

DMV 11

DMV 11 LINE UNT STC 2  
CVDMDCO

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AH-F271C-MC  
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The microfiche card displays a grid of 100 frames, arranged in 10 rows and 10 columns. Each frame contains a small table with multiple columns and rows of text and numbers. The data is organized in a structured, tabular format across the entire card. The text is small and difficult to read, but it appears to be a list or index of some kind, possibly related to the 'DMV 11' header. The frames contain various alphanumeric strings, some of which may be names or identifiers. The overall layout is consistent and repetitive across all frames.

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.TITLE CVDMDCO DMV11 LINE UNIT DIAG2  
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IDENTIFICATION  
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PRODUCT CODE: AC-F270C-MC  
PRODUCT NAME: CVDMDCO DMV 11 LINE UNIT STATIC DIAGNOSTIC PART #2  
PRODUCT DATE: JULY 1983  
MAINTAINER: DIAGNOSTICS MERRIMACK CC:38P  
AUTHORS: CHRIS BRIENEN  
DAVE HOFFMAN  
RAY MARSHALL  
PURPOSE: THIS DIAGNOSTIC IS DESIGNED TO PERFORM STATIC LOGIC TESTS FOR  
THE M8053 OR M8064 (HEREAFTER REFERRED TO AS THE DMV OR DMV-11)

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HISTORY

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REV	DATE	REASON
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A	14-JAN-81	INITIAL RELEASE
B	11-JUL-83	INSTALL OUTSTANDING PATCHES
C	29-JUL-84	INCREASED TIMING PARAMETERS TO ALLOW PROGRAM TO RUN ON A J-11 PROCESSOR (ORION).

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## 1.0 INTRODUCTION

THE M8053 AND M8064 ARE SINGLE-LINE SYNCHRONOUS, MICRO-PROCESSOR BASED COMMUNICATIONS INTERFACES WHICH CAN SUPPORT BOTH CHARACTER-ORIENTED (DDCMP, BSC, ETC.) AND BIT-ORIENTED (SDLC, HDLC, ETC.) PROTOCOLS. THE PURPOSE OF THIS PROGRAM IS TO PERFORM STATIC DIAGNOSTIC TESTING OF THE VIA, FIFO, AND USYRT (BCP/BOP MODES) ON THESE BOARDS. THE FOLLOWING FUNCTIONS WILL BE PERFORMED: VRC/CRC ERROR DETECTION AND ASSORTED BOP SPECIFIC FUNCTIONS (BIT STUFFING, ABORTS, FLAGS, SECONDARY STATION ADDRESSING, ETC).

THE STATIC LOGIC TESTS WILL PROVIDE EXTENSIVE TROUBLESHOOTING CAPABILITIES, SUCH AS TIGHT SCOPE LOOPS, SWITCH OPTIONS, AND ABILITY TO "LOCK" ONTO INTERMITTENT ERRORS. IN ADDITION TESTS ARE DESIGNED AND STRUCTURED TO ACHIEVE MAXIMUM FAULT RESOLUTION AND FACILITATE REPLACEMENT OF THE SMALLEST FIELD REPLACEABLE UNIT.

THIS PROGRAM IS IMPLEMENTED USING THE DIAGNOSTIC SUPERVISOR AND A STRUCTURED PROGRAMMING APPROACH. BECAUSE THE DESIGN CONFORMS TO THE SUPERVISOR (STANDALONE VERSION) THE PROGRAM IS COMPATIBLE WITH ACT, APT, XXDP+, AND SLIDE.

THROUGH DIALOGUE WITH THE OPERATOR, THE PROGRAM ALLOWS MODIFICATION OF DEVICE PARAMETERS, SUCH AS LSI-BUS ADDRESS, VECTOR ADDRESSES AND DEVICE PRIORITY. IN ADDITION, THE OPERATOR CAN SPECIFY PARTICULAR TESTS TO BE RUN AND A VARIETY OF LOOPING, RUNNING, AND REPORTING MODES.

DEVICE ERRORS WILL BE REPORTED AS THEY OCCUR. THE REPORT WILL INCLUDE A TEST NUMBER AND DESCRIPTION OF THE ERROR, GOOD AND BAD TEST DATA, AND APPLICABLE DEVICE REGISTER CONTENTS.

## 2.0 HARDWARE REQUIREMENTS

THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE M8053/8064 STATIC LOGIC TESTS:

PDP-11/03 OR PDP-11/23  
16K WORDS OF MEMORY  
CONSOLE TERMINAL  
M8053 OR M8064 COMMUNICATIONS INTERFACE

## 3.0 PRELIMINARY PROGRAM REQUIREMENTS

THIS PROGRAM (CVDM) SHOULD BE THE FOURTH OF THE FIVE DMV-11 STATIC DIAGNOSTICS TO BE RUN ( CVDMA/B/C SHOULD BE RUN FIRST ). ERRORS FOUND IN THIS PROGRAM SHOULD BE CORRECTED BEFORE RUNNING THE FINAL LINE UNIT DIAGNOSTIC (CVDMF).

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#### 4.0 GENERAL PROGRAM CONSIDERATIONS

##### 4.1 DIAGNOSTIC SUPERVISOR

THIS PROGRAM IS COMPATIBLE WITH THE STANDALONE DIAGNOSTIC SUPERVISOR, AND MUST BE LOADED TO BE CO-RESIDENT WITH THE SUPERVISOR, OR BE PREVIOUSLY COMBINED WITH THE SUPERVISOR AND LOADED AS A SINGLE FILE. IN EITHER CASE, THE COMBINED PROGRAM WILL NOT EXCEED 16K OF MEMORY.

##### 4.2 EXECUTION TIME

THE MAXIMUM TIME REQUIRED TO RUN THIS PROGRAM IS ABOUT 30 SECONDS PER PASS FOR EACH UNIT.

##### 4.3 XXDP.

THIS PROGRAM MAY BE LOADED UNDER XXDP., AND MAY BE RUN IN DUMP MODE OR CHAIN MODE.

##### 4.4 ACT/SLIDE

THIS PROGRAM MAY BE LOADED UNDER ACT OR SLIDE AND MAY BE RUN IN DUMP MODE OR CHAIN MODE.

##### 4.5 APT

THIS PROGRAM MAY BE LOADED BY THE APT SYSTEM (INCLUDING APT-RD) AND RUN IN PROGRAM MODE OR SCRIPT MODE.

##### 4.6 MEMORY MANAGEMENT

MEMORY MANAGEMENT IS NOT UTILIZED IN THIS PROGRAM.

##### 4.7 ERROR LOGGING

AT THE END OF EACH PASS ON ALL UNITS, THE PROGRAM PRINTS OUT THE CUMULATIVE TOTAL NUMBER OF ERRORS SINCE THE LAST START OR RESTART COMMAND.

#### 5.0 PROGRAM LOAD MEDIA

THIS PROGRAM CAN BE LOADED FROM PAPER TAPE USING THE ABSOLUTE LOADER OR FROM ACT, SLIDE, OR APT SYSTEMS, OR FROM ANY MEDIA SUPPORTED BY XXDP.. WHEN USING THE PAPER TAPE ABSOLUTE LOADER, THE PROGRAM SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC SUPERVISOR. WHEN USING XXDP., THE

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DIAGNOSTIC SUPERVISOR SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC PROGRAM.

## 6.0 OPERATING INSTRUCTIONS

### 6.1 LOADING AND STARTING PROCEDURES

#### 6.1.1 LOADING PROCEDURES

THIS PROGRAM MAY BE LOADED FROM PAPER TAPE USING THE ABSOLUTE LOADER. IT MAY ALSO BE LOADED FROM ANY XXDP. LOAD MEDIA. WHEN LOADED UNDER XXDP., THE DIAGNOSTIC SUPERVISOR WILL BE LOADED AUTOMATICALLY.

#### 6.1.2 STARTING PROCEDURES

THE PROGRAM STARTS AT LOCATION 200. USE STANDARD DEC PROCEDURES TO START THE PROGRAM.

#### 6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION

THE DIAGNOSTIC CAN BE EXECUTED STANDALONE UNDER XXDP., WITHOUT READING THE REMAINDER OF THIS DOCUMENT, AS FOLLOWS:

- A) LOAD AND START DIAGNOSTIC USING RUN COMMAND
- B) RECEIVE DIAGNOSTIC SUPERVISOR IDENTIFICATION AND PROMPT (DRS C>)
- C) ENTER STA<CR>
- D) ANSWER HARDWARE AND SOFTWARE QUESTIONS
- E) GET END OF PASS MESSAGES OR ERROR MESSAGES
- F) TO END EXECUTION, ENTER CONTROL/C

### 6.2 INITIAL DIALOGUE

AFTER THE PROGRAM AND THE SUPERVISOR ARE LOADED AND THE PROGRAM IS STARTED, THE FOLLOWING IDENTIFICATION IS TYPED :

```
DRS LOADED
DIAG. RUN-TIME SERVICES
CVDMD-C-0
DMV-11 LINE UNIT TESTS - PART 2 OF 3
UNIT IS M8053 OR M8064
DR>
```

THE OPERATOR THEN PROCEEDS BY TYPING ONE OR MORE OF THE COMMANDS DESCRIBED IN THE FOLLOWING SECTION 6.3. (FOR MORE DETAILED INFORMATION, REFER TO THE DIAGNOSTIC SUPERVISOR FUNCTIONAL SPECIFICATION).

### 6.3 PROGRAM OPTIONS

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6.3.1 START COMMAND

\*\*\*\*\*  
STA(RT)/TESTS:<TEST-LIST>/PASS:<PASS-CNT>/FLAGS:  
<FLAG-LIST>/EOP:<INCR>  
\*\*\*\*\*

6.3.1.1 TESTS SWITCH (/TESTS:<TEST-LIST>)

<TEST-LIST> IS A SEQUENCE OF DECIMAL NUMBERS (1:2 ETC.) OR RANGES OF DECIMAL NUMBERS (1-5:8-10 ETC.) THAT SPECIFY THE TESTS TO BE EXECUTED. THE NUMBERS ARE SEPARATED BY COLONS. THE NUMBERS RANGE FROM 1 TO THE LARGEST TEST NUMBER IN THE DIAGNOSTIC. THEY MAY BE SPECIFIED IN ANY ORDER. TESTS WILL BE EXECUTED IN NUMERICAL ORDER REGARDLESS OF THE ORDER OF SPECIFICATION. THE DEFAULT IS TO EXECUTE ALL TESTS. ON THIS AND ALL SWITCHES, THE ANGLE BRACKETS <> ARE PUNCTUATION USED IN THE DEFINITION ONLY, AND ARE NOT TO BE TYPED BY THE OPERATOR. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.2 PASS SWITCH (/PASS:<PASS-CNT>)

<PASS-CNT> IS A DECIMAL NUMBER INDICATING THE DESIRED NUMBER OF PASSES. A PASS IS DEFINED AS THE EXECUTION OF THE FULL DIAGNOSTIC (ALL SELECTED TESTS) AGAINST ALL UNITS SUBMITTED. THE DEFAULT IS NON-ENDING EXECUTION. IN THIS CASE EXIT FROM THE PROGRAM IS ACCOMPLISHED EITHER BY TYPING A CONTROL/C OR BY OCCURANCE OF AN ERROR WITH THE HALT ON ERROR FLAG BEING SET. THE EXIT IS A RETURN TO COMMAND MODE. SEE EXAMPLE AT END OF 6.3.1.5.

6.3.1.3 FLAGS SWITCH (/FLAGS:<FLAG-LIST>)

<FLAG-LIST> IS A SEQUENCE OF ELEMENTS OF THE FORM <FLAG>, <FLAG=1>, OR <FLAG=0>, SEPARATED BY COLONS, WHERE <FLAG> HAS ONE OF THE FOLLOWING VALUES:

- HOE HALT ON ERROR, CAUSING COMMAND MODE TO BE ENTERED WHEN AN ERROR IS ENCOUNTERED
- LOE LOOP ON ERROR, CAUSING THE DIAGNOSTIC TO LOOP CONTINUOUSLY WITHIN THE SMALLEST DEFINED BLOCK OF CODING (SEGMENT, SUBTEST, OR TEST) CONTAINING THE ERROR
- IER INHIBIT ERROR REPORTING
- IBE INHIBIT BASIC ERROR REPORTS
- IXE INHIBIT EXTENDED ERROR REPORTS
- PRI DIRECT ALL MESSAGES TO A LINE PRINTER
- PNT PRINT NUMBER OF TEST BEING EXECUTED
- BOE BELL ON ERROR
- UAM RUN IN UNATTENDED MODE, BYPASSING MANUAL INTERVENTION TESTS



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ISR INHIBIT STATISTICAL REPORTS  
IDU INHIBIT DROPPING OF UNITS BY DIAGNOSTIC  
LOT LOOP ON TEST

THE FLAGS NAMED OR EQUATED TO 1 ARE SET, THOSE EQUATED TO 0 ARE CLEARED. A FLAG NOT SPECIFIED IS CLEARED. IF THE FLAGS SWITCH IS NOT GIVEN ALL FLAGS ARE CLEARED. SEE EXAMPLE AT END OF 6.3.1.5.

#### 6.3.1.4 END OF PASS SWITCH (/EOP:<INCR>)

<INCR> IS A DECIMAL NUMBER INDICATING HOW OFTEN (IN TERMS OF PASSES) IT IS DESIRED THAT THE END OF PASS MESSAGE BE PRINTED. THE DEFAULT IS AT THE END OF EVERY PASS. SEE EXAMPLE AT END OF 6.3.1.5.

#### 6.3.1.5 EFFECT OF START COMMAND

THE EFFECT OF THE START COMMAND IS TO INITIATE THE HARDWARE PARAMETER DIALOGUE, THE SOFTWARE PARAMETER DIALOGUE, AND THEN THE DIAGNOSTIC TESTS THEMSELVES.

THE HARDWARE PARAMETER DIALOGUE COMMENCES WITH THE QUESTION "# UNITS?" TO WHICH THE OPERATOR REPLIES WITH A DECIMAL NUMBER N FROM 1 TO 16. THE TERM "UNIT" REFERS TO THE DEVICE TO WHICH THIS SERIES OF DIAGNOSTICS IS DEDICATED. FOLLOWING THIS ARE THE QUESTIONS WHEREBY THE P-TABLES THEMSELVES WILL BE BUILT. EACH P-TABLE IS A CORE-RESIDENT TABLE CONTAINING ALL THE HARDWARE INFORMATION FOR ONE UNIT. THE OPERATOR MUST SUPPLY N (NUMBER OF UNITS) VALUES FOR EACH QUESTION. HE MAY DO THIS BY GIVING ONE ANSWER TO EACH QUESTION (IN WHICH CASE THE SERIES OF QUESTIONS WILL BE POSED N TIMES) OR BY GIVING N VALUES, SEPARATED BY COMMAS, TO EACH QUESTION (SERIES WILL BE POSED ONCE). EACH QUESTION IS FOLLOWED BY THE RESPONSE RADIX (D FOR DECIMAL, B FOR BINARY, O FOR OCTAL, L FOR YES/NO) IN PARENTHESES AND THE DEFAULT VALUE AFTER THE PARENTHESES.

FOLLOWING THE HARDWARE QUESTIONS ARE THE SOFTWARE QUESTIONS TO BUILD THE SOFTWARE TABLES, WHICH DEFINE THE MODE (QUICK VERIFY ETC.) THAT THE DIAGNOSTIC WILL EXECUTE IN.

WHEN THE QUESTION "# UNITS?" IS ANSWERED, MEMORY STORAGE IS ALLOCATED FOR THE P-TABLES, AND IF THERE IS NOT ENOUGH TO ACCOMMODATE THEM THE MESSAGE "TOO MANY UNITS" IS ISSUED. IN THIS CASE THE DIAGNOSTIC MUST BE EXECUTED MORE THAN ONCE TO TEST ALL UNITS.

#### EXAMPLE:

STA/TESTS:1:2-4:6:8-10/PASS:3/FLAGS:IER:HOE=1:UAM:LOE

THIS COMMAND WILL CAUSE THREE PASSES TO BE MADE, EACH PASS CONSISTING OF TESTS 1,2,3,4,6,8,9, AND 10 EXECUTED AGAINST

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ALL UNITS. THERE IS NO DIFFERENCE BETWEEN SAYING <FLAG> AND SAYING <FLAG=1>. THE NOTATION <FLAG=0> IS MEANINGFUL ONLY ON A COMMAND OTHER THAN START TO CLEAR A FLAG THAT WAS PREVIOUSLY SET. NOTE THAT ON ALL COMMANDS ONLY THE FIRST THREE LETTERS ARE SCANNED.

