C22
10    17BF  PWCR   1934,  1A50
16    1842  RMSG   1CC4
1     1004  SNSW   18A8,  18B6,  1C40,  1CA2
1     4     SOME
10    1830  UCBP   1A42,  1A9C,  1AB0,  1ABA,  1ACE,  1AD8,  1AEC
                   1AF6,  1B08,  1B0C
6     198E  UCSL   1916
1     6     UNEQ   18DA,  1986,  1A88,  1AA2,  1AB6,  1AC0,  1AD4
                   1ADE,  1AF2,  1B66,  1B8E,  1BC2,  1C28
4     1770  WKAR   1B32,  1B3A,  1BA6,  1BAE,  1C0C,  1C14
1     C     ZNEG
1     11A4  CSWAG  19AE
1     1807  DAT00  18CE,  1900,  1B52,  1B5A,  1B62,  1BA2
1     17FD  DAT01  18E2
1     17F3  DAT02
1     17E9  DAT04
1     17DF  DAT08
1     17D5  DAT10
1     17CB  DAT20
1     1811  DAT40  18CA,  1A8C,  1BC6
1     17C1  DAT80  18C2,  18DE,  1A36,  1C48
1     181B  DATFF  18C6,  1A3A,  1C4C
10    17B7  DATWK  18D2,  18E6,  1900,  190A,  193A,  1A46,  1C50
                   1C5A,  1D42,  1D42,  1D42,  1D42,  1D42,  1D42
                   1D42,  1D42,  1D42
6     19FA  DCKRD  191A,  191E,  192C,  1930,  1972,  1976,  1A32
4     1C40  LGOUT  1AAC,  1ACA,  1AE8,  1B04,  1B44,  1B4E,  1B70
                   1B88,  1BD4,  1BDE,  1C1E,  1C32,  1C3C
4     182E  PGMER  1B1E
10    17BC  PW1ST  19E6
10    17BD  PW2ST  19EC
10    17BE  PWSNS  19F2
16    186D  RMSG1  1CBA,  1CCA
1     1898  RTNO4  1015
1     1000  SECNO  1000,  1000,  1000,  1000,  1000,  1000,  1000
                   1000,  1000,  1000,  1000,  1000,  1000,  1000
                   1000,  1000,  1000,  1018,  183A,  1B3C
                   1BAE,  1BB0,  1C14,  1C16,  1C5A,  1C5C,  1E22
1     1120  SENSE  19B4,  19F2
16    1CF0  TITLE  18B4
1     1753  UAPRT  1A26,  1CBA
10    17B8  UCBST  19AE
10    17B7  UCBWR  1910,  198E
6     198C  UCSDW  1954,  196E
1     10E0  UNIT1
1     1121  CAWKEY
1     B     CSWNST
1     1118  CSWSAV 19E6
6     1A26  DCKRD1 1A20
8     1CE8  DCRCCW 1A0A
8     1CE0  DWRCCW 19D6
7     1D42  ERRO80 1AAA
7     1D49  ERRO81 1AC8
7     1D50  ERRO82 1AE6
7     1D57  ERRO83
7     1D5E  ERRO84
7     1D65  ERRO85
7     1D6C  ERRO86
7     1D73  ERRO87
7     1D7A  ERRO88
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
  7   1D81 ERRO89
  7   1D88 ERRO90
  7   1D8F ERRO91
  7   1D96 ERRO92    1B6E
  7   1D9D ERRO93
  7   1DA4 ERRO94    1BD2
  7   1DAB ERRO95
  7   1DB2 ERRO96
  7   1DB9 ERRO97
  7   1DC0 ERRO98
  7   1DC7 ERRO99
  7   1DCE ERR100
  7   1DD5 ERR101    1BDC
  7   1DDC ERR102
  7   1DE3 ERR103
  7   1DEA ERR104
  7   1DF1 ERR105
  7   1DFF ERR107
  7   1E06 ERR108
  7   1E0D ERR109    1C30
  7   1DF8 ERR10L
  7   1E14 ERR110    1C3A
  7   1E1B ERR111    1B4C
  6   1C50 LGOUTA    1C9C
  6   1C74 LGOUTB    1C88
  2   1C8C LGOUTC    1C7C
  2   1CA0 LGOUTD    1C94
  4   1CA2 LGOUTE    1C44
  4   1CAE LGOUTF    1CA6
  6   1CBA LGOUTG    18A4,  1CB2
  8   1CD0 LUBCCW    199E
 16   1D2A NERDET    1B02
  1      9 NMIXED
  1      D NOTBSY
  2   1D14 PBDRK1    19FA,  1A1A
 10   1D16 PBDRK2    1ABA,  1ACE,  1AEC,  1BBC
 10   1D20 PBDRK3    1A82,  1A9C,  1AB0,  1AD8,  1C22
  1   1751 SCHNUM    189C,  1CB6
  1   157C SCPDAT    1922,  1934,  197A,  198E,  1994,  1994,  198C
                     19C2,  19C2,  19C8,  19CC,  19CC,  19FA,  1A00
                     1A00,  1A1A,  1C5C,  1C5E,  1C62,  1C66,  1C6A
                     1C6E,  1C6E,  1C90,  1CD0,  1CD8,  1CE0,  1CE8
  1   1678 SCPR00    18BE,  1CAA
  1   1122 SIOSWS    199A,  19D2,  1A06
  1   1118 SIOVR3    1D42
  1   1108 SIOVR4
  1   119F STATSV    19EC
  1   10E2 U1ADDR    19A6,  19DE,  1A12
  4   189C UBDR00
  4   18A8 UBDR01    18A0
  4   18B6 UBDR02    18AC
  4   18C2 UBDR10    18BA
  6   18D2 UBDR11    194A
  4   18EA UBDR12    18FC
  6   1900 UBDR13    18F4
  6   190A UBDR14    18EE
  6   1910 UBDR15    18DA,  1906
  4   192C UBDR16    1958
  6   1934 UBDR17    197E,  198A
  2   194E UBDR18    1928
  2   195C UBDR19    1950
  4   195E UBDR1A    196A,  1986
  4   1A36 UBDR20    1942
  6   1A46 UBDR21    1A7E
  4   1A5C UBDR22    1A54
  2   1A6C UBDR23    1A64
  6   1A82 UBDR30    1A6E
  6   1AB0 UBDR31    1AA2
```

F80C 2821 SCAN, 1403 UNIVERSAL CHARACTER SET
F80D3 UNIV. CHAR. BUFFER DATA REGISTER ROUTINE OVERLAY 4

```
  6   1ACE UBDR32    1AB6,  1AC0
  6   1AEC UBDR33    1AD4,  1ADE
  4   1B08 UBDR34    1AF2
  4   1B14 UBDR35    1B2A
  4   1B32 UBDR36    1B18
  2   1B48 UBDR37    1AFA
  4   1B52 UBDR40    1A88,  1A90
  2   186A UBDR41    1B5E
  4   1B74 UBDR42    1B66
  4   1B80 UBDR43    1B9E
  4   1BA2 UBDR44    1B84
  4   1BA6 UBDR45    1B88
  6   1BBC UBDR50    1B56
  2   1BD8 UBDR51    1BCA
  4   1BE2 UBDR60    1C28
  4   1BEE UBDR61    1C04
  4   1C08 UBDR62    1BF8
  4   1C0C UBDR63    1BF2
  6   1C22 UBDR70    1BC2
  2   1C36 UBDR80    1A98
 10   17B9 UCBSNS    19B4,  1A60
 10   17BA UCBWCR    1922
  1   1000 XF80D3
```

NO ERROR DETECTED IN ABOVE ASSEMBLY

PERIODS CORRESPOND TO BLANK COLUMNS.

COLS. 1 THROUGH 20	COLS. 21 THROUGH 40	COLS. 41 THROUGH 60	COLS. 61 THROUGH 80
BESD......AA..AAXF80 9 YQ Y9 99 9	D3..AAAA.ACD...... YYQY Y8Q 9999 999	840	265.125655..80D30001
BTXT.AAN..AC..AAAQA. 9 YQ9 Y9 Y9Y9Q 99 9 9 9 Z	....	....	...........80D30002
BTXT.APU..A8..AAGAGA 9 Y98 Y9 Y99Y9Y. 9 9 9 9	AAAAAAAAAAAAAAAAAAAA YYYYYYYYYYYYYYYYYYYY 99999999999999999999	AAAAAAAAAAAA.AAAAAAA YYYYYYYYYYYYY YYYYYYY 99 999999999 9999999	AAJAAAAAAAAA80D30003 YYYYYYYYYYYYY 999999999999
BTXT.APM..A8..AAAAAA 9 Y90 Y9 Y9QYYY 9 9 9 9999	AAAAAAHAAAAAAAAADAAA YYYYYY9YYYYYYYY9YYY 999999 999999999 999	AAAAAABAAAAAAAAAAAAA YYYYYY9YYYYYYYY9YYY 999999 999999999 999	AAAAAAAAAAA80D30004 YYYYYYYYYYYY 999999999999
BTXT.APD..A8..AAAAAA 9 Y9Q Y9 Y9YYYY 9 9 9 9999	GAAAAAAAAANO.DATA.TR QYYYYYYYYY Z999999999	ANSFERRED.BY.DIAGNOS	TIC.CHECK.RE80D30005
BTXT.AQM..A8..AAAD.F 9 Y99 Y9 Y9 9 9 9	OR.DEVICE.XXXERR.000	.AGACAGFEC7AGA86BOAB Y9Y9YQQ-0 RZY 88 -9 9 9 9ZZ 99	ODGA8DE0AVCH80D30006 9ZY 88-Y8Q9 9 9Z
BTXT.AQD..A8..AAA.OD 9 Y98 Y9 Y9- 9 9 9 9	GA8HEA6HAA7FAJ7KKA74 ZY RZY RZQ OZY Y Y 8 09 999	AAKA5474KA5554BA1SAA QY Y 8 8 Y 8 8-Y 9ZY 999 9 9 9	B0+AOHHOOSEA80D30007 Q Y ZZ+ ZQ Z.9 0