6.3.2 RESTART COMMAND

\*\*\*\*\*  
RES(TART)/TESTS:<TEST-LIST>/PASS:<PASS-CNT>/FLAGS:  
<FLAG-LIST>/UNI'S:<UNIT-LIST>  
\*\*\*\*\*

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

<TEST-LIST>, <PASS-CNT>, AND <FLAG-LIST> ARE AS IN THE START COMMAND.

6.3.2.2 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS A SEQUENCE OF DECIMAL NUMBERS (0,1 ETC.) OR RANGES OF DECIMAL NUMBERS (0-5, 8-10 ETC.) THAT SPECIFY THE UNITS TO BE TESTED. THE NUMBERS ARE SEPARATED BY COLONS. THE NUMBERS MAY RANGE FROM 0 THRU N-1 (N IS THE NUMBER OF UNITS SPECIFIED IN THE PREVIOUS START COMMAND). THE NUMBER INDICATES THE POSITION OF THE P-TABLE AS THE DATA WAS ENTERED DURING THE HARDWARE DIALOGUE. THE UNITS WHICH ARE SELECTED MUST NOT HAVE BEEN DROPPED BY THE DROP COMMAND. SEE THE DISCUSSION OF ADD AND DROP COMMANDS BELOW. DEFAULT IS TO TEST ALL UNITS WHICH HAVE NOT BEEN DROPPED BY A DROP COMMAND.

6.3.2.3 EFFECT OF RESTART COMMAND

THE RESTART COMMAND DIFFERS FROM THE START COMMAND IN THAT THE P-TABLES FROM THE PREVIOUS START COMMAND (THERE MUST HAVE BEEN ONE) ARE USED, INSTEAD OF NEW ONES BEING BUILT. THE UNITS SWITCH GIVES THE ABILITY TO SELECT A SUBSET OF THESE. THE SOFTWARE DIALOGUE MAY OPTIONALLY BE REEXECUTED (OPERATOR WILL BE ASKED). THE COMMAND CAN BE USED AFTER COMMAND MODE HAS BEEN REENTERED IN ANY OF THE THREE NORMAL WAYS: A) THE REQUESTED NUMBER OF PASSES HAVE BEEN MADE B) AN ERROR WAS ENCOUNTERED WITH THE HALT ON ERROR FLAG SET C) A CONTROL/C WAS ENTERED BY THE OPERATOR.

6.3.3 CONTINUE COMMAND

\*\*\*\*\*  
CON(TINUE)/PASS:<PASS-CNT>/FLAGS:<FLAG-LIST>  
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6.3.3.1 PASS SWITCH (/PASS:<PASS-CNT>)

<PASS-CNT> IS SAME AS IN START COMMAND, BUT THE DEFAULT IS THE UNSATISFIED PASS-CNT FROM THE PREVIOUS START OR RESTART. IF NONE REMAINS, THE DEFAULT IS NON-ENDING EXECUTION.

6.3.3.2 FLAG SWITCH (/FLAGS:<FLAG-LIST>)

<FLAG-LIST> IS SAME AS IN START COMMAND, BUT UNSPECIFIED FLAGS RETAIN THEIR CURRENT VALUE.

6.3.3.3 EFFECT OF CONTINUE COMMAND

CONTINUE MUST FOLLOW A START OR RESTART, AND COMMAND MODE MUST HAVE BEEN ENTERED DUE TO A HALT ON ERROR OR A CONTROL/C. THE EFFECT OF THE COMMAND IS TO GO TO THE BEGINNING OF THE TEST THAT WAS BEING EXECUTED WHEN THE HALT OR CONTROL/C TOOK PLACE. SOFTWARE DIALOGUE MAY OPTIONALLY BE REEXECUTED. HARDWARE PARAMETERS MAY NOT BE CHANGED.

6.3.4 PROCEED COMMAND

\*\*\*\*\*  
PRO(CEED)/FLAGS:<FLAG-LIST>  
\*\*\*\*\*

6.3.4.1 FLAGS SWITCH (/FLAGS:<FLAG-LIST>)

<FLAG-LIST> IS AS IN THE START COMMAND, BUT UNSPECIFIED FLAGS RETAIN THEIR CURRENT VALUE.

6.3.4.2 EFFECT OF PROCEED COMMAND

PROCEED MUST FOLLOW A START, RESTART, OR CONTINUE. COMMAND MODE MUST HAVE BEEN ENTERED VIA A HALT ON ERROR. THE EFFECT OF THE COMMAND IS TO BEGIN EXECUTION AT THE LOCATION FOLLOWING THE ERROR CALL. NEITHER HARDWARE NOR SOFTWARE PARAMETERS MAY BE ALTERED.

6.3.5 ADD COMMAND

\*\*\*\*\*  
ADD/UNITS:<UNIT-LIST>  
\*\*\*\*\*

6.3.5.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS AS IN THE RESTART COMMAND.

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6.3.5.2 EFFECT OF ADD COMMAND

THE UNITS SPECIFIED ARE ADDED TO THE TEST SEQUENCE. EACH UNIT MUST HAVE A P-TABLE IN MEMORY DUE TO AN EARLIER HARDWARE DIALOGUE. THIS COMMAND MUST BE FOLLOWED BY A RESTART OR CONTINUE. THE UNITS SWITCH MUST BE SPECIFIED. THE ADD COMMAND IS MEANINGFUL ONLY FOR UNITS THAT WERE PREVIOUSLY DROPPED.

6.3.6 DROP COMMAND

\*\*\*\*\*  
DRO(P)/UNITS:<UNIT-LIST>  
\*\*\*\*\*

6.3.6.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS AS IN THE RESTART COMMAND.

6.3.6.2 EFFECT OF DROP COMMAND

THE UNITS SPECIFIED WILL BE DROPPED FROM TESTING. THE UNITS WILL BE RESELECTED ONLY BY THE EXECUTION OF AN ADD OR START COMMAND. THE UNITS SWITCH MUST BE ENTERED. THIS COMMAND MUST BE FOLLOWED BY A RESTART OR A CONTINUE COMMAND.

6.3.7 PRINT COMMAND

\*\*\*\*\*  
PRI(NT)  
\*\*\*\*\*

6.3.7.1 EFFECT OF PRINT COMMAND

THE TOTAL NUMBER OF ERRORS FOR EACH UNIT SINCE THE LAST START OR RESTART COMMAND ARE PRINTED. THE ISR (INHIBIT STATISTICAL REPORTING) FLAG IS CLEARED.

6.3.8 DISPLAY COMMAND

\*\*\*\*\*  
DIS(PLAY)/UNITS:<UNIT-LIST>  
\*\*\*\*\*

6.3.8.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)

<UNIT-LIST> IS AS IN THE RESTART COMMAND.

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6.3.8.2 EFFECT OF DISPLAY COMMAND

THE HARDWARE P-TABLES FOR ALL UNITS UNDER TEST ARE PRINTED OUT IN THE FORMAT IN WHICH THEY WERE ENTERED. ANY UNITS THAT WERE DROPPED BY THE OPERATOR "DROP" COMMAND ARE SO DESIGNATED.

6.3.9 FLAGS COMMAND

\*\*\*\*\*  
FLA(GS)  
\*\*\*\*\*

6.3.9.1 EFFECT OF FLAGS COMMAND

THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.

6.3.10 ZFLAGS COMMAND

\*\*\*\*\*  
ZFL(AGS)  
\*\*\*\*\*

6.3.10.1 EFFECT OF ZFLAGS COMMAND

ALL FLAGS ARE CLEARED.

6.3.11 CONTROL CHARACTERS

A CONTROL C (C) ENTERED DURING THE EXECUTION OF A DIAGNOSTIC CAUSES A RETURN TO COMMAND MODE.

A CONTROL Z (Z) ENTERED DURING ONE OF THE THREE OPERATOR DIALOGUES- HARD CORE QUESTIONS (SEE 6.2), HARDWARE DIALOGUE (SEE 6.3.1.5), OR SOFTWARE DIALOGUE (SEE 6.3.1.5) CAUSES THE DEFAULTS TO BE TAKEN FOR THE REMAINDER OF THAT DIALOGUE.

A CONTROL O (O) ENTERED DURING THE EXECUTION OF A DIAGNOSTIC CAUSES ALL TELETYPE OUTPUT TO BE SURPRESSED FOR THE REMAINDER OF THE DIAGNOSTIC OR UNTIL ANOTHER O IS TYPED, WHICH RESTORES NORMAL TELETYPE OUTPUT.

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING 3 QUESTIONS WILL BE ASKED ON A START COMMAND. THE VALUE LOCATED TO THE LEFT OF THE QUESTION MARK IS THE DEFAULT VALUE THAT WILL BE TAKEN ON A CARRIAGE RETURN RESPONSE.

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1. DEVICE CSR ADDRESS : (0) 160020?

THIS IS THE ADDRESS AT WHICH THE CSR REGISTERS (SELO) RESIDE ON THE LSI-BUS. THE ALLOWABLE RANGE IS 160020-177760 (OCTAL), AND THE DEFAULT VALUE IS 160020.

2. DEVICE VECTOR ADDRESS : (0) 300 ?

THIS IS THE ADDRESS OF THE INPUT INTERRUPT VECTOR FOR THIS DEVICE. THE ALLOWABLE RANGE IS 000-674 (OCTAL), AND THE DEFAULT VALUE IS 300.

3. DEVICE PRIORITY LEVEL : (0) 4 ?

THIS IS THE CPU PRIORITY AT WHICH THE INTERRUPT HANDLERS OF THIS DEVICE WILL BE EXECUTED. THE ALLOWABLE RANGE IS 0-7, AND THE DEFAULT VALUE IS 4.

6.3.13 SOFTWARE PARAMETERS

NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY PART 1 OF THE STATIC LOGIC TESTS.

6.3.14 EXTENDED DISCUSSION OF P-TABLE DIALOGUE

THE FULL CAPABILITY OF THE HARDWARE DIALOGUE IS REVEALED BY THE FOLLOWING DISCUSSION OF WHAT HAPPENS INTERNALLY.

AS SOON AS THE QUESTION "# UNITS?" IS ANSWERED (WITH THE NUMBER N, SAY) SPACE IN CORE IS ALLOCATED FOR N P-TABLES. ALL OF THE P-TABLES ARE OF THE SAME FORMAT, AND THERE IS A ONE-TO ONE CORRESPONDENCE BETWEEN THE HARDWARE PARAMETER QUESTIONS AND THE SLOTS IN THE P-TABLE FORMAT.

ON THE FIRST TRIP THRU THE QUESTIONS, ALL OF THE SLOTS IN ALL OF THE P-TABLES ARE FILLED. IF THE OPERATOR TYPES IN LESS THAN N EXPLICIT VALUES IN RESPONSE TO A PARTICULAR QUESTION, THESE VALUES ARE PLACED IN THE P-TABLES (ONE VALUE GOING INTO THE PROPER SLOT OF EACH P-TABLE BEGINNING WITH THE FIRST P-TABLE) UNTIL THE STRING OF VALUES IS EXHAUSTED. THE LAST VALUE IN THE STRING BECOMES THE NEW DEFAULT AND IS USED TO FILL THAT SLOT IN THE REMAINING P-TABLES.

ON SUBSEQUENT TRIPS THRU THE QUESTIONS, THE SAME PROCESS IS CARRIED OUT, EXCEPT THAT THE EARLIEST P-TABLE NOT TO HAVE RECEIVED AN EXPLICIT VALUE IN ANY OF ITS SLOTS NOW ASSUMES THE ROLE THAT TABLE NUMBER ONE PLAYED IN THE FIRST TRIP.

THE SERIES OF QUESTIONS IS REISSUED UNTIL AT LEAST ONE QUESTION HAS RECEIVED N EXPLICIT VALUES FROM THE OPERATOR.

IN GIVING A STRING OF VALUES, COMMAS WITHOUT INTERVENING

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VALUES MAY BE USED TO INDICATE A REPETITION OF THE LAST NAMED VALUE.

A STRING OF VALUES MAY BE GIVEN AS A RANGE (6-10 FOR EXAMPLE). IF THE VALUES REPRESENT PURE NUMERICAL DATA, THIS SAMPLE RANGE TRANSLATES TO THE STRING 6,7,8,9,10 (AN INCREMENT OF 1). IF THE VALUES ARE ADDRESSES, THE SAMPLE RANGE TRANSLATES TO THE STRING 6,8,10 (AN INCREMENT OF 2).

NOW LET US SEE HOW WE COULD USE THESE CAPABILITIES TO CONSTRUCT A SET OF P-TABLES. ASSUME THAT WE HAVE 16 UNITS, AND THAT THERE ARE THREE HARDWARE PARAMETERS FOR EACH (THREE SLOTS IN THE P-TABLE, THREE HARDWARE QUESTIONS IN THE DIALOGUE). LET THE DESIRED VALUE FOR THE FIRST PARAMETER BE THE NUMBER 75 FOR ALL 16 TABLES. LET THE DESIRED VALUE FOR THE SECOND PARAMETER BE EQUAL TO THE UNIT NUMBER (0,1,2,...,15) EXCEPT FOR UNIT 12, WHICH SHOULD RECEIVE THE VALUE 11. LET THE DESIRED VALUE FOR THE THIRD PARAMETER BE THE NUMBER 76 FOR THE FIRST 7 UNITS AND THE NUMBER 77 FOR THE LAST 9 UNITS.

THE FOLLOWING DIALOGUE WOULD ACCOMPLISH THIS GOAL:

```

# UNITS (0) ? 16
UNIT 0
<QUESTION 1> ? 75
<QUESTION 2> ? 0-6
<QUESTION 3> ? 76

UNIT 7
<QUESTION 1> ?
<QUESTION 2> ? 7-11..13-15
<QUESTION 3> ? 77

```

THE FIRST TIME THE SERIES IS ASKED, SLOT ONE RECEIVES A 75 IN ALL 16 TABLES. SLOT TWO RECEIVES THE VALUES 0,1,2,...,6 IN TABLES 0 THRU 6 AND A CONSTANT 6 IN TABLES 7 THRU 15. SLOT THREE RECEIVES A CONSTANT 76 IN ALL 16 TABLES.

THE SECOND TIME THRU THE SERIES, TABLES 7 THRU THE END ARE GOING TO BE AFFECTED (NOTE THAT THIS PIECE OF INFORMATION IS PRINTED OUT FOR THE OPERATOR IN THE FORM "UNIT XX" AT THE BEGINNING OF EACH SERIES). QUESTION 1 IS RESPONDED TO BY A <CR>, SO SLOT ONE STAYS AT CONSTANT 75 IN TABLES 7 THRU 15, SINCE NO NEW EXPLICIT VALUES ARE TYPED IN. SLOT TWO GETS THE VALUES 7,8,9,10,11 IN TABLES 7 THRU 11, AND GETS AN 11 IN SLOT 12, AND GETS THE VALUES 13,14,15 IN TABLES 13 THRU 15. SLOT THREE GETS THE VALUE 77 IN TABLES 7 THRU 15.

THE DIALOGUE IS TERMINATED WHEN THE SOFTWARE RECOGNIZES THAT 16 EXPLICIT VALUES HAVE BEEN GIVEN FOR AT LEAST ONE QUESTION (NAMELY QUESTION 2).