BTXT.AQD..A8..AA2YKA 9 Y90 Y9 Y9 9 Y 9 9 9	751MKA761GKA771JEA8S 8 8 Y 8 Q Y 8 YZY 99 9 9	KA7A54AAB8+AOHBA54EA Y Y 8ZYQ Y Z-Y 8ZQ 9 9Z 9 9 0	2YKA7A54KA7B80D30008 9 Y 0 8 Y 0 9 9
BTXT.AQD..A8..AA1QKA 9 Y9Q Y9 Y9 0 Y 9 0 9	7C1JEA8SKA7D54KAAA74 0 YZY Y 0 8QY 8 9 9 999	AAABNKG-8-G09UAACA+A ZQQ899Z Z 9ZYQY Y 999 9Z9 9	OHKA54C5EA2Y80D30009 Z 9 8Q9ZQ 9 Z 0
BTXT.AQ4..A8..AANA54 9 Y9 Y9 Y9 9 8 9 9 9	C5GA9MKA54C5EA2YNA54 Q9ZY 9 9 8QZQ 9 9 8 Z Z 0	C5GA9MG8KB8S7CB0.17K Q9ZY 99 9 9 R8-9 Y Z 9 9	G08SAA7FAA5480D30010 Z ZQ 0ZQ 8 9 Z
BTXT.AJU..A8..AAKA74 9 Y88 Y9 Y9 9 8 999 9 9	AAC.74BAAAD.9DGA9FBG QYZ 8-YQYZ RZY Z-Q 99 9Z9 0 Z	AABAAMAA7AGA90AB75GA QY-YQ9-9 YZY 8-9 8ZY Z9 9Z	90BGAHAAABAA80D30011. 8-QQ9ZQQ8ZQ ZZ 999 Z
BTXT.AJM..A8..AAAANK 9 Y8Z Y9 Y9Q9999 99 9 9Z	G-9UAJ7SG09HAA7ABA50 Z 8ZY 8Z R-Y 0-Y Y 99 9 09 9	KH5P50BG5BKH5C5BNG54 9 Y Y-Q 9 9 8	50G-9JB0DGCA80D30012 YZ Y8-Z9Q8 9 Z
BTXT.AJD..A8..AAG0B0 9 Y8Q Y9 Y9Z Q+ 99 9 Z-	AG7CGA9MG09FB0DGC+G0 -Q QZQ YZ 08-Z9Q Z Z 99 -9 Z	B0AA7FA+A4AJ7DKA74AA Q+ZQ QZ 9ZYQ Y 8 8QY Z-9 9 999 99	AA+AC.74D.9D80D30013 ZQ YZ 8Z R
BTXT.AJM..A8..AAGA9B 9 Y8 Y9 Y9ZY Q 99 9 Z	AAAAD.96GA9BNKGABAAA ZQQ9Z ZQ Q99ZYQQZQ 9 Z Z9 9	ABA++BG09BAA7CFA70BE Q8Z 9Z -Y Q8Q +8Q 99 9 9 -99	ABGFH/B0DG8V80D30014 Y99R988-Z9 9 9 0 99
BTXT.AKD..A8..AAG0B0 9 Y8Z Y9 Y9Z Q+ 99 9 Z-	NG5A5BGABONG5A50G-B0 9 Q ZYQZ 9 Q YZ QZ Z Z	B0DGCFG0B0B0DGCNG0B0 8-Z9QYZ Q+8-Z9Q Z Q+ 9 Z9 Z9-9 Z Z-	AJ0DGABKAA7F80D30015 -Y 9ZYQ ZQ 0 9 Z 9
BTXT.AK4..A8..AAAJ7S 9 Y88 Y9 Y9ZY 8 99 9 9	KA74AABEAAG4E4AA54A. 8 8QY8QY89898ZQ 8Z 9 999999 Z.	5AA+5SB.5SKA5J5SKA+A QZ 8- 8 Q Z 8 9 Y Z 9	AAN4GABDA++C80D30016 QY99ZYQQZ 9 Z9 Z0

W.L.D.

BTXT.AKD..A8..AAG0B0 9 Y88 Y9 Y9Z Q+ 999 9 9 Z-	AG5HGABHNG5A5BGAB6NG -Q -ZQQZ 9 Q ZYQ8 9 Z 9Z Z9	5A50G-B0AG5IGAB0B0DK Q YZ QZ-Q -ZQQZ8-09 Z Z 9Z 9	C7G0B0B0DGCG80D30017 Q9Z Q+8-Z9Q Z Z-9 Z
BTXT.AKD..A8..AAAAAB 9 Y80 Y9 Y9ZQQ9 99- 9 9 ZZ	G0BMB0AK5SNKGAB0AAAB Z Q08-Y8 899ZYQ-ZQQ8 Z 9 9 Z 999	G0BABBA.ODGABFEA6HAJ Z QY8Q- 9ZYQQZY R-Y Z 99 Z9 0 9	JLGABKF.7AB080D30018 ZOZQQY- R8 9Z9 9