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7.0 TEST DESCRIPTIONS

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.....
|*      TEST 1 <VRC PARITY GENERATION TEST>
|*
|*  SUBTEST 1 - TEST OF CORRECT ODD VRC PARITY GENERATION :
|*  THE LINE UNIT IS PLACED IN CHAR MODE, WITH ODD VRC, AND 7-BIT CHARS SELECTED.
|*  THE DATA CHARS IN PATTERN Q ARE LOADED/TRANSMITTED/READ, AS THE 8TH BIT
|*  (PARITY BIT) OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TSO FOR THE PROPER
|*  STATE. FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 1, FOR THE
|*  LAST 4 CHARACTERS IT SHOULD = 0.
|*
|*  SUBTEST 2 - TEST OF CORRECT EVEN VRC PARITY GENERATION :
|*  THE LINE UNIT IS PLACED IN CHAR MODE, WITH EVEN VRC AND 7-BIT CHARS SELECTED.
|*  THE DATA CHARS IN PATTERN Q ARE LOADED/TRANSMITTED/READ, AS THE 8TH BIT
|*  (PARITY BIT) OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TSO FOR THE PROPER
|*  STATE. FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 0, FOR THE
|*  LAST 4 CHARACTERS IT SHOULD = 1.
|*
|*      DATA PATTERN Q = 000,003,014,060,001,007,037,177
|*
|*  NOTE: SINCE THE ROUTINE "SERIAL" TREATS THE FIRST BIT RECEIVED FROM THE
|*        USYRT AS THE MSB, THE "EXPECTED BIT SEQUENCE" WILL HAVE A REVERSED
|*        BIT ORDER.
|*
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.....
|*      TEST 2 <VRC ERROR DETECTION TEST>
|*
|*  SUBTEST 1 - FORCING OF RERR USING ODD VRC
|*  THE USYRT IS PLACED IN CHAR MODE WITH ODD VRC AND BOTH TX AND RX CHAR
|*  LENGTH=7 BITS. THE RECEIVER AND TRANSMITTER ARE THEN SYNC'D. WHEN THE FIRST
|*  DATA CHARACTER IS LOADED INTO TXDB, THE RX CHAR LENGTH IS CHANGED TO 6 BITS.
|*  TWO 7 BIT CHARACTERS (.PARITY) ARE THEN TRANSMITTED, RESULTING IN A 16 BIT
|*  STREAM WHICH THE RECEIVER WILL READ AS TWO 6 BIT CHARS (.PARITY + 2 LEFT).
|*  THE FIRST "CHARACTER" READ WILL HAVE THE CORRECT PARITY; THE SECOND WILL
|*  NOT.
|*
|*  SUBTEST 2 - FORCING OF RERR USING EVEN VRC
|*  THE USYRT IS PLACED IN CHAR MODE WITH EVEN VRC AND BOTH TX AND RX CHAR
|*  LENGTH=7 BITS. THE RECEIVER AND TRANSMITTER ARE THEN SYNC'D. WHEN THE FIRST
|*  DATA CHARACTER IS LOADED INTO TXDB, THE RX CHAR LENGTH IS CHANGED TO 6 BITS.
|*  TWO 7 BIT CHARACTERS (.PARITY) ARE THEN TRANSMITTED, RESULTING IN A 16 BIT
|*  STREAM WHICH THE RECEIVER WILL READ AS TWO 6 BIT CHARS (.PARITY + 2 LEFT).
|*  THE FIRST "CHARACTER" READ WILL HAVE THE CORRECT PARITY; THE SECOND WILL
|*  NOT.
|*
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.....
|*      TEST 3 <BCP CRC GENERATION/DETECTION TEST>
|*
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; \* THIS TEST IS COMPOSED OF 2 SUBTESTS -- #1 EXPECTS GOOD CRC  
; \* GENERATION AND REPORT ERRORS -- #2 FORCES AN ERROR AND ONLY  
; \* REPORT WHEN THE CRC IS ACCEPTED AS GOOD. EACH IS  
; \* RUN AT THE CHARACTER LENGTHS OF 8 BITS FOR THE ENTIRTY  
; \* OF EACH MESSAGE. BOTH THE TRANSMITTER AND RECEIVER WILL BE SET TO  
; \* THE SAME CHARACTER LENGTH. ERROR LOOPING WILL BE ON THE FAILING  
; \* SUBTEST. TEXT STRINGS WILL BE LIMITED TO 5 CHARACTERS.  
; \*.....

.....  
; \* TEST 4 <BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST>  
; \*  
; \* THE USYRT IS INITIALIZED FOR BOP MODE WITH TTL LOOPBACK SELECTED.  
; \* "SECONDARY STATION ADDRESS" IS NOT USED AND NO CRC/VRC IS CALCULATED.  
; \* A PATTERN IS TRANSMITTED AND TERMINATED FOLLOWED BY A SECOND MESSAGE.  
; \* TERMINATION OF THE FIRST MESSAGE IS ACCOMPLISHED WITH A FLAG  
; \* CHARACTER BUT RXE IS NOT DROPPED SO THAT THE SECOND MESSAGE CAN BE  
; \* SENT WITHOUT RE-SYNCRONIZATION. SEVERAL FLAG'S ARE IDLED BETWEEN THE  
; \* TWO MESSAGES. DURING THE SECOND MESSAGE A RECEIVER OVERRUN CONDITION  
; \* IS FORCED. THROUGHOUT THIS TEST, BASIC RECEIVER OPERATION AND TIMING  
; \* IS CHECKED. TRANSMITTED INFORMATION IS VERIFIED BY CHECKING THE DATA  
; \* MADE AVAILABLE AT RXDB.  
; \*  
; \* TRANSMITTED PATTERN: FLAG FLAG 123 321 000 377 101 FLAG... FLAG  
; \* 321 123 377 000 276.  
; \*  
; \* RECEIVED PATTERN: 123 321 000 377 101 ..... 321 123.  
; \*.....

.....  
; \* TEST 5 <BOP RX SECONDARY STATION ADDRESSING>  
; \*  
; \* THE USYRT IS INITIALIZED FOR BOP MODE WITH TTL LEVEL LOOPBACK,  
; \* SAM = 1, APA=0, AND ECH = 7. USING SHORT MESSAGES, THE ADDRESSES  
; \* 000, 125, 252, 176, AND 177 ARE CHECKED TO SEE THAT THE RECEIVER  
; \* RECOGNIZES THEM CORRECTLY. IN EACH CASE (AT EACH ADDRESS), A SERIES OF  
; \* 20 DIFFERENT MESSAGES ARE SENT TO VERIFY THAT THE USYRT WILL ONLY  
; \* RESPOND TO THE SPECIFIED VALUE.  
; \*  
; \* TEST PATTERN: ADR 000 OCR ADR  
; \* WHERE ADR IS THE ADDRESS BEING TESTED AND OCA IS THE ONE'S  
; \* COMPLEMENT OF THAT ADDRESS.  
; \*.....

.....  
; \* TEST 6 <BOP RX ALL PARTIES ADDRESS TEST>  
; \*  
; \* INITIALIZE THE USYRT FOR BOP MODE WITH TTL LEVEL LOOPBACK  
; \* SAM = 1, S/AR = 123(OCT.), APA = 1, AND ECH = 7.  
; \* A SERIES OF 256 DIFFERENT SHORT MESSAGES ARE SENT TO VERIFY THAT  
; \* THE USYRT WILL ONLY RESPOND TO THE SPECIFIED VALUE AND ALSO 377 (FF  
; \* HEX.).

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;*
;* TEST PATTERN; ADR 000 OCA ADR
;* WHERE ADR IS THE ADDRESS BEING TESTED AND OCA IS THE ONE'S
;* COMPLEMENT OF THAT ADDRESS.
;*****
;*****
;* TEST 7 <BOP RX BIT STUFFING TEST>
;*
;* THE USYRT IS INITIALIZED AND THE FOLLOWING TEXT IS TRANSMITTED
;* (DELIMITED BY THE APPROPRIATE CONTROL CHARACTERS -- OF COURSE):
;*
;* 000, 017, 036, 074, 170, 360, 037, 076, 174, 370, 077, 176, 374,
;* 177, 376, 377.
;*
;* NOTE THAT THIS PATTERN CONSISTS OF CHARACTERS WHICH REQUIRE BIT
;* STUFFING BOTH INDIVIDUALLY AND IN COMBINATION WITH ADJACENT
;* CHARACTERS. THERE ARE ALSO CHARACTERS WHICH REQUIRE NO BIT STUFFING
;* AT ALL. ALL 16 CHARACTERS ARE READ BY THE RECEIVER AND COMPARED AS
;* THEY ARE MADE AVAILABLE AT RXDB.
;*****
;*****
;* TEST 8 <BOP RX UNDERRUN IDLE ABORTS/FLAGS>
;*
;* THE USYRT IS INITIALIZED AND A MESSAGE IS STARTED. THEN, A
;* TRANSMITTER UNDERRUN IS FORCED WITH IDLE = 0 -- CAUSING ABORT
;* CHARACTER(S). VERIFY THAT RAB/GA BIT=1.
;* REPEAT THE ABOVE WITH IDLE=1.
;*****
;*****
;* TEST 9 <BOP RX LOST RXE TEST>
;*
;* THE USYRT IS INITIALIZED AND A MESSAGE IS STARTED. WHILE IN THE
;* MIDDLE OF TEXT, RXE IS DROPPED AND THE REACTION OF THE RECEIVER IS
;* MONITORED.
;*****
;*****
;* TEST 10 <BOP RX GA (GO-AHEAD) RECOGNITION>
;*
;* A SHORT MESSAGE IS TRANSMITTED FOLLOWED BY A GA CHARACTER (INSTEAD
;* OF A FLAG CHARACTER). THE RECEIVER IS OBSERVED FOR PROPER HANDLING
;* OF BOTH THE MESSAGE AND THE GA CHARACTER. THE RAB/GA STATUS BIT
;* SHOULD BE SET BY THE RECEIVER UPON RECOGNITION OF THE GA CHARACTER.
;*****
;*****
;* TEST 11 <BOP RX "ABC" TEST>

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;\*  
;\* THIS TEST IS COMPOSED OF 7 SUBTESTS -- EACH ONE CHECKING A DIFFERENT  
;\* EXPECTED VALUE IN ABC (THE 3 BIT "ASSEMBLED BIT COUNT" FIELD WITHIN  
;\* RDSR). IN EACH SUBTEST THE USYRT IS INITIALIZED AND A SMALL MESSAGE  
;\* IS STARTED. THE LAST CHARACTER IS SENT WITH ITS LENGTH BEING  
;\* SPECIFIED FIRST AS 1 BIT, THEN AS 2 BITS, THEN AS 3 BITS, ETC. IN THE  
;\* TRANSMITTER SIDE OF THE USYRT. IN ALL CASES THE RECEIVER IS LEFT SET  
;\* TO 8 BITS IN LENGTH AND WHEN THE FLAG CHARACTER IS DETECTED, ABC IS  
;\* CHECKED AND SHOULD MATCH TXCL. ERROR LOOPING WILL BE ON THE FAILING  
;\* SUBTEST.  
;\*  
;\*\*\*\*\*

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## 8.0 ERROR INFORMATION

### 8.1 ERROR REPORTING

ERRORS ARE REPORTED BY THE PROGRAM AS THEY OCCUR (IF NOT INHIBITED). THE REPORT CONFORMS TO THE DIAGNOSTIC SUPERVISOR ERROR REPORT FORMAT, AND CONSISTS OF A DESCRIPTION OF THE ERROR, THE TEST NUMBER, SUBTEST NUMBER, PC OF THE ERROR CALL, DEVICE ADDRESS, AND BASIC AND EXTENDED ERROR INFORMATION.

THE FOLLOWING EXAMPLE PROVIDES A TYPICAL ERROR REPORT, WHICH DESCRIBES A "MASTER CLEAR FAILURE" ERROR, AND PROVIDES THE PC OF THE ERROR CALL AND THE DEVICE REGISTER CONTENTS :

CVDMB DVC FTL ERR 00001 ON UNIT 00 TST 002 SUB 000 PC: 021122  
MASTER CLEAR FAILURE

THE CONTENTS OF ALL BYTE SELECT REG'S ARE:

BSEL0	BSEL1	BSEL2	BSEL3
000	000	000	000
BSEL4	BSEL5	BSEL6	BSEL7
000	000	121	000
BSEL10	BSEL11	BSEL12	BSEL13
000	000	000	000
BSEL14	BSEL15	BSEL16	BSEL17
000	000	000	000

FOR OTHER ERRORS, THE REPORT MAY BE MORE EXTENSIVE, AND REQUIRE ADDITIONAL DATA TO BE REPORTED.

IF EXTENDED ERROR INFORMATION HAD BEEN INHIBITED USING THE IXE FLAG PRIOR TO RUNNING THE TEST, THE ABOVE ERROR WOULD HAVE BEEN REPORTED IN THE FOLLOWING SHORTENED FORM :

CVDMB DVC FTL ERR 00001 ON UNIT 00 TST 002 SUB 000 PC: 021122  
MASTER CLEAR FAILURE

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GENERAL EQUATES AND DS INVOCATION & SETUP

```

940      .SBTTL GENERAL EQUATES AND DS INVOCATION & SETUP
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943      000000      HELP=0      ; CONTROL LISTING OF HELP INFORMATION
944                                     ;
945                                     ; HELP=0   NO LIST
946                                     ; HELP=1   LIST
947
948      002000      .=2000
949
950      .MCALL SVC
951 002000      SVC      ; INITIALIZE SUPERVISOR MACROS
952
953
954 002000      BGNMOC LUIMOD
955
956
957      000001      $LSTIN= 1
958      000001      $LSTTAG= 1
959      000001      SVCINS= 1      ; LIST INSTRUCTIONS, SHIFTED RIGHT
960      000001      SVCTST= 1     ; LIST TEST TAGS, SHIFTED RIGHT
961      000001      SVCSUB= 1     ; LIST SUBTEST TAGS, SHIFTED RIGHT
962      000001      SVCGBL= 1     ; LIST GLOBAL TAGS, SHIFTED RIGHT
963      000001      SVCTAG= 1     ; LIST OTHER TAGS, SHIFTED RIGHT
964
965      ; CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
966      ; TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS. CHANGE THE
967      ; SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS. YOU MAY
968      ; CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.

```

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987 002007 000  
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989 002010 103  
990 002011  
991 002011 060  
992 002012  
993 002012 000000  
994 002014  
995 002014 000036  
996 002016  
997 002016 034052  
998 002020  
999 002020 000000  
1000 002022  
1001 002022 002154  
1002 002024  
1003 002024 000000  
1004 002026  
1005 002026 034330  
1006 002030  
1007 002030 000000  
1008 002032  
1009 002032 000000  
1010 002034  
1011 002034 000000  
1012 002036  
1013 002036 000000  
1014 002040  
1015 002040 002124  
1016 002042  
1017 002042 000000  
1018 002044  
1019 002044 000000  
1020 002046  
1021 002046 000000  
1022 002050  
1023 002050 003  
1024 002051 003

.SBTTL PROGRAM HEADER

\*\*\*  
; THE PROGRAM HEADER IS THE INTERFACE BETWEEN  
; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.  
---

POINTER BGNAU,BGNDU,ERRTBL

HEADER CVDMD.C,0,30..0

L\$NAME::  
.ASCII /C/  
.ASCII /V/  
.ASCII /D/  
.ASCII /M/  
.ASCII /D/  
.BYTE 0  
.BYTE 0  
.BYTE 0  
L\$REV::  
.ASCII /C/  
L\$DEPO::  
.ASCII /O/  
L\$UNIT::  
.WORD 0  
L\$TIML::  
.WORD 30.  
L\$MPCP::  
.WORD L\$HARD  
L\$SPCP::  
.WORD 0  
L\$HPTP::  
.WORD L\$HW  
L\$SPTP::  
.WORD 0  
L\$LADP::  
.WORD L\$LAST  
L\$STA::  
.WORD 0  
L\$CO::  
.WORD 0  
L\$DTYP::  
.WORD 0  
L\$APT::  
.WORD 0  
L\$DTP::  
.WORD L\$DISPATCH  
L\$PRIO::  
.WORD 0  
L\$ENVI::  
.WORD 0  
L\$EXP1::  
.WORD 0  
L\$MREV::  
.BYTE C\$REVISION  
.BYTE C\$EDIT

CVDMDC0 DMV11 LINE UNIT DIAG2  
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PROGRAM HEADER

1025	002052	
1026	002052	000000
1027	002054	000000
1028	002056	
1029	002056	000000
1030	002060	
1031	002060	003232
1032	002062	
1033	002062	000000
1034	002064	
1035	002064	000000
1036	002066	
1037	002066	000000
1038	002070	
1039	002070	024320
1040	002072	
1041	002072	024314
1042	002074	
1043	002074	000000
1044	002076	
1045	002076	003252
1046	002100	
1047	002100	104035
1048	002102	
1049	002102	002176
1050	002104	
1051	002104	023644
1052	002106	
1053	002106	024312
1054	002110	
1055	002110	024166
1056	002112	
1057	002112	023636
1058	002114	
1059	002114	000000
1060	002116	
1061	002116	000000
1062	002120	
1063	002120	000000
1064		
1065		
1066		

L\$EF::	.WORD	0
	.WORD	0
L\$SPC::	.WORD	0
L\$DEVP::	.WORD	L\$DVTYP
L\$REPP::	.WORD	0
L\$EXP4::	.WORD	0
L\$EXPS::	.WORD	0
L\$AUT::	.WORD	L\$AU
L\$DUT::	.WORD	L\$DU
L\$LUN::	.WORD	0
L\$DESP::	.WORD	L\$DESC
L\$LOAD::	EMT	E\$LOAD
L\$ETP::	.WORD	L\$ERRTBL
L\$ICP::	.WORD	L\$INIT
L\$CCP::	.WORD	L\$CLEAN
L\$ACP::	.WORD	L\$AUTO
L\$PRT::	.WORD	L\$PROT
L\$TEST::	.WORD	0
L\$DLY::	.WORD	0
L\$HIME::	.WORD	0

.EVEN

CVDMDCO DMV11 LINE UNIT DIAG2  
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DISPATCH TABLE

.SBTTL DISPATCH TABLE

SLASH  
;:////////////////////  
;// THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.  
;// IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.  
SLASH  
;:////////////////////

DISPATCH 11.

1067  
1068  
1069 002122  
1070  
1071  
1072  
1073 002122  
1074  
1075  
1076 002122  
1077 002122 000013  
1078 002124  
1079 002124 024322  
1080 002126 025230  
1081 002130 026042  
1082 002132 026644  
1083 002134 027472  
1084 002136 030204  
1085 002140 030702  
1086 002142 032046  
1087 002144 032666  
1088 002146 033130  
1089 002150 033372  
1090

.WORD 11  
L#DISPATCH:;  
.WORD T1  
.WORD T2  
.WORD T3  
.WORD T4  
.WORD T5  
.WORD T6  
.WORD T7  
.WORD T8  
.WORD T9  
.WORD T10  
.WORD T11



CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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DEFAULT HARDWARE P-TABLE

.SBTTL DEFAULT HARDWARE P-TABLE

;/;;;/  
;/ THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF  
;/ THE TEST-DEVICE PARAMETERS. THE STRUCTURE OF THIS TABLE  
;/ IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.  
;/;;;/

1091  
1092  
1093  
1094  
1095  
1096  
1097  
1098  
1099 002152  
1100 002152 000010  
1101 002154  
1102 002154  
1103  
1104 002154 160020  
1105 002156 000300  
1106 002160 004000  
1107 002162 000000  
1108 002164 000000  
1109 002166 000000  
1110 002170 000000  
1111 002172 000001  
1112  
1113  
1114  
1115 002174  
1116 002174

BGNHW DFPTBL

.WORD L10000-L#HW/2  
L#HW::  
DFPTBL::

.WORD 160020  
.WORD 300  
.WORD 4000  
.WORD 000  
.WORD 000  
.WORD 0  
.WORD 0  
.WORD 1

;DMV11 CSR UNIBUS ADDRESS  
;DMV11 INTERRUPT VECTOR  
;DMV11 INTERRUPT PRIORITY LEVEL = 4  
;SWITCH REG. #1 (BOOT ADDRESS)  
;SWITCH REG. #2 (DDCMP ADDRESS)  
;MODULE IS M8064  
;H3254&H3255 USED  
;BAUD RATE = 56 K  
; 0 = 19.2 K  
; 1 = 56 K

ENDHW

L10000:

CVDHDC0 DMV11 LINE UNIT DIAG2  
CVDHDC.P11 12-JUL-84 09:26

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SOFTWARE P-TABLE

.SBTTL SOFTWARE P-TABLE

;/;;;/;  
;/ THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM  
;/ PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.  
;/;;;/;

1117  
1118  
1119  
1120  
1121  
1122  
1123  
1124 002174  
1125 002174 000000  
1126 002176  
1127 002176  
1128  
1129 002176  
1130 002176

BGNSW SFPTBL

.WORD L10001-L\$SW/2

L\$SW::  
SFPTBL::

ENDSW

L10001:

CVDMDCO DMV11 LINE UNIT DIAG2  
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GLOBAL EQUATES SECTION -- BASIC EQUATES

.SBTTL GLOBAL EQUATES SECTION -- BASIC EQUATES

;//  
;/ THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT  
;/ ARE USED IN MORE THAN ONE TEST.  
;//

EQUALS

; BIT DIFINITIONS

BIT15== 100000  
BIT14== 40000  
BIT13== 20000  
BIT12== 10000  
BIT11== 4000  
BIT10== 2000  
BIT09== 1000  
BIT08== 400  
BIT07== 200  
BIT06== 100  
BIT05== 40  
BIT04== 20  
BIT03== 10  
BIT02== 4  
BIT01== 2  
BIT00== 1

BIT9== BIT0  
BIT8== BIT08  
BIT7== BIT07  
BIT6== BIT06  
BIT5== BIT05  
BIT4== BIT04  
BIT3== BIT03  
BIT2== BIT02  
BIT1== BIT01  
BIT0== BIT00

; EVENT FLAG DEFINITIONS

; EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION

EF.START== 32. ; START COMMAND WAS ISSUED  
EF.RESTART== 31. ; RESTART COMMAND WAS ISSUED  
EF.CONTINUE== 30. ; CONTINUE COMMAND WAS ISSUED  
EF.NEW== 29. ; A NEW PASS HAS BEEN STARTED  
EF.PWR== 28. ; A POWER-FAIL/POWER-UP OCCURRED

; PRIORITY LEVEL DEFINITIONS

PRI07== 340  
PRI06== 300  
PRI05== 240  
PRI04== 200

1131  
1132  
1133  
1134  
1135  
1136  
1137  
1138  
1139 002176  
1140  
1141  
1142  
1143 100000  
1144 040000  
1145 020000  
1146 010000  
1147 004000  
1148 002000  
1149 001000  
1150 000400  
1151 000200  
1152 000100  
1153 000040  
1154 000020  
1155 000010  
1156 000004  
1157 000002  
1158 000001  
1159  
1160 001000  
1161 000400  
1162 000200  
1163 000100  
1164 000040  
1165 000020  
1166 000010  
1167 000004  
1168 000002  
1169 000001  
1170  
1171  
1172  
1173  
1174 000040  
1175 000037  
1176 000035  
1177 000035  
1178 000034  
1179  
1180  
1181  
1182  
1183 000340  
1184 000300  
1185 000240  
1186 000200

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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GLOBAL EQUATES SECTION -- BASIC EQUATES

1187	000140	PRI03-- 140
1188	000100	PRI02-- 100
1189	000040	PRI01-- 40
1190	000000	PRI00-- 0
1191		;
1192		;OPERATOR FLAG BITS
1193		;
1194	000004	EVL-- 4
1195	000010	LOT-- 10
1196	000020	ADR-- 20
1197	000040	IDU-- 40
1198	000100	ISR-- 100
1199	000200	UAM-- 200
1200	000400	BJE-- 400
1201	001000	PNT-- 1000
1202	002000	PRI-- 2000
1203	004000	IXE-- 4000
1204	010000	IBE-- 10000
1205	020000	IER-- 20000
1206	040000	LOE-- 40000
1207	100000	HOE-- 100000

CVDNDCO DMV11 LINE UNIT DIAG2  
CVDNDC.P11 12-JUL-84 09:26

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REGISTER DEFINITIONS -- MAINTENANCE REGISTERS -- SELN & BSELN

```
.SBTTL REGISTER DEFINITIONS -- MAINTENANCE REGISTERS -- SELN & BSELN

;*****
; * MAINTENANCE REGISTER # 0 - BSEL0
;*****
1208
1209
1210
1211
1212
1213           000020
1214           000001
1215
1216           IEO      = BIT4      ; "INTERRUPT ENABLE OUT"
1217           IEI      = BIT0      ; "INTERRUPT ENABLE IN"
1218
1219           ; BIT 7 IS ALSO USED BY THE MICROCODE. ITS LABEL IS "RQI" WHICH STANDS FOR
1220           ; "REQUIST IN". IT'S PART OF THE HANDSHAKING FOR USING THE SEL & BSEL REG'S.
1221           ; HOWEVER, THE MAINT. LOOP DOES NOT MAKE USE OF THIS BIT AND IT IS THEREFORE
1222           ; UNNECESSARY TO DEFINE IT HERE.
1223
1224           ;*****
1225           ; * MAINTENANCE REGISTER # 1 - BSEL1
1226           ;*****
1227           RUN      = BIT7      ; "RUN" & ALSO CONTROLS 6502 MICROPROCESSOR'S RDY STATE
1228           MCLR     = BIT6      ; MASTER CLEAR
1229           MREQ     = BIT0      ; M-LOOP ACCESS
1230           STRMLOOP= RUN!MCLR!MREQ ; INITIATE M-LOOP
1231
1232           ;*****
1233           ; * MAINTENANCE REGISTER # 2 - BSEL2
1234           ;*****
1235           MRDY     = BIT7      ; M-LOOP READY
1236
1237           ;*****
1238           ; * MAINTENANCE LOOP COMMAND DEFINITIONS
1239           ;*****
1240           REDLOC   = 1          ; READ LOC. W/IN DMV-11 ---- (SEL4) ----> BSEL6
1241           WRILOC  = 2          ; WRITE LOC. W/IN DMV-11 --- BSEL6 ----> (SEL4)
1242           REDPAG  = 3          ; READ BLOCK W/IN DMV-11 --- (SEL6) ----> (SEL4)
1243           WRIPAG  = 4          ; WRITE BLOCK W/IN DMV-11 -- (SEL4) ----> (SEL6)
1244           EXECUT  = 5          ; SET 6502'S PC AND EXECUTE -- SEL6 ----> PC
1245           DOTBMT  = 7          ; SET MAINTENANCE INTERRUPT DISABLE IN PROCESSOR
1246           ; STATUS --- [KB7] --> BSEL3
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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REGISTER DEFINITIONS -- USYRT

.SBTTL REGISTER DEFINITIONS -- USYRT

```

1245
1246
1247
1248          120400      USYRT = 120400          ;USYRT BASE ADDRESS = A100 (HEX)
1249
1250          ;*****
1251          ;* USYRT "RECEIVER DATA BUFFER" REGISTER -- READ ONLY
1252          ;*****
1253
1254          120400      RDSRL = 120400          ;ADDRESS OF THIS REG
1255
1256          ;*****
1257          ;* USYRT "RECEIVER STATUS" REGISTER -- READ ONLY
1258          ;*****
1259
1260          120401      RDSRH = 120401          ;ADDRESS OF THIS REG
1261
1262          ;BIT DEFINITIONS ON BYTE BASIS :
1263          RERR        = BIT7          ;ERROR CHECK
1264          ABC         = BIT6:BIT5:BIT4 ;ASSEMBLED BIT COUNT
1265          ROR        = BIT3          ;RECEIVER OVER RUN
1266          RABGA      = BIT2          ;RECEIVED ABORT/GA CHARACTER
1267          REOM       = BIT1          ;RECEIVED END-OF-MESSAGE
1268          RSOM       = BIT0          ;RECEIVED START-OF-MESSAGE
1269
1270          ;BIT DEFINITIONS ON WORD BASIS :
1271          RXERR       = BIT15         ;RECEIVED CRC/VRC ERROR
1272          RXOR        = BIT11         ;RECEIVER OVER RUN
1273          RXABGA     = BIT10         ;RECEIVED ABORT/GO AHEAD CHARACTER
1274          RXEOM      = BIT9          ;RECEIVED END-OF-MESSAGE
1275          RXSOM      = BIT8          ;RECEIVED START-OF-MESSAGE
1276
1277          RERCHK     = BIT0          ;FLAG TO INVOKE RERR CHK IN SUBROUTINE RXCHAR
1278
1279          ;*****
1280          ;* USYRT "TRANSMITTER DATA BUFFER" REGISTER
1281          ;*****
1282
1283          120402      TDSRL = 120402          ;ADDRESS OF THIS REG
1284
1285          ;*****
1286          ;* USYRT "TX STATUS AND CONTROL" REGISTER
1287          ;*****
1288
1289          120403      TDSRH = 120403          ;ADDRESS OF THIS REG
1290
1291          ;BIT DEFINITIONS ON BYTE BASIS :
1292          TERR        = BIT7          ;TRANSMITTER UNDERRUN ERROR
1293          TGA         = BIT3          ;TRANSMIT GO AHEAD
1294          TAB         = BIT2          ;TRANSMIT ABORT
1295          TEOM       = BIT1          ;TRANSMIT END-OF-MESSAGE
1296          TSOM       = BIT0          ;TRANSMIT START-OF-MESSAGE
1297
1298          ;BIT DEFINITIONS ON WORD BASIS :
1299          TXERR       = BIT15         ;TRANSMITTER UNDERRUN ERROR
1300          TXGA       = BIT11         ;TRANSMIT GO AHEAD