BTXT.AKM..A8..AAAAAA 9 Y8Y Y9 Y9YYYY 999 9 9 9999	EAN4JAABBAN4JAAAFAN4 9Y98YYY99Y98YYY99Y98 9 999 9 999 9	JAAB2821.SCAN/1403.U YYY9 999	CST.PRINT.BU80D30019 8
BTXT.ALU..A8..AAFFER 9 Y8Y Y9 Y9 99 9 9	.DATA.REG.FLTAGNO.ER YQ 9Z.	RORS.DETECTEDERR.050	ERR.051ERR.080D30020
BTXT.ALM..A8..AA52ER 9 Y88 Y9 Y9 99 9	R.053ERR.054ERR.055E	RR.056ERR.057ERR.058	ERR.059ERR.080D30021
BTXT.ALD..A8..AA60ER 9 Y8- Y9 Y9 99 9	R.061ERR.062ERR.063E	RR.064ERR.065ERR.066	ERR.067ERR.080D30022
BTXT.ALD..AA..AA68ER 9 Y8Y YQ Y9 999 99 9	R.069ERR.070........	....	...........80D30023
BRLD......AM....AAAA 9 Y9 Y9Y9 9 9	AAANAAK1AAK9HALA.... 8YQ98Y8 8Y8 9Y89 999 999 999 99	....	...........80D30024
BEND......AA.... 9 Y9 9	....	....	...........80D30025
BDAT................ 9	....	....	...........80D30026
BESD......AA..AAXF80 9 YQ Y9 99 9	D3..AAAA.AFS........ YYQY Y89 9999 99	....	...........80D30027
BTXT.AAN..AC..AAAQH. 9 YQ9 Y9 Y9Y9- 99 9 9 9	....	....	...........80D30028
BTXT.APU..A8..AAGAGA 9 Y98 Y9 Y99Y9Y. 9 9 9 9	AAAAAAAAAAAAANO.DATA. YYYYYYYYYYY 999999999999	TRANSFERRED.BY.DIAGN	OSTIC.CHECK.80D30029
BTXT.APM..A8..AAREAD 9 Y90 Y9 Y9 9 9 9	.FOR.DEVICE.XXXAAAAA YYYYY 99999	AAAAAAAAAAAAAAAJAAAA YYYYYYYYYYYYYYYYYYYY 99999 99999999999999	AAAAAAAAAAAA80D30030. YYYYYQYYYYYY 999999999999
BTXT.APD..A8..AAAAAH 9 Y9Q Y9 Y9YYY9 99 .9 9 999	AAA+AAAAADAAAAAAAAAB YYYYYYYYY9YYYYYYYYY9 .999999999 999999999	AAAAAAAAAAAAAAAAAAAA YYYYYYYYY9YYYYYYYYYY 999999999 9999999999	AAAAAAAAA.AA80D30031 YYYYYYYYY YY 999999999 99
BTXT.AQM..A8..AAAAAA 9 Y99 Y9 Y9YYYY 9 .9. 9-9999	AAAGAAAAAAAAAAAAAAAA YYYYQYYYYYYYYYYYYYYY .999Z99999999999999999	AAAAAAAAAAAAAAAERR.00 YYYYYYYYYYYYYYY 99999999999999	000RIGINAL.C80D30032
BTXT.AQD..A8..AAONTE 9 Y98 Y9 Y9 9 9 9	NTS.OF.UCS.BUFFER.FO	R.PRINTER....DESTROY	EDT.RESTORE.80D30033 8

```
BTXT.AQD..A8..AAWITH   .PROGRAM.F837AGADAGG   ED7AGA8QGODBACODGA8F   B0AUD0A.0DGA80D30034
9    Y90 Y9 Y9          Y9Y9YQQ                -O RZY OZ QQ-9 9ZY O   8-Y9Q - 9ZY
9     9   9             9 9 9ZZ                ZO    -                9 Z

BTXT.AQD..A8..AA8BEA   6HAA7AAA8LAJ8JA+8GKA   7GAANKG-9AAA7AA.7EB.   7GADAHGA9BN480D30035
9    Y9Q Y9 Y9 ZY       RZQ ZQ 8ZY 9Z 9 8     OQY99Z QZQ Z Q-       0-9Q9ZQ 899
9    0 9   9             0 9    99     9        -99   9 Z    Z        - Z 99

BTXT.AQ4..A8..AAGA9A   AAABG08K0A7G8CG09ADA   7GAAKA7C7GEA9FEA9BEA   9BKA7B54G09F80D30036
9    Y9   Y9 Y9ZY Y     ZQQ8Z  Y Y 0 8Z  Q Y   0QY Y Q OZY YZY QZY   Q Y Q 8Z  8
9     9    9    9        ZZ9   99-9  99         -Z9 0  -      Z       Z 9 0

BTXT.AJU..A8..AAEA9B   EA9BKA7G54KAAA7GNJGA   B6AAABG08KNNGA9MEA9D   G09UL0A--AB-80D30037
9    Y88 Y9 Y9ZY Q      ZY Q Y Q 8 8QY 098ZY   Q9ZQQ8Z  99ZY 8ZY Q   Z  88ZZ  9Z
999   9   9  Z          Z   9 0   999 - 9      Z  999        0        Z 90

BTXT.AJM..A8..AA7CE.   7CGA90EA9DEA9BEA9BAD   54GA94EG7CG-90G094KA   547GK05554BA80D30038
9    Y8Z Y9 Y9 Q-       QZY 8ZY QZY QZY Q-9    8ZQ 9-Q QZ 8Z 9 Y      8 0 Y 8 8-Y
9     9   9  0           9 Z  0                9 Z0   9                9 Z 9

BTXT.AJD..A8..AA1SAA   D0+A0HH00SEA2YKA7H1Q   KA7I1JG8KA547CKA5554   BA56KA5756BA80D30039
9    Y8Q Y9 Y9 9ZY      Q- Y ZZ+ ZQ 9 Y 0 0    Y 0 Y9  Y 8 Q Y 8 8    -Y 8 0 8 8-Y
9     9    9  9          Z 9    0  9 -          9-9  99 0  0            8-Y