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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REGISTER DEFINITIONS -- USYRT

```

1301      002000      TXAB      = BIT10      ;TRANSMIT ABORT
1302      001000      TXEOM     = BIT9       ;TRANSMIT END-OF-MESSAGE
1303      000400      TXSOM     = BIT8       ;TRANSMIT START-OF-MESSAGE
1304
1305      ;*****
1306      ;* USYRT "SYNC/SECONDARY ADDRESS" REGISTER
1307      ;*****
1308
1309      120404      PCSARL    = 120404      ;ADDRESS OF THIS REG
1310      000226      SYNCH     = 226        ;STANDARD SYNCH CHARACTER
1311
1312      ;*****
1313      ;* USYRT "MODE CONTROL"
1314      ;*****
1315
1316      120405      PCSARH    = 120405      ;ADDRESS OF THIS REG
1317
1318      ;BIT DEFINITIONS ON BYTE BASIS:
1319
1320      000200      APA       = BIT7       ;"ALL PARTIES ADDRESS" ENABLE
1321      000100      PROTO    = BIT6       ;SPECIFIES BOP/CCP PROTOCOL -- 0 = BOP
1322      000040      STRIP    = BIT5       ;STRIP EXTRA SYNC'S IN CCP MODE, SEE GA CHARS IN BOP
1323      000020      SECAD    = BIT4       ;SECONDARY ADDRESS MODE -- BOP MODE ONLY
1324      000010      IDLE    = BIT3       ;IDLE & SYNC CHAR. TRANSMISSION CONTROL
1325      000007      XYZ      = BIT2!BIT1!BIT0 ;CRC/PARITY SELECTION CONTROL
1326
1327      ;BIT DEFINITIONS ON WORD BASIS:
1328
1329      100000      APAD     = BIT15      ;"ALL PARTIES ADDRESS" ENABLE
1330      040000      DDCMP    = BIT14      ;CODE FOR DDCMP MODE
1331      020000      STRIPS   = BIT13      ;STRIP EXTRA SYNC'S IN CCP MODE, SEE GA CHARS IN BOP
1332      010000      SECADR   = BIT12      ;SECONDARY ADDRESS MODE -- BOP MODE ONLY
1333      004000      IDLES    = BIT11      ;IDLE & SYNC CHAR. TRANSMISSION CONTROL
1334      000400      CRCOS    = BIT8       ;CODE FOR CRC-CCITT-0 SELECTION
1335      001400      CRC16    = BIT9!BIT8   ;CODE FOR CRC-16 SELECTION
1336      003400      NOCHK    = BIT10!BIT9!BIT8 ;CODE FOR NO ERROR CHECKING
1337      002400      EVRC     = BIT10!BIT8   ;CODE FOR VRC EVEN CHECK
1338      002000      OVRC     = BIT10      ;CODE FOR VRC ODD CHECK
1339
1340      ;*****
1341      ;* USYRT "DATA LENGTH SELECT" REGISTER
1342      ;*****
1343
1344      120407      PCR       = 120407      ;ADDRESS OF THIS REG
1345
1346      ;BIT DEFINITIONS:
1347
1348      000340      TXDL     = BIT7!BIT6!BIT5 ;TRANSMIT DATA LENGTH SELECTION
1349      000020      EXADD    = BIT4       ;EXTENDED ADDRESS FIELD -- NOT USED OR TESTED
1350      000010      EXCON    = BIT3       ;EXTENDED CONTROL FIELD -- NOT USED OR TESTED
1351      000007      RXDL     = BIT2!BIT1!BIT0 ;RECEIVER DATA LENGTH SELECTION
1352
1353      ;*****
1354      ;* USYRT STATUS REGISTER (ADDR. A400)
1355      ;*****
1356      122000      USTATR   = 122000      ;USYRT STATUS REGISTER ADDRESS = A400 (HEX)

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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REGISTER DEFINITIONS -- USYRT

1357  
1358  
1359  
1360  
1361  
1362  
1363  
1364  
1365  
1366  
1367

000200  
000100  
000040  
000020  
000010  
000004  
000002  
000001

;BIT DEFINITIONS:

RDA	=	BIT7	;RECEIVER DATA AVAILABLE
TBMT	=	BIT6	;TRANSMITTER BUFFER EMPTY
RXACT	=	BIT5	;RECEIVER ACTIVE
RSA	=	BIT4	;RECEIVER STATUS AVAILABLE
TSO	=	BIT3	;TRANSMITTER SERIAL OUTPUT
TXACT	=	BIT2	;TRANSMITTER ACTIVE
TXU	=	BIT1	;TRANSMITTER UNDERRUN
SFR	=	BIT0	;SYNC/FLAG RECEIVED



CVDMDCO DMV11 LINE UNIT DIAG2  
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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1368      .SBTTL REGISTER DEFINITIONS -- 6522 VIA CHIP
1369
1370      120000      VIA      = 120000      ;VIA BASE ADDRESS = A000 (HEX)
1371
1372      ;*****
1373      ;* MODEM & MAINTENANCE CONTROL -- "ORB" 8 BIT PORT B -- WRITE ONLY
1374      ;*****
1375
1376      120000      VIAORB = 120000      ;ADDRESS OF THIS REGISTER -- HEX = A0X0
1377
1378      000200      NULCLK = BIT7      ;"NULL CLK L" -- NULL CLOCK
1379      000100      RXEN   = BIT6      ;"RXENL" -- USYRT RECEIVER ENABLE
1380      000040      TXEN   = BIT5      ;"TXENL" -- USYRT TRANSMITTER ENABLE
1381      C00020      DTR    = BIT4      ;"DTR" -- DATA TERMINAL READY
1382      000010      RTSND  = BIT3      ;"RTSND" -- REQUEST TO SEND
1383      000004      MDX    = BIT2      ;"MDX" -- HALF DUPLEX
1384      000002      TTLOOP = BIT1      ;"SELECT TTL LEVEL LOOPBACK"
1385      000001      PRESET = BIT0      ;"PRESET H" --
1386      000000      DTRL   = 0          ;DTR IS ASSERTED LOW
1387
1388      ;*****
1389      ;* MODEM STATUS REGISTER -- "ORA" 8 BIT PORT A -- READ ONLY
1390      ;*****
1391
1392      120001      VIAMS  = 120001      ;ADDRESS OF THIS REGISTER -- HEX = A0X1
1393
1394      000200      RING   = BIT7      ;"RING H" --
1395      000100      CARRIER = BIT6      ;"CARRIER H" --
1396      000040      MDMDY  = BIT5      ;"MODEM RDY H" --
1397      000020      SPEED  = BIT4      ;"BAUD RATE SWITCH -- (19.2K/56K)
1398      000010      CTS    = BIT3      ;"CTS H -- CLEAR TO SEND
1399      000004      TM     = BIT2      ;"TEST MODE H" --
1400      000002      RCVDAT = BIT1      ;"RCV DATA H" --
1401      000001      UMAINT = BIT0      ; SELECT USYRT INT LOOPBACK **SELECT BIT**
1402
1403
1404      ;*****
1405      ;* DATA DIRECTION FOR PORT B -- "DORB" -- READ/WRITE
1406      ;*****
1407
1408      120002      VIADPB = 120002      ;ADDRESS OF THIS REGISTER -- HEX = A0X2
1409
1410      ; ALL BITS ARE DEFINED THE SAME;
1411      ; THE BIT SETTING DEFINED THE DIRECTION OF ITS RELATED BIT IN BIT PORT B
1412
1413      ; INITIALIZE TO 377 (HEX = FF) -- PORT B IS READ/WRITE
1414
1415
1416      ;*****
1417      ;* DATA DIRECTION FOR PORT A -- "DDRA" -- READ/WRITE
1418      ;*****
1419
1420      120003      VIADPA = 120003      ;ADDRESS OF THIS REGISTER -- HEX = A0X3
1421
1422      ; ALL BITS ARE DEFINED THE SAME;
1423      ; THE BIT SETTING DEFINED THE DIRECTION OF ITS RELATED BIT IN BIT PORT A

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 34  
REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1424
1425 ;           INITIALIZED TO 001 (HEX = 01) -- PORT A IS READ ONLY (EXCEPT FOR
1426 ;           BIT0 WHICH ENABLES USYRT INTERNAL LOOPBACK).
1427
1428
1429
1430 ;*****
1431 ;* TIMER 1 LOW ORDER (LATCH & COUNTER) -- "T1L-L" & "T1C-L" -- WRITE & READ
1432 ;*****
1433
1434 120004 VIAT1A = 120004           ;ADDRESS OF THIS REGISTER -- HEX = A0X4
1435
1436 ; WHEN WRITING, LOW ORDER LATCH IS LOADED.
1437 ; WHEN READING, LOW ORDER COUNTER IS READ.
1438
1439
1440
1441 ;*****
1442 ;* TIMER 1 HIGH ORDER COUNTER & TRIGGER -- "T1L-H AND TRIGGER" & "T1C-H"
1443 ;* -- WRITE & READ
1444 ;*****
1445
1446 120005 VIAT1B = 120005           ;ADDRESS OF THIS REGISTER -- HEX = A0X5
1447
1448 ; WHEN WRITING; HIGH ORDER LATCH IS LOADED, BOTH LOW & HIGH ORDER LATCHES
1449 ; ARE LOADED INTO THE COUNTER, AND THE COUNTER IS STARTED.
1450
1451 ; WHEN READING, THE HIGH ORDER COUNTER IS READ.
1452
1453
1454
1455 ;*****
1456 ;* TIMER 1 LOW ORDER LATCH -- "T1L-L" -- READ/WRITE
1457 ;*****
1458
1459 120006 VIAT1C = 120006           ;ADDRESS OF THIS REGISTER -- HEX = A0X6
1460
1461 ; THE LOW ORDER LATCH IS READ OR LOADED. THIS LATCH IS USED TO LOAD THE
1462 ; COUNTER WHEN T1MODE (IN VIAACR) = 3
1463
1464
1465
1466 ;*****
1467 ;* TIMER 1 HIGH ORDER LATCH -- "T1L-H" -- READ/WRITE
1468 ;*****
1469
1470 120007 VIAT1D = 120007           ;ADDRESS OF THIS REGISTER -- HEX = A0X7
1471
1472 ; THE HIGH ORDER LATCH IS READ OR LOADED. THIS LATCH IS USED TO LOAD THE
1473 ; COUNTER WHEN T1MODE (IN VIAACR) = 3
1474
1475
1476
1477 ;*****
1478 ;* TIMER 2 LOW ORDER (LATCH & COUNTER) -- "T2L-L" & "T2C-L" -- WRITE & READ
1479 ;*****

```

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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1480
1481      120010      VIAT2A = 120010      ;ADDRESS OF THIS REGISTER -- HEX = A0X8
1482
1483      ; WHEN WRITING, LOW ORDER LATCH IS LOADED.
1484      ; WHEN READING, LOW ORDER COUNTER IS READ.
1485
1486
1487
1488      ;*****
1489      ;* TIMER 2 HIGH ORDER COUNTER & TRIGGER -- "T2L-H AND TRIGGER" & "T2C-H"
1490      ;* -- WRITE & READ
1491      ;*****
1492
1493      120011      VIAT2B = 120011      ;ADDRESS OF THIS REGISTER -- HEX = A0X9
1494
1495      ; WHEN WRITING; HIGH ORDER LATCH IS LOADED, BOTH LOW & HIGH ORDER LATCHES
1496      ; ARE LOADED INTO THE COUNTER, AND THE COUNTER IS STARTED.
1497
1498      ; WHEN READING, THE HIGH ORDER COUNTER IS READ.
1499
1500      ;*****
1501      ;* SHIFT REGISTER -- "SR" -- READ/WRITE
1502      ;*****
1503
1504      120012      VIASR  = 120012      ;ADDRESS OF THIS REGISTER -- HEX = A0XA
1505
1506      ; SHIFTING IS CONTROLLED BY THE SETTING OF VIASRC (ACR2 ---> ACR4) IN VIAACR
1507
1508
1509
1510      ;*****
1511      ;* AUXILIARY CONTROL REGISTER -- "ACR" -- READ/WRITE
1512      ;*****
1513
1514      120013      VIAACR = 120013      ;ADDRESS OF THIS REGISTER -- HEX = A0XB
1515
1516      000300      T1MODE = BIT7:BIT6      ;CONTROL THE MODE OF TIMER # 1
1517
1518      ;BIT 7:
1519      ; 0      PB7 DISABLED -- ONLY T1TO IN VIAIFR REFLECTS TIMEOUT
1520      ; 1      PB7 & T1TO REFLECT TIMEOUT
1521
1522      ;BIT 6:
1523      ; 0      TIMER 1 IN ONE-SHOT MODE
1524      ; 1      TIMER 1 IN CONTINUOUS SQUARE WAVE MODE
1525
1526      000040      T2MODE = BITS          ;CONTROLS THE MODE OF TIMER # 1
1527
1528      ; 0      PULSE COUNTING MODE
1529      ; 1      INTERVAL TIMER MODE
1530
1531      000034      SRMODE = BIT4:BIT3:BIT2 ;CONTROLS THE MODE OF THE SHIFT REGISTER
1532
1533      ; 0      SR DISABLED
1534      ; 1      SHIFT IN UNDER CONTROL OF T2, SHFT PULSES GEN'D ON CB1
1535      ; 2      SHIFT IN AT SYS. CLOCK RATE, SHFT PULSES GEN'D ON CB1

```

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REGISTER DEFINITIONS -- 6522 VIA CHIP

```

1536                ; 3    SHIFT IN UNDER CONTROL OF EXTERNAL INPUT PULSES
1537                ; 4    SHIFT OUT -- FREE RUNNING -- RATE CONTROLLED BY T2
1538                ; 5    SHIFT OUT -- RATE CONTROLLED BY T2 -- PULSES ON CB1
1539                ; 6    SHIFT OUT -- SYS. CLOCK RATE -- PULSES ON CB1
1540                ; 7    SHIFT OUT -- UNDER CONTROL OF PULSES APPLIED TO CB1
1541
1542                000002    PBLN8  = BIT1                ;PB LATCH CONTROL -- 1 ENABLES LATCH
1543                000001    PALEN8 = BIT0                ;PA LATCH CONTROL -- 1 ENABLES LATCH
1544
1545
1546
1547
1548                ;*****
1549                ;* PERIPHERAL CONTROL REGISTER -- "PCR" -- READ/WRITE
1550                ;*****
1551
1552                120014    VIAPCR = 120014                ;ADDRESS OF THIS REGISTER -- HEX = A0XC
1553
1554                000340    CB2CTL = BIT7!BIT6!BIT5        ;CB2 MODE SELECT
1555                000020    CB1CTL = BIT4                ;CB1 MODE SELECT
1556                000016    CA2CTL = BIT3!BIT2!BIT1        ;CA2 MODE SELECT
1557                000001    CA1CTL = BIT0                ;CA1 MODE SELECT
1558
1559
1560
1561                ;*****
1562                ;* INTERRUPT FLAG REGISTER -- "IFR" -- READ ONLY
1563                ;*****
1564
1565                120015    VIAIFR = 120015                ;ADDRESS OF THIS REGISTER -- HEX = A0XD
1566
1567                000200    FLGIRQ = BIT7                ;SET WHEN A FLAG IN THIS REG. GOES HIGH AND
1568                ;ITS CORRESPONDING BIT IN VIAIER IS SET.
1569                ;(I.E. VIAIER IS THE ENABLE REGISTER FOR THE
1570                ;FOR THE SETTING OF IRQ AND THE ISSUANCE OF
1571                ;AN INTERRUPT TO THE 6502 WHEN IRQ IS SET.)
1572
1573                000100    FLGT1  = BIT6                ;TIMEOUT OF TIMER 1
1574                000040    FLGT2  = BIT5                ;TIMEOUT OF TIMER 2
1575                000020    FLGCB1 = BIT4                ;ACTIVE TRANSITION OF PIN 18 (CB1)
1576                000010    FLGCB2 = BIT3                ;ACTIVE TRANSITION OF PIN 19 (CB2)
1577                000004    FLGSR  = BIT2                ;COMPLETION OF 8 SHIFTS
1578                000002    FLGCA1 = BIT1                ;ACTIVE TRANSITION OF PIN 40 (CA1)
1579                000001    FLGCA2 = BIT0                ;ACTIVE TRANSITION OF PIN 39 (CA2)
1580
1581
1582
1583                ;*****
1584                ;* INTERRUPT ENABLE REGISTER -- "IER" -- READ/WRITE
1585                ;*****
1586
1587                120016    VIAIER = 120016                ;ADDRESS OF THIS REGISTER -- HEX = A0XE
1588
1589                000200    INTSC  = BIT7                ;CONTROLS THE SETTING OR CLEARING OF BITS IN
1590                ;THE REST OF IER. IF = 0 THE OTHER BITS IN
1591                ;THIS REG., IF SET, WILL CLEAR THEIR RESPECTIVE

```

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REGISTER DEFINITIONS -- 6522 VIA CHIP

1592  
1593  
1594  
1595  
1596  
1597  
1598  
1599  
1600  
1601  
1602  
1603  
1604  
1605  
1606  
1607  
1608  
1609  
1610  
1611  
1612  
1613  
1614  
1615  
1616

120017

```

;BITS IN THE INT. ENAB. REG.. IF = 1, THE
;RESPECTIVE BITS WILL BE SET.

; WHEN WRITING THIS REG., THE COMMENT ABOVE HOLDS.
; WHEN READING THIS REG., THE CURRENT STATE OF THE INT. ENABLE REG. IS RETURNED.
; THE BIT ASSIGNMENTS ARE THE SAME AS FOR VIAIFR AS DEFINED ABOVE.