BTXT.AJM..A8..AA1SAA   DS+A0HH00SEA2YKA7D1M   KA7E1GKA7F1JG8KA54EM   KB5554BA1SAA80D30040
9    Y8  Y9 Y9 9ZY      Q8 Y ZZ+  ZQ 9 Y Q 8   Y Q Q Y Q Y9  9 8Q9    0 8 8-Y 9ZY
9     9    9  9          Z 9   0  909   Z        9 0 909  Z               9 9

BTXT.AKD..A8..AADY+A   0HH00SEA2YNA54EMGABW   G8KB7D7CB0D174G09BAA   7AAJ8LAA8WA.80D30041
9    Y88 Y9 Y9Q  Y      ZZ+  ZQ 9 9 8Q9ZYQ9    9  9 0 R8-Z9 8Z  QZQ    ZY 8ZQ 9Z
999   9   9 Z 9          0    Z  Z                  - 9   9       Z     9 9 Z

BTXT.AKD..A8..AA8AKA   7GAABAAAAD7GGABMBGAA   BA.AAD7IGABUBG.ANKGA   BBAAABAAAAA.80D30042
9    Y8Z Y9 Y9 Q 8      0QY-YQY-9 QZYQ8-QQY    -Y Y-9 0ZYQ8-Q Y99ZY   Q0ZQQ8ZQQ9Z
99    9   9  Z 9         -99 9Z9  0 Z  ZZ9     99 -  Z Z9                Z 999 ZZ

BTXT.AK4..A8..AA.AG0   BFNFEJ8WG-CBAD8JGACB   AG8VGAD6NH8AEJG-BAB0   AGEBG0D.NF8A80D30043
9    Y88 Y9 Y9 9Z       QZ 9QY 9Z QR-9 8ZYQR   -Q 8ZQQ9 9 QQYZ QQ8-   Z9QZZ Q 9 Q
99    9   9              Z    9   9 Z           Z 99Z    ZZ9 Z09        Z   Z   Z

BTXT.AKD..A8..AAEJG-   BFNA87E0G-BFB0DGEAG0   D.NF8AE0G-BMNA87EJG-   BMB0DGE+G0D.80D30044
9    Y80 Y9 Y9QYZ       QY 9 9Q9Z QY8-Z9Q8Z    Q  9 QQ9Z QY 9 9QYZ    QY8-Z9Q Z Q
99-   9  9 Z9            Z9   Z  Z99  Z         Z   ZZ  Z9   Z9        Z99   Z  Z

BTXT.AKM..A8..AANH8A   E0G-CHAG81GACHB0DAES   G0D.AA8AAJ88AAACAGAA   GAC2NKGACWAA80D30045
9    Y8Y Y9 Y9 9 Q      Q9Z Q9-Q 8ZQQZ8-0QQ8   Z Q ZQ QZY 9ZQYR-QQY   ZQQ999ZYQ8ZQ
999   9  9   Z          Z   Z Z 9 9Z 9  9Z9     Z 9Z 9   9 -Z99       9Z    Z9 9

BTXT.ALU..A8..AAAAAA   AAG0CMG0CWFA70BEABGF   H6B0DG82G0D.B0DGFLG0   D.AD8GGACDAG80D30046
9    Y89 Y9 Y9Q9ZQ      Q9Z Q9Z Q88Q +8QY99R   988-Z9 8Z Q 8-Z9Q8Z    Q -9 8ZYQQ-Q
99    9   9 9            Z    Z9  -999  0       99   9  Z 8- Z9        Z   9 Z0 Z

BTXT.ALM..A8..AA8CGA   C+AG8CG-CDB0DGEFG0D.   AAE2AJEAAAANC+AAD+CK   GAC0NKG-CFG080D30047
9    Y88 Y9 Y9 8ZQ      Q--Q 8Z QR8-Z9Q-Z Q    ZQQ8ZYQZZQY8Z QYZ Q0   ZQQ099Z Q-Z
99    9   9  99          Z 0 9 Z09    Z  Z      9Z9 9Z   9  99  Z      9Z    Z

BTXT.ALD..A8..AACBAA   AAAAAAG0CAAA8CFA70BE   ABGFH6B0DG82G0D.NFE0   8WG-DSAD8JGA80D30048
9    Y8-  Y9 Y9Q-ZQ     Q9ZQQ9Z Q9-Y 88Q +8Q   Y99R988-Z9 8Z Q 9Q9    9Z Q9-9 8ZY
99    9   9 9Z 9        9        Z 99  -99      9 0 99     9 Z  Z        Z 9