;*****
;* OUTPUT REGISTER A -- "ORA" -- READ ONLY (OR READ/WRITE UNDER CONTROL OF "DDPA")
;*****

VIAORA = 120017 ;ADDRESS OF THIS REGISTER -- HEX = A0XF

; THIS ADDRESS ACCESSES THE SAME DATA AS "VIAMS" EXCEPT THAT NO "HANDSHAKING"
; WILL TAKE PLACE (I.E. THERE IS NO CHANGE IN IRQ OR CA2 AS A RESULT OF
; READING ORA THROUGH THIS ADDRESS)

;THE BIT ASSIGNMENTS ARE THE SAME AS FOR "VIAMS" ABOVE.

```

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REGISTER DEFINITIONS -- MISC

.SBTTL REGISTER DEFINITIONS -- MISC

\*\*\*\*\*  
;\* SWITCH PACKS  
\*\*\*\*\*

SWPBOT = 121000 ;"BOOT ADDRESS" SWITCH PACK [A200]  
SWPDDCMP = 121400 ;"DDCMP ADDRESS" SWITCH PACK [A300]

;MISCELLANEOUS EQUATES

TCCHK = BIT15 ;FLAG TO REQUEST H3254,5 CHECK  
RAMADR = 001000 ;STARTING ADRS OF RAM PAGE 2 (ADRS 0200 HEX)

EIAV35 = BIT1 ;SELECT V.35 OR EIA 423/232C  
INTGRL = BIT0 ;SELECT INTEGRAL MODEM

NORXEN = BIT14 ;KILL RXEN DURING "INITRN"  
NOLOOP = BIT9 ;KILL TTLOOP DURING "INITRN"

NCTBMT = BIT7 ;DISABLE INITIAL TBMT=0 CHECK IN TXCHAR

NOCRDA = BIT15 ;DISABLE INITIAL RDA=0 CHECK IN RXCHAR  
NFCRDA = BIT14 ;DISABLE FINAL RDA=1 CHECK IN RXCHAR  
NCRACT = BIT13 ;DISABLE RXACT=1 CHECK AFTER CLOCKING (RXCHAR)

1617  
1618  
1619  
1620  
1621  
1622  
1623 121000  
1624 121400  
1625  
1626  
1627  
1628 100000  
1629 001000  
1630  
1631 000002  
1632 000001  
1633  
1634 040000  
1635 001000  
1636  
1637 000200  
1638  
1639 100000  
1640 040000  
1641 020000  
1642

1643  
 1644  
 1645  
 1646  
 1647  
 1648  
 1649  
 1650  
 1651  
 1652  
 1653  
 1654 002176  
 1655 002176  
 1656 002176 000000  
 1657 002200 000000  
 1658 002202 000000  
 1659 002204 000000  
 1660  
 1661  
 1662  
 1663  
 1664 002206  
 1665 002206 000000  
 1666 002210  
 1667 002210 000000  
 1668 002212  
 1669 002212 000000  
 1670 002214  
 1671 002214 000000  
 1672 002216  
 1673 002216 000000  
 1674 002220  
 1675 002220 000000  
 1676 002222  
 1677 002222 000000  
 1678 002224  
 1679 002224 000000  
 1680 002226 000000  
 1681 002230 000000  
 1682 002232 000000  
 1683 002234 000000  
 1684 002236 000000  
 1685 002240 000000  
 1686 002242 000000  
 1687 002244 000000  
 1688  
 1689 002246 000010  
 1690  
 1691  
 1692 002266 000020

.SBTTL GLOBAL DATA SECTION

```

;//////////
; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
; IN MORE THAN ONE TEST.
;//////////

```

```

;*****
; CONTROL BLOCK FOR STACKED ERROR MESSAGES
;-----*****

```

ERRTBL

LERRTBL:

```

ERRTYP: .WORD 0
ERRNBR: .WORD 0
ERRMSG: .WORD 0
ERRBLK: .WORD 0

```

```

;*****
;* STORAGE FOR DEVICE REGISTERS
;*****
; STORAGE FOR DEVICE CSR REGISTERS

```

```

WSR0:
BSR0: .WORD 0
WSR2:
BSR1: .WORD 0
WSR4:
BSR2: .WORD 0
WSR6:
BSR3: .WORD 0
WSR10:
BSR4: .WORD 0
WSR12:
BSR5: .WORD 0
WSR14:
BSR6: .WORD 0
WSR16:
BSR7: .WORD 0
BSR10: .WORD 0
BSR11: .WORD 0
BSR12: .WORD 0
BSR13: .WORD 0
BSR14: .WORD 0
BSR15: .WORD 0
BSR16: .WORD 0
BSR17: .WORD 0

```

UREGS: .BLKW 8.

VREGS: .BLKW 16.

```

;THE FIRST 7 ARE FOR THE USYRT'S ACTUAL
;REGISTERS. THE LAST ONE IS FOR THE STATUS
;REG. (USTATR).
;STORAGE FOR VIA REGISTERS FOR PRINTOUT

```

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GLOBAL DATA SECTION

```

1693 ;*****
1694 ;* MISCELLANEOUS STORAGE
1695 ;*****
1696 002326 000000 TDATA: .WORD 0 ;TEST DATA
1697 002330 000000 GDATA: .WORD 0 ;GOOD DATA
1698 002332 000000 BDATA: .WORD 0 ;BAD DATA
1699 002334 000000 XDATA: .WORD 0 ;EXCLUSIVE-OR BETWEEN GOOD AND BAD DATA
1700 002336 000000 SCRACH: .WORD 0 ;GEN'L PURPOSE SCRATCH WORD
1701 002340 000000 LOGDEV: .WORD 0 ;LOGICAL DEVICE NUMBER
1702 002342 000000 REGNUM: .WORD 0 ;CONTAINS A DEVICE REGISTER NUMBER
1703 002344 000000 PSTACK: .WORD 0 ;CONTAINS BASE LEVEL PROGRAM STACK POINTER
1704 002346 000000 PRIOR: .WORD 0 ;CPU PRIORITY FOR PRINTOUT
1705 002350 000000 SUBRPC: .WORD 0 ;PC OF SUBR CALL FOR ERROR REPORTS
1706 002352 000000 INTFLG: .WORD 0 ;INTERRUPT RECEIVED FLAGS
1707 ; BIT 0 FOR TX, BIT 1 FOR RCV
1708 002354 000000 ERRFLG: .WORD 0 ;SUBROUTINE ERROR FLAG
1709 002356 000000 TIMFLG: .WORD 0 ;EVENT TIME-OUT FLAG
1710 002360 000000 RETADR: .WORD 0 ;SUBR ERROR RETURN ADDRESS
1711 002362 000000 REDBYT: .WORD 0 ;LO BYTE CONTAINS BYTE READ FROM LU REG
1712 002364 000000 WRIBYT: .WORD 0 ;LO BYTE CONTAINS BYTE TO LOAD INTO LU REG
1713 002366 000000 LOADAT: .WORD 0 ;CONTAINS TEST DATA LOADED INTO REG
1714 002370 000000 GOODAT: .WORD 0 ;STORAGE FOR EXPECTED DATA
1715 002372 000000 BADDAT: .WORD 0 ;STORAGE FOR ACTUAL DATA
1716 002374 000000 FRSTIM: .WORD 0 ;FLAG=0 IF PROGRAM JUST LOADED
1717 002376 000000 SAVE4: .WORD 0 ;SAVE LOC 4 HERE (ERROR TRAP VECTOR)
1718 002400 000000 SAVE6: .WORD 0 ;SAVE LOC 6 HERE (ERROR TRAP VECTOR)
1719 002402 000000 ERROR1: .WORD 0 ;SUBR ERR. BIT FLAGS (DEF'D IN GLOBAL EQUATES)
1720 002404 000000 CHPTYP: .WORD 0 ;USYRT CHIP TYPE, =0 FOR SMC, ELSE =1
1721 002406 000000 SAVLEN: .WORD 0 ;SAVED TX AND RCV CHAR LENGTHS
1722 002410 000000 DEVMAP: .WORD 0 ;BIT MAP OF ACTIVE DEVICES
1723 002412 000000 DEVPTR: .WORD 0 ;DEVICE MAP BIT POINTER
1724 002414 000000 UNIT: .WORD 0 ;CONTAINS UNIT NO. (1 TO N)
1725 002416 000000 STARES: .WORD 0 ;FLAG TO SHOW NO. OF PASSES SINCE STA OR RES
1726 002420 000000 TSTNUM: .WORD 0 ;NO. OF CURRENT TEST (FOR SOME TESTS)
1727

```



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```

1728      ;***** CURRENT DEVICE PARAMETERS *****
1729      BSEL0:
1730      SEL0:
1731      MPCSRA: .WORD 160020      ;POINTER TO DMV11 CSR'S
1732      BSEL1: .WORD 160021      ;POINTER TO BSEL1
1733      BSEL2:
1734      SEL2: .WORD 160022      ;POINTER TO SEL2
1735      BSEL3: .WORD 160023      ;POINTER TO BSEL3
1736      BSEL4:
1737      SEL4: .WORD 160024      ;POINTER TO SEL4
1738      BSEL5: .WORD 160025      ;POINTER TO BSEL5
1739      BSEL6:
1740      SEL6: .WORD 160026      ;POINTER TO SEL6
1741      BSEL7: .WORD 160027      ;POINTER TO BSEL7
1742      BSEL10:
1743      SEL10: .WORD 160030      ;POINTER TO SEL10
1744      BSEL11: .WORD 160031      ;POINTER TO BSEL11
1745      BSEL12:
1746      SEL12: .WORD 160032      ;POINTER TO SEL12
1747      BSEL13: .WORD 160033      ;POINTER TO BSEL13
1748      BSEL14:
1749      SEL14: .WORD 160034      ;POINTER TO SEL14
1750      BSEL15: .WORD 160035      ;POINTER TO BSEL15
1751      BSEL16:
1752      SEL16: .WORD 160036      ;POINTER TO SEL16
1753      BSEL17: .WORD 160037      ;POINTER TO BSEL17
1754
1755      MPIVEC: .WORD 300      ;DMV11 INPUT INTERRUPT VECTOR
1756      MPOVEC: .WORD 304      ;DMV11 OUTPUT INTERRUPT VECTOR
1757      MPRIOR: .WORD 240      ;DMV11 DEVICE PRIORITY
1758      LUSWI1: .WORD 0      ;LINE UNIT SWITCH PACK #1
1759      LUSWI2: .WORD 0      ;LINE UNIT SWITCH PACK #2
1760      BRDTYP: .WORD 0      ;0-MB064, 1-MB053/V.35, 2-MB053/EIA
1761      TSTCON: .WORD 0      ;TEST CONNECTOR INDICATOR
1762      BORATE: .WORD 1      ;BAUD RATE = 56 K
1763      ;           0 = 19.2 K
1764      ;           1 = 56 K

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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GLOBAL DATA SECTION

```

1765          ;TABLE OF USYRT REGISTER ADDRESSES
1766 002502 120400 USYREG: .WORD 120400 ;ADDRESS OF RDSAL
1767 002504 120401          .WORD 120401 ;ADDRESS OF RDSRH
1768 002506 120402          .WORD 120402 ;ADDRESS OF TDSAL
1769 002510 120403          .WORD 120403 ;ADDRESS OF TDSRH
1770 002512 120404          .WORD 120404 ;ADDRESS OF PCSARL
1771 002514 120405          .WORD 120405 ;ADDRESS OF PCSARH
1772 002516 120407          .WORD 120407 ;ADDRESS OF PCR
1773 002520 122000          .WORD 122000 ;ADDRESS OF USYRT STATUS REG
1774
1775          ;***** STORAGE FOR DATA READ IN ADDRESS TESTS *****
1776 002522 000010 REDDAT: .BLKB 8.
1777
1778          ;***** GEN'L PURPOSE SCRATCH STORAGE *****
1779 002532 000000 REG0: .WORD 0
1780 002534 000000 REG1: .WORD 0
1781 002536 000000 REG2: .WORD 0
1782 002540 000000 REG3: .WORD 0
1783 002542 000000 REG4: .WORD 0
1784 002544 000000 REG5: .WORD 0
1785 002546 000000 REG6: .WORD 0
1786 002550 000000 REG7: .WORD 0
1787
1788          ;***** SCRATCH STORAGE FOR MESSAGE REPORTING *****
1789 002552 000000 TMP0: .WORD 0
1790 002554 000000 TMP1: .WORD 0
1791 002556 000000 TMP2: .WORD 0
1792 002560 000000 TMP3: .WORD 0
1793 002562 000000 TMP4: .WORD 0
1794 002564 000000 TMP5: .WORD 0
1795 002566 000000 TMP6: .WORD 0
1796 002570 000000 TMP7: .WORD 0
1797
1798          ;***** INBUS LU REG BIT MASKS FOR UNPREDICTABLE BITS *****
1799 002572          UPBITS:
1800 002572 377          .BYTE 377 ;MASK FOR ROBR
1801 002573 000          .BYTE 000 ;MASK FOR RDSR
1802 002574 000          .BYTE 000 ;MASK FOR TDBR
1803 002575 360          .BYTE 360 ;MASK FOR TDSR
1804 002576 000          .BYTE 000 ;MASK FOR SSAR
1805 002577 000          .BYTE 000 ;MASK FOR PCSAR
1806 002600 347          .BYTE 347 ;MASK FOR PCR
1807
1808 002601 200          TDSRNRW: .BYTE 200 ;TDSR NON-R/W BITS

```

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DATA TEST PATTERNS

1809			.SBTTL DATA TEST PATTERNS
1810			;***** DATA PATTERN E *****
1811	002602		PATE:
1812	002602	377	.BYTE 377
1813	002603	377	.BYTE 377
1814	002604	377	.BYTE 377
1815	002605	377	.BYTE 377
1816	002606	377	.BYTE 377
1817	002607	377	.BYTE 377
1818	002610	377	.BYTE 377
1819	002611	366	.BYTE 366
1820			
1821			;***** DATA PATTERN F *****
1822	002612		PATF:
1823	002612	000	.BYTE 000
1824	002613	000	.BYTE 000
1825	002614	000	.BYTE 000
1826	002615	000	.BYTE 000
1827	002616	000	.BYTE 000
1828	002617	000	.BYTE 000
1829	002620	000	.BYTE 000
1830	002621	11C	.BYTE 110
1831			
1832			;***** DATA PATTERN G *****
1833	002622		PATG:
1834	002622	000	.BYTE 000
1835	002623	001	.BYTE 001
1836	002624	003	.BYTE 003
1837	002625	004	.BYTE 004
1838	002626	005	.BYTE 005
1839	002627	007	.BYTE 007
1840	002630	100	.BYTE 100
1841	002631	101	.BYTE 101
1842	002632	103	.BYTE 103
1843	002633	104	.BYTE 104
1844	002634	105	.BYTE 105
1845	002635	107	.BYTE 107
1846	002636	000	.BYTE 000
1847	002637	017	.BYTE 017
1848	002640	027	.BYTE 027
1849	002641	041	.BYTE 041
1850	002642	200	.BYTE 200
1851	002643	277	.BYTE 277
1852	002644	103	.BYTE 103
1853	002645	144	.BYTE 144
1854	002646	115	.BYTE 115
1855	002647	157	.BYTE 157
1856	002650	000	.BYTE 000
1857			
1858			;***** DATA PATTERN X1 *****
1859	002651		PATX1:
1860	002651	125	.BYTE 125
1861	002652	252	.BYTE 252
1862	002653	000	.BYTE 000
1863	002654	377	.BYTE 377
1864	002655	001	.BYTE 001

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 DATA TEST PATTERNS

1865	002656	002	.BYTE	002
1866	002657	004	.BYTE	004
1867	002660	010	.BYTE	010
1868	002661	020	.BYTE	020
1869	002662	040	.BYTE	040
1870	002663	100	.BYTE	100
1871	002664	200	.BYTE	200
1872	002665	376	.BYTE	376
1873	002666	375	.BYTE	375
1874	002667	373	.BYTE	373
1875	002670	367	.BYTE	367
1876	002671	357	.BYTE	357
1877	002672	337	.BYTE	337
1878	002673	277	.BYTE	277
1879	002674	177	.BYTE	177
1880	002675	176	.BYTE	176

\*\*\*\*\* DATA PATTERN I \*\*\*\*\*  
 PATI:

1883	002676	000	.BYTE	000
1884	002676	000	.BYTE	000
1885	002677	041	.BYTE	041
1886	002700	102	.BYTE	102
1887	002701	143	.BYTE	143
1888	002702	204	.BYTE	204
1889	002703	245	.BYTE	245
1890	002704	306	.BYTE	306
1891	002705	347	.BYTE	347
1892	002706	000	.BYTE	000
1893	002707	001	.BYTE	001
1894	002710	002	.BYTE	002
1895	002711	004	.BYTE	004
1896	002712	040	.BYTE	040
1897	002713	100	.BYTE	100
1898	002714	200	.BYTE	200
1899	002715	000	.BYTE	000
1900	002716	346	.BYTE	346
1901	002717	345	.BYTE	345
1902	002720	343	.BYTE	343
1903	002721	307	.BYTE	307
1904	002722	247	.BYTE	247
1905	002723	147	.BYTE	147
1906	002724	347	.BYTE	347
1907	002725	242	.BYTE	242
1908	002726	105	.BYTE	105
1909	002727	347	.BYTE	347
1910	002730	010	.BYTE	010
1911	002731	020	.BYTE	020
1912	002732	367	.BYTE	367
1913	002733	357	.BYTE	357
1914	002734	030	.BYTE	030
1915	002735	027	.BYTE	027
1916	002736	377	.BYTE	377

\*\*\*\*\* DATA PATTERN J \*\*\*\*\*  
 PATJ:

1917				
1918				
1919	002737		.BYTE	000
1920	002737	000	.BYTE	000

CVDMDCO DMV11 LINE UNIT DIAG2  
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DATA TEST PATTERNS

1921	002740	000	.BYTE	000
1922	002741	001	.BYTE	001
1923	002742	002	.BYTE	002
1924	002743	004	.BYTE	004
1925	002744	020	.BYTE	020
1926	002745	040	.BYTE	040
1927	002746	010	.BYTE	010

;\*\*\*\*\* DATA PATTERN K \*\*\*\*\*

1928				
1929				
1930	002747			
1931	002747	000	.BYTE	000
1932	002750	377	.BYTE	377
1933	002751	376	.BYTE	376
1934	002752	375	.BYTE	375
1935	002753	373	.BYTE	373
1936	002754	376	.BYTE	376
1937	002755	177	.BYTE	177
1938	002756	377	.BYTE	377
1939	002757	000	.BYTE	000
1940	002760	001	.BYTE	001
1941	002761	002	.BYTE	002
1942	002762	004	.BYTE	004
1943	002763	010	.BYTE	010
1944	002764	200	.BYTE	200
1945	002765	125	.BYTE	125
1946	002766	252	.BYTE	252
1947	002767	000	.BYTE	000

;\*\*\*\*\* DATA PATTERN L \*\*\*\*\*

1948				
1949				
1950	002770			
1951	002770	000	.BYTE	000
1952	002771	017	.BYTE	017
1953	002772	016	.BYTE	016
1954	002773	015	.BYTE	015
1955	002774	013	.BYTE	013
1956	002775	016	.BYTE	016
1957	002776	017	.BYTE	017
1958	002777	017	.BYTE	017
1959	003000	000	.BYTE	000
1960	003001	001	.BYTE	001
1961	003002	002	.BYTE	002
1962	003003	004	.BYTE	004
1963	003004	010	.BYTE	010
1964	003005	000	.BYTE	000
1965	003006	005	.BYTE	005
1966	003007	012	.BYTE	012
1967	003010	000	.BYTE	000

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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DATA TEST PATTERNS

```

1968
1969
1970 003011 000
1971 003012 003
1972 003013 014
1973 003014 060
1974 003015 001
1975 003016 007
1976 003017 037
1977 003020 177
1978
1979
1980 003021 000
1981 003022 140
1982 003023 030
1983 003024 006
1984 003025 100
1985 003026 160
1986 003027 174
1987 003030 177
1988
1989 003031
1990 003032
1991
1992
1993 003032 000100
1994
1995
1996
1997

```

```

;***** DATA PATTERN Q *****
PATQ: .BYTE 000
      .BYTE 003
      .BYTE 014
      .BYTE 060
      .BYTE 001
      .BYTE 007
      .BYTE 037
      .BYTE 177

;***** DATA PATTERN INVERTED Q *****
PATQB: .BYTE 000 ;INVERTED 000 (7 BIT)
       .BYTE 140 ;INVERTED 003 (7 BIT)
       .BYTE 030 ;INVERTED 014 (7 BIT)
       .BYTE 006 ;INVERTED 060 (7 BIT)
       .BYTE 100 ;INVERTED 001 (7 BIT)
       .BYTE 160 ;INVERTED 007 (7 BIT)
       .BYTE 174 ;INVERTED 037 (7 BIT)
       .BYTE 177 ;INVERTED 177 (7 BIT)

ENDPAT:
.EVEN

;*** RECEIVED DATA BUFFER (64. WORDS) ***
RCVBUF: .BLKW 64.

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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GLOBAL TEXT SECTION

.SBTTL GLOBAL TEXT SECTION

\*\*\*\*\*  
;# THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,  
;# MESSAGES, AND ASCII INFORMATION THAT ARE USED IN  
;# MORE THAN ONE TEST.  
\*\*\*\*\*

\*\*\*\*\*  
;# NAMES OF DEVICES SUPPORTED BY PROGRAM  
;# \*\*\*\*\*  
;# DEVTYP <M8053 OR M8064>

L#DVTYP::  
.ASCIZ /M8053 OR M8064/

.EVEN

\*\*\*\*\*  
;# TITLE OF PROGRAM  
;# \*\*\*\*\*

.RADIX 10.  
DESCRIPT <DMV-11 LINE UNIT TESTS - PART 2 OF 3>

L#DESC::  
.ASCIZ /DMV-11 LINE UNI

.EVEN

.RADIX 8.

1998  
1999  
2000  
2001  
2002  
2003  
2004  
2005  
2006  
2007  
2008  
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2011  
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2027  
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2029  
2030  
2031  
2032  
2033

003232  
003232  
003232 034115 032460 020063  
003240 051117 046440 C30070  
003246 032066 000  
003252  
000012  
003252  
003252 046504 026526 030461  
003260 046040 047111 020105  
003266 047125 052111 052040  
003274 051505 051524 026440  
003302 050040 051101 020124  
003310 020062 043117 031440  
003316 000  
003320  
000010

CVDHDCO DMV11 LINE UNIT DIAG2  
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GLOBAL SUBROUTINE SECTION

.SBTTL GLOBAL SUBROUTINE SECTION

2034  
2035  
2036  
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2079

.SBTTL ....M-LOOP -- MSTCLR -- MASTER CLEAR AND ENTER M-LOOP  
;\*\*\*\*\*  
; MSTCLR -- MASTER CLEAR & ENTER M-LOOP  
;  
; CALLING SEQUENCE:  
;  
; JSR PC,MSTCLR  
; BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE  
; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT  
; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>  
;  
; N#: <RESUMPTION OF NORMAL PROCESSING>  
;  
;-----\*\*\*\*\*

MSTCLR: MOVB #RUN!MCLR!MREQ,8BSEL1 ;INITIATE M-LOOP  
;\*\*\*\*\*  
; WAIT FOR THE M-LOOP TO FINISH THE OPERATION  
1#: MOV R3,-(SP)  
MOV #24,,R3  
SOB R3,1#  
MOV (SP)+,R3  
BITB #MRDY,8BSEL2 ;DID THE M-LOOP FINISH  
BNE 5# ;YES, GOOD. RETURN  
JSR PC,GETWSR ;GET BYTE SELECT REGISTERS  
MOV #RUN!MCLR!MREQ,GDATA ;IDENTIFY REQUESTED FUNCTION  
GDF EM3,ERR4 ;"MRDY" TIMEOUT  
; QUEUE "DEVICE FATAL" ERROR # 1  
MOV #T.EDF,ERRTYP  
MOV #1,ERRNBR  
MOV #EM3,ERRMSG  
MOV #ERR4,ERRBLK  
5#: SEC ;SET CARRY TO INDICATE ERROR  
BR 9# ;EXIT WITH THE "ERROR" FLAG (CARRY BIT) SET  
9#: CLC ;CLEAR C BIT FOR NO ERRORS  
RTS PC ;RETURN



CVDMDCO DMV11 LINE UNIT DIAG2  
 CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 49  
 ....M-LOOP -- READ

```

2080 .SBTTL ....M-LOOP -- READ
2081 ;*****
2082 ; READ - READ THE SPECIFIED ADDRESS WITHIN THE DMV-11 (M8053)
2083 ;
2084 ; CALLING SEQUENCE:
2085 ;
2086 ; JSR R5,READ
2087 ; .WORD <ADDRESS OF REGISTER WITHIN DMV-11>
2088 ; .WORD <DESTINATION ADDRESS WITHIN LSI-11>
2089 ; BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
2090 ; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
2091 ; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
2092 ;
2093 ; N#: <RESUMPTION OF NORMAL PROCESSING>
2094 ;
2095 ;-----*****
2096
2097 003422 012577 177004 READ: MOV (R5)+,BSEL4 ;SETUP SOURCE POINTER
2098 003426 112777 000001 176772 MOVB #REDLOC,BSEL2 ;TELL M-LOOP TO GIVE US THE REQUESTED DATA
2099
2100 003434 010346 MOV R3,-(SP)
2101 003436 012703 000050 MOV #40,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
2102 003442 0773C1 1#: SOB R3,1#
2103 003444 01260. MOV (SP)+,R3
2104
2105 003446 132777 000200 176752 BITB #MRDY,BSEL2 ;DID THE M-LOOP FINISH
2106 003454 001023 BNE 5# ;YES, GOOD. RETURN
2107
2108 003456 004737 004134 JSR PC,GETWSR ;GET BYTE SELECT REGISTERS
2109 003462 012737 000001 002330 MOV #REDLOC,GDATA ;IDENTIFY REQUESTED FUNCTION
2110 003470 GTDF EM4,ERR4 ;"MRDY" TIMEOUT
2111 ; QUEUE "DEVICE FATAL" ERROR # 2
2112 003470 012737 000001 002176 MOV #T.EDF,ERRTYP
2113 003476 012737 000002 002200 MOV #2,ERRNBR
2114 003504 012737 014141 002202 MOV #EM4,ERRMSG
2115 003512 012737 021274 002204 MOV #ERR4,ERRBLK
2116 003520 000261 SEC ;INDICATE AN ERROR HAS BEEN STACKED
2117 003522 000401 BR 6# ;RETURN WITH THAT INDICATION
2118
2119 003524 000241 5#: CLC ;INDICATE "NO ERROR"
2120 003526 117735 176704 6#: MOVB #BSEL6,B(R5)+ ;PUT DATA WHERE CALLER WANTS IT
2121 003532 000205 RTS R5 ;RETURN
2122
2123
2124
2125
    
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 50  
...M-LOOP -- READ IMMEDIATE

2126  
2127  
2128  
2129  
2130  
2131  
2132  
2133  
2134  
2135  
2136  
2137  
2138  
2139  
2140  
2141  
2142  
2143  
2144  
2145  
2146  
2147  
2148  
2149  
2150  
2151  
2152  
2153  
2154  
2155  
2156  
2157  
2158  
2159  
2160  
2161  
2162  
2163  
2164  
2165  
2166  
2167  
2168  
2169  
2170  
2171  
2172

```
.SBTTL ...M-LOOP -- READ IMMEDIATE
;*****
; READI - READ IMMEDIATE THE SPECIFIED ADDRESS WITHIN THE DMV-11 (M8053)
;
; CALLING SEQUENCE:
;
;     JSR     R5,READI
;     .WORD  <ADDRESS OF REGISTER WITHIN DMV-11>
;     .WORD  <DESTINATION -- CONTENTS OF REG. IS PUT HERE>
;     BCC    N#           ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
;     ERROR  ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
;     <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
;
; N#:  <RESUMPTION OF NORMAL PROCESSING>
;
;-----*****
```

```
READI:
MOV     (R5)+,BSEL4      ;SETUP SOURCE POINTER
MOVB   #REDLOC,BSEL2    ;TELL M-LOOP TO GIVE US THE REQUESTED DATA

MOV     R3,-(SP)
MOV     #40,R3          ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION
14:    SOB    R3,14
MOV     (SP)+,R3

BITB   #MRDY,BSEL2     ;DID THE M-LOOP FINISH
BNE    54              ;YES. GOOD. RETURN

JSR    PC,GETWSR       ;GET BYTE SELECT REGISTERS
MOV    #REDLOC,GDATA   ;IDENTIFY REQUESTED FUNCTION
GTFD   EM4,ERR4        ;"MRDY" TIMEOUT
;          QUEUE "DEVICE FATAL" ERROR # 3
;
;          MOV     #T.EDF,ERRTYP
;          MOV     #3,ERRNBR
;          MOV     #EM4,ERRMSG
;          MOV     #ERR4,ERRBLK

SEC
BR     64              ;INDICATE AN ERROR HAS BEEN STACKED
;RETURN WITH THAT INDICATION

54:    CLC
64:    MOV    BSEL6,(R5)+
RTS    R5              ;INDICATE "NO ERROR"
;PUT DATA WHERE CALLER WANTS IT
;RETURN
```

CVDHDCO DMV11 LINE UNIT DIAG2  
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...M-LOOP -- WRITE

2173  
2174  
2175  
2176  
2177  
2178  
2179  
2180  
2181  
2182  
2183  
2184  
2185  
2186  
2187  
2188  
2189  
2190  
2191  
2192  
2193  
2194  
2195  
2196

```

.SBTTL ...M-LOOP -- WRITE
;*****
; WRITE - WRITE THE SPECIFIED DATA INTO THE SPECIFIED DMV-11 ADDRESS
;
; CALLING SEQUENCE:
;
;     JSR     R5,WRITE
;     .WORD  <ADDRESS OF REGISTER WITHIN DMV-11>
;     .WORD  <ADDRESS OF DATA BYTE>
;     BCC    N#           ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE
;     ERROR  N#           ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT
;     <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>
;
; N#:  <RESUMPTION OF NORMAL PROCESSING>
;
;-----*****
WRITE:  MOV     (R5),BSEL4 ;SETUP SOURCE POINTER
        MOVB  B(R5),BSEL6 ;MAKE DATA AVAILABLE TO M-LOOP
        BR    MLWRI      ;THE REST OF THIS ROUTINE IS THE SAME AS "WRITEI"

```

003646 012577 176560  
003652 113577 176560  
003656 000404

CVDMDCO DMV11 LINE UNIT DIAG2  
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MACY11 30A(1052) 12-JUL-84 09:28 PAGE 52  
...M-LOOP -- WRITE IMMEDIATE

2197  
2198  
2199  
2200  
2201  
2202  
2203  
2204  
2205  
2206  
2207  
2208  
2209  
2210  
2211  
2212  
2213  
2214  
2215  
2216  
2217  
2218  
2219  
2220  
2221  
2222  
2223  
2224  
2225  
2226  
2227  
2228  
2229  
2230  
2231  
2232  
2233  
2234  
2235  
2236  
2237  
2238  
2239  
2240  
2241  
2242

.SBTTL ...M-LOOP -- WRITE IMMEDIATE  
;\*\*\*\*\*  
; WRITEI - WRITE IMMEDIATE THE SPECIFIED DATA INTO THE SPECIFIED DMV-11 ADDRESS  
; CALLING SEQUENCE:  
; JSR R5,WRITEI  
; .WORD <ADDRESS OF REGISTER WITHIN DMV-11>  
; .WORD <DATA FIELD -- DATA TO BE WRITTEN IN DMV-11>  
; BCC N# ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE  
; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT  
; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>  
; N#: <RESUMPTION OF NORMAL PROCESSING>  
;-----\*\*\*\*\*

WRITEI:  
MOV (R5),@SEL4 ;SETUP SOURCE POINTER  
MOV (R5),@SEL6 ;MAKE DATA AVAILABLE TO M-LOOP  
MLWRI: MOVB @MRILOC,@SEL2 ;TELL M-LOOP TO WRITE THE DATA  
MOV R3,-(SP)  
MOV @320,R3 ;WAIT FOR THE M-LOOP TO FINISH THE OPERATION  
1#: SOB R3,1#  
MOV (SP),R3  
BITB @MRDY,@SEL2 ;DID THE M-LOOP FINISH  
BNE 5# ;YES, GOOD. RETURN  
JSR PC,GETMSR ;GET BYTE SELECT REGISTERS  
MOV @MRILOC,GDATA ;IDENTIFY REQUESTED FUNCTION  
GTOF EM4,ERR4 ;"MRDY" TIMEOUT  
; QUEUE "DEVICE FATAL" ERROR # 4  
MOV @T.EDF,ERRTYP  
MOV @4,ERRNBR  
MOV @EM4,ERRMSG  
MOV @ERR4,ERRBLK  
SEC ;INDICATE AN ERROR HAS BEEN STACKED  
BR 6# ;RETURN WITH THAT INDICATION  
5#: CLC ;INDICATE "NO ERROR"  
6#: RTS R5 ;RETURN

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 53  
....GETBSR -- GET BYTE SELECT REGISTERS

2243  
2244  
2245  
2246  
2247  
2248  
2249  
2250  
2251  
2252  
2253  
2254  
2255  
2256  
2257  
2258

```

.SBTTL ....GETBSR -- GET BYTE SELECT REGISTERS
:-----
:
:   GET THE CONTENTS OF ALL CONTROL AND STATUS REGISTERS
:
:   FUNCTION - THIS SUBROUTINE COLLECTS THE CONTENTS OF THE
:             BYTE SELECT REGISTERS FOR THE PURPOSE OF DISPLAY.
:
:   ENTRY CONDITIONS - NONE
:
:   EXIT CONDITIONS - NONE
:
:   REGISTERS DESTROYED - NONE
:-----

```

2259 003772 117737 176424 002206  
 2260 004000 117737 176420 002210  
 2261 004006 117737 176414 002212  
 2262 004014 117737 176410 002214  
 2263 004022 117737 176404 002216  
 2264 004030 117737 176400 002220  
 2265 004036 117737 176374 002222  
 2266 004044 117737 176370 002224  
 2267 004052 117737 176364 002226  
 2268 004060 117737 176360 002230  
 2269 004066 117737 176354 002232  
 2270 004074 117737 176350 002234  
 2271 004102 117737 176344 002236  
 2272 004110 117737 176340 002240  
 2273 004116 117737 176334 002242  
 2274 004124 117737 176330 002244  
 2275 004132 000207