BTXT.ALD..A8..AACQB0   DGEMG0D.B0DGENG0D.AA   8HAJ8UAAAD AGAAGADDNK   GADHAAAAAAAA80D30049
9    Y8Y Y9 Y9Q 8-      Z9Q0Z Q 8-Z9Q Z Q ZQ   9ZY 8ZQYZ-QQYZYQ899    ZY09ZQQ9ZQQ9
999   9   9 9Z 9         Z   Z9  Z  Z 9         9 9  9  Z99 Z9          Z 99

BTXT.AMD..A8..AAG0C0   G0DHFA70BEABGFH6B0DG   82G0D.NFEJ8WG-CSB0DG   FEG0D.B0DGFM80D30050
9    Y89 Y9 Y9Z QY      Z Q98Q +8QY99R988-Z9    8Z Q  9QY 9Z Q 8-Z9    Q8Z Q 8-Z9Q9
99    9    9 Z9          Z   -999  0 99         9 Z   Z9    Z 9        Z9 Z 9  Z
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BTXT.AM4..A8..AAG0D.   AJ0DGADKAA7AAJ8LKA7G   AABEAAGGE4AA54A.5AA+   5SB.5SKA5J5S80D30051
9    Y88 Y9 Y9Z Q       -Y 9ZYQOZQ  ZY 8 8 0   QY8QY89098ZQ 8Z  QZ   8- 8 Q Z 8
999   9   9  Z           9  Z 9 999-             999999  -  Z          99   9

BTXT.AMD..A8..AAKA+A   AAN4GADDA++CAAABG0DD   B0AK5SNKGADJAAAABG0D+   BBA.0DGAD0EA80D30052
9    Y8R Y9 Y9 9 Y      QY99ZYQYZ  9ZQQ9Z QR   8-Y8 899ZYQYZQQ8Z Q    8Q- 9ZYQYZY
990   9   9  Z           Z 9    ZZ  Z0          9  9   Z 999 Z         99   Z

BTXT.AMM..A8..AA6HAJ   JLGADBF.7AKB8V7CB0AT   8BB0AY8VB0AALAN4-AAA   CAN4JAA0EAN480D30053
9    Y8Y Y9 Y9 R-Y      Z0ZQQQ-  R 9 8 R8-Y8   Z8-Y9 88 YYYY98 YY9    QY98YYY 9Y98
99    9   9 0 9          9Z0        9  9        9    9 9999  99        Z9 999  9

BTXT.AMU..A8..AAJAAD   FAN4JAAD2821.SCAN/14   03.UCST.UCB.DATA.REG   .FLTAGAAAAAA80D30054
9    Y8  Y9 Y9YYY0      9Y98YYY0               8                      YQYYYYYY
99    9   9 999         9 999               :                         9Z999999

BTXT.ANM..A8..AAAAAA   GGGGGGGGGGN0.ERRS.DE   TECTEDA.JAHDBAERR.08   0ERR.081ERR.80D30055
9    Y88 Y9 Y9YYYY      QQQQQQQQQQ            Y YQ9999                 99
999   9   9 9999        ZZZZZZZZZZ               99

BTXT.AN8..A8..AA082E   RR.083ERR.084ERR.085   ERR.086ERR.087ERR.08   8ERR.089ERR.80D30056
9    Y8R Y9 Y9
99    9   9

BTXT.AND..A8..AA090E   RR.091ERR.092ERR.093   ERR.094ERR.095ERR.09   6ERR.097ERR.80D30057
9    Y8Y Y9 Y9
99    9   9

BTXT.AND..A8..AA098E   RR.099ERR.100ERR.101   ERR.102ERR.103ERR.10   4ERR.105ERR.80D30058
9    Y8  Y9 Y9
99    9   9

BTXT.AND..AW..AA106E   RR.107ERR.108ERR.109   ERR.110ERR.111.......   ............80D30059
9    Y8Q Y9 Y9
99Z   9   9

BRLD......AQ...AAAA    AAANAAMJAAMRAAMJHAMZ   ....................   ............80D30060
9         Y9  Y9Y9     8YQ98Y8 8Y8 8Y8Z9Y8
          9    9 9     999 999 999 999  99

BEND......AA....       ....................   ....................   ............80D30061
9         Y9
           9

BLDT...............    ....................   ....................   ............80D30062
9
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