```

GETBSR: MOVB 8BSEL0,BSR0 ;PUT THE CURRENT CSR VALUES INTO THE PRINT-OUT
        MOVB 8BSEL1,BSR1 ;TABLE
        MOVB 8BSEL2,BSR2
        MOVB 8BSEL3,BSR3
        MOVB 8BSEL4,BSR4
        MOVB 8BSEL5,BSR5
        MOVB 8BSEL6,BSR6
        MOVB 8BSEL7,BSR7
        MOVB 8BSEL10,BSR10
        MOVB 8BSEL11,BSR11
        MCVB 8BSEL12,BSR12
        MOVB 8BSEL13,BSR13
        MOVB 8BSEL14,BSR14
        MOVB 8BSEL15,BSR15
        MOVB 8BSEL16,BSR16
        MOVB 8BSEL17,BSR17
        RTS PC ;RETURN TO CALLER

```

2276  
2277  
2278

```

.SBTTL ....GETWSR -- GET WORD SELECT REGISTERS
; "WORD" VERSION OF ABOVE SUBROUTINE

```

2279 004134 017737 176262 002206  
 2281 004142 017737 176260 002210  
 2282 004150 017737 176256 002212  
 2283 004156 017737 176254 002214  
 2284 004164 017737 176252 002216  
 2285 004172 017737 176250 002220  
 2286 004200 017737 176246 002222  
 2287 004206 017737 176244 002224  
 2288 004214 000207

```

GETWSR: MOV 8SEL0,WSR0 ;MOVE THE 4 WORD REGISTERS TO THE OTHERWISE
        MOV 8SEL2,WSR2 ;BYTE TABLE
        MOV 8SEL4,WSR4
        MOV 8SEL6,WSR6
        MOV 8SEL10,WSR10
        MOV 8SEL12,WSR12
        MOV 8SEL14,WSR14
        MOV 8SEL16,WSR16
        RTS PC ;RETURN TO CALLER

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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....STUREG -- STATIC TEST OF SPECIFIED USYRT REGISTER

.SBTTL ....STUREG -- STATIC TEST OF SPECIFIED USYRT REGISTER  
;.....  
; STUREG -- PERFORM A STATIC TEST OF THE SPECIFIED USYRT REGISTER

; CALLING SEQUENCE:

; <R0 CONTAINS THE ADDRESS OF THE REGISTER TO BE TESTED>  
; <"TDATA" CONTAINS THE TEST BYTE>  
; <"GDATA" CONTAINS THE EXPECTED DATA>  
; <"REGNUM" CONTAINS REG INDEX FOR POSSIBLE ERRORS>

; JSR PC,STUREG  
; BCC N0 ;IF NO ERROR OCCURED, PROCEED WITH ROUTINE  
; ERROR ;AN ERROR MESSAGE HAS BEEN STACKED: PRINT IT  
; <ANY OTHER SPECIAL ERROR PROCESSING MAY BE DONE HERE (I.E. CKLOOP)>

; N0: <RESUMPTION OF NORMAL PROCESSING>

;-----

STUREG: MOV R0,20 ;PUT SPECIFIED REGISTER'S ADDRESS IN I/O CALLS  
MOV R0,40

20: JSR R5,WRITE ;WRITE IT  
;... MODIFIED FROM ABOVE ...  
.WORD 0  
.WORD TDATA  
BCS 100 ;ON ERROR, EXIT

40: CLR BDATA ;CLEAR BOTH BYTES -- JUST IN CASE....  
JSR R5,READ ;READ IT BACK AGAIN  
;... MODIFIED FROM ABOVE ...  
.WORD 0  
.WORD BDATA  
BCS 100 ;ON ERROR, EXIT

CMPB GDATA,BDATA ;DID WE READ WHAT WE WROTE?  
CLC ; (THIS ISN'T NEEDED FOR THE ERROR TEST BUT  
; MUST BE CLEARED ON EXIT IF NO ERROR OCCURED)  
BEQ 100 ;YES, EXIT FROM SUBTEST  
GTOF EM25,ERR7A ;REPORT READ/WRITE ERROR  
; QUEUE "DEVICE FATAL" ERROR # 5

MOV #T.EDF,ERRTYP  
MOV #5,ERRNBR  
MOV #EM25,ERRMSG  
MOV #ERR7A,ERRBLK

100: SEC ;INDICATE THAT AN ERROR WAS DETECTED  
RTS PC

2289  
2290  
2291  
2292  
2293  
2294  
2295  
2296  
2297  
2298  
2299  
2300  
2301  
2302  
2303  
2304  
2305  
2306  
2307  
2308  
2309 004216 010037 004232  
2310 004222 010037 004250  
2311  
2312 004226 004537 003646  
2313 004232 000000  
2314 004234 002326  
2315 004236 103431  
2316  
2317 004240 005037 002332  
2318 004244 004537 003422  
2319 004250 000000  
2320 004252 002332  
2321 004254 103422  
2322  
2323 004256 123737 002330 002332  
2324 004264 070241  
2325  
2326 004266 001415  
2327 004270  
2328  
2329 004270 012737 000001 002176  
2330 004276 012737 000005 002200  
2331 004304 012737 014347 002202  
2332 004312 012737 021420 002204  
2333 004320 000261  
2334 004322 000207  
2335

CVDHDCO DMV11 LINE UNIT DIAG2  
CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 55  
....STALL -- DELAY FOR 10.5 MICRO-SEC'S (ON LSI-11)

2336  
2337  
2338  
2339  
2340  
2341  
2342  
2343  
2344  
2345

004324 000207

.SBTTL ....STALL -- DELAY FOR 10.5 MICRO-SEC'S (ON LSI-11)  
;.....  
; STALL -- THIS SUBROUTINE STALLS FOR ABOUT 10.5 MICRO-SECONDS  
;.....  
STALL: RTS PC

CVDMCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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```

2346 .SBTTL
2347
2348 ;*****
2349 ;* GETURS - LOAD INTO THE 8 WORD STORAGE AREA (UREGS) THE CONTENTS OF THE
2350 ;* VARIOUS USYRT REGISTERS
2351 ;*
2352 ;* CALLING SEQUENCE:
2353 ;*
2354 ;*****
2355 004326 012737 002243 004370 GETURS: MOV #UREGS,5# ;INIT POINTER TO REG STORAGE TABLE
2356 004334 012737 120400 004366 MOV #USYRT,4# ;INIT POINTER TO REGISTER ADDRESSES
2357
2358 004342 005037 002264 CLR UREGS+14. ;CLEAR STORAGE WORD
2359 004346 004537 003422 JSR R5,READ ;READ THE USYRT STATUS REGISTER
2360 004352 122000 .WORD USTATR ;STATUS REGISTER'S ADDRESS WITHIN DMV-11
2361 004354 002264 .WORD UREGS+14. ;ADDRESS ALLOCATED TO THAT REG. W/IN "UREGS"
2362
2363 004356 005077 000006 3#: CLR 85# ;CLEAR STORAGE WORD
2364 004362 004537 003422 JSR R5,READ ;READ A LINE UNIT REG
2365 004366 000000 4#: .WORD 0 ;REGISTER ADDRESS GOES HERE
2366 004370 000000 5#: .WORD 0 ;STORAGE ADRS I:1 TABLE GOES HERE
2367
2368 004372 005237 004366 6#: INC 4# ;INCREMENT REG NO.
2369 004376 023727 004366 120406 CMP 4#,#USYRT+6 ;THIS IS NOT A VALID REGISTER ADDRESS
2370 004404 001772 BFG 6# ;SO IT MUST BE BYPASSED
2371
2372 004406 062737 000002 004370 ADD #2,5# ;ADVANCE ADDRESS OF STORAGE AREA POINTER
2373 004414 023727 004366 120410 CMP 4#,#USYRT+10 ;SEE IF ALL REGS READ YET
2374 004422 001355 BNE 3# ;BR IF NOT
2375
2376 004424 000207 RTS PC ;RETURN
2377
2378
2379
2380 ;*****
2381 ;* GETVRS: - LOAD INTO THE 16 WORD STORAGE AREA (VREGS) THE CONTENTS OF THE
2382 ;* VARIOUS VIA REGISTERS.
2383 ;*
2384 ;* CALLING SEQUENCE :
2385 ;*****
2386 004426 012737 002266 004454 GETVRS: MOV #VREGS,5# ;INIT POINTER TO REG STORAGE TABLE
2387 004434 012737 120000 004452 MOV #VIA,4# ;INIT POINTER TO REGISTER ADDRESSES
2388 004442 005077 000006 3#: CLR 85# ;CLEAR STORAGE WORD
2389 004446 004537 003422 JSR R5,READ ;READ A VIA REG
2390 004452 000000 4#: .WORD 0 ;REGISTER ADDRESS GOES HERE
2391 004454 000000 5#: .WORD 0 ;STORAGE ADRS IN TABLE GOES HERE
2392 004456 005237 004452 6#: INC 4# ;INCREMENT REG NO.
2393 004462 062737 000002 004454 ADD #2,5# ;INCREMENT STORAGE ADRS
2394 004470 023727 004452 120020 CMP 4#,#VIA+16. ;SEE IF ALL VIA REGS READ YET
2395 004476 001361 BNE 3# ;BR IF NOT
2396 004500 000207 RTS PC ;RETURN

```



CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 57  
... INITT1 -- INITIALIZE TIMER #1

```

2397 .SBTTL ....INITT1 -- INITIALIZE TIMER #1
2398 ;*****
2399 ;* INITT1 - INITIALIZE TIMER # 1
2400 ;*
2401 ;*          CALLING SEQUENCE:
2402 ;*
2403 ;*          JSR      R5,INITT1
2404 ;*          .WORD   <VALUE LOADED INTO THE T1 LATCH @ VIATIC & VIAT1D>
2405 ;*          .WORD   <VALUE LOADED INTO "T1L-L" & "T1C-M">
2406 ;*          .BYTE   <BITS 6 & 7 WILL BE LOADED INTO "ACR", BIT 5 WILL BE
2407 ;*                   USED TO SET OR CLEAR BIT 6 ("T1") OF THE INTERRUPT
2408 ;*                   ENABLE REGISTER ("IER")>
2409 ;*          .BYTE   <UNUSED>
2410 ;*
2411 ;*
2412 ;* NOTE:
2413 ;*
2414 ;* BEFORE LOADING AND STARTING THE COUNTER, THE LATCH REGISTER (ACCESSED THRU
2415 ;* "VIATIC") IS LOADED. THEN, T1L-L IS LOADED AND NEXT, T1C-M. THIS LAST
2416 ;* LOAD WILL RESET THE TIMEOUT BIT AND COUNTER LOGIC. IT IS EXPECTED AT THIS
2417 ;* TIME (5/25/79) THAT THE INTERRUPT FACILITY OF THE VIA CHIP WILL NOT BE USED
2418 ;* -- HOWEVER, ACCESS TO THE INTERRUPT ENABLE BIT IS GIVEN THROUGH THE THIRD
2419 ;* PARAMETER IN THE CALLING SEQUENCE (BIT 5 = 0 WILL CAUSE THIS ROUTINE TO
2420 ;* CLEAR THE ENABLE BIT ("T1") IN "IER".)
2421 ;*
2422 ;*****
2423
2424 004502 010146          INITT1: MOV      R1,-(SP)          ;SAVE THE REGISTER WE WILL BE USING
2425 004504 012537 004626  MOV      (R5),7         ;SETUP VALUE TO BE WRITTEN IN LATCH
2426 004510 012537 004654  MOV      (R5),10        ;SETUP VALUE TO BE WRITTEN IN COUNTER
2427 004514 111501        MOVVB   (R5),R1         ;GET & PROCESS BITS FOR ACR 6 & 7
2428 004516 143701 000077  BICB    077,R1
2429 004522 010137 004616  MOV      R1,4           ;SETUP CALL SET ACR'S BITS 6 & 7
2430 004526 112501        MOVVB   (R5),R1         ;NOW, GET THE BIT TO BE USED IN SETTING OR
2431 ;*                   CLEARING BIT 6 OF "IER"
2432 004530 106301        ASLB    R1              ;THE PASSED BIT IS IN THE WRONG POSITION
2433 004532 106301        ASLB    R1              ;BUT, THE PASSED BIT SHOULD CONTROL THE OPERATION.
2434 ;*                   WE KNOW WE ARE SETTING OR CLEARING BIT 6 --
2435 ;*                   THUS, THE PASSED BIT WILL BECOME THE CONTROLLING
2436 ;*                   BIT 7 AND WE WILL "OR" IN THE BIT WE WISH TO
2437 ;*                   BE CONTROLLED (BIT 6).
2438 004534 143701 000177  BICB    177,R1         ;FIRST, MAKE SURE ALL UNWANTED BITS ARE CLEARED
2439 004540 153701 000100  BISB    100,R1         ;THEN SET BIT 6
2440 004544 010137 004556  MOV      R1,2           ;THE CALL WILL NOW WRITE THE APPROPRIATE VALUE
2441
2442 004550 004537 003660  JSR      R5,WRITEI     ;WRITE TO
2443 004554 120016        VIAIER  ;THE VIA'S IER
2444 004556 000000 21: .WORD 0           ;INTERRUPT ENABLE/DISABLE INFORMATION
2445
2446 004560 004537 003534  JSR      R5,READI      ;READ THE CURRENT SETTING OF
2447 004564 120013        VIAACR  ;THE VIA'S ACR
2448 004566 000000 31: .WORD 0           ;INTO "31"
2449
2450 004570 013701 004566  MOV      31,R1         ;GET THAT VALUE
2451 004574 143701 000300  BICB    300,R1         ;CLEAR THE CURRENT SETTING OF BITS 6 & 7
2452 004600 053701 004616  BIS      41,R1         ;SET THEM ACCORDING TO THE PASSED VALUES

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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MACY11 30A(1052) 12-JUL-84 09:28 PAGE 58  
....INITI -- INITIALIZE TIMER #1

```

2453 004604 010137 004616          MOV    R1,4#          ;PASS THE NEW REG. SETTING TO APPROPRIATE CALL
2454
2455 004610 004537 003660          JSR    R5,WRITEI     ;WRITE TO
2456 004614 120013                    VIAACR                ;THE VIA'S ACR
2457 004616 000000          4#:   .WORD    0      ;THE NEW REGISTER SETTING
2458
2459 004620 004537 003660          JSR    R5,WRITEI     ;WRITE TO
2460 004624 120006                    VIATIC                ;LOW ORDER LATCH REGISTER (T1L-L)
2461 004626 000000          7#:   .WORD    0      ;THE VALUE PASSED
2462
2463 004630 113737 004627 004644      MOVB   7#+1,8#       ;SETUP FOR AND
2464 004636 004537 003660          JSR    R5,WRITEI     ;WRITE TO
2465 00 642 120007                    VIAT1D                ;HIGH ORDER LATCH REGISTER (T1L-H)
2466 004638 000000          8#:   .WORD    0      ;THE VALUE PASSED
2467
2468 004646 004537 003660          JSR    R5,WRITEI     ;WRITE TO
2469 004652 120004                    VIAT1A                ;LOW ORDER LATCH & COUNTER (T1L-L & T1C-L)
2470 004654 000000          10#:  .WORD    0      ;THE VALUE PASSED
2471
2472 004656 113737 004655 004672      MOVB   10#+1,11#    ;SETUP FOR AND
2473 004664 004537 003660          JSR    R5,WRITEI     ;WRITE TO
2474 004670 120005                    VIAT1B                ;HIGH ORDER COUNTER (T1C-H) <ALSO STARTS CTR>
2475 004672 000000          11#:  .WORD    0      ;THE VALUE PASSED
2476
2477          ; DON'T WAIT AROUND FOR ANYTHING TO HAPPEN -- JUST (JEST) RETURN!
2478
2479 004674 012601          MOV    (SP)+,R1     ;BUT FIRST RESTORE R1
2480 004676 005205          INC    R5            ;AND PUT R5 BACK ON A WORD BOUNDARY (THE LAST
2481          ;PASSED PARAM. WAS A BYTE, NOT A WORD!)
2482
2483 004700 000205          RTS    R5            ;NOW, RETURN
2484
2485

```

CVDHDCO DMV11 LINE UNIT DIAG2  
CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 59  
....INITT2 -- INITIALIZE TIMER #2

```

2486 .SBTTL ....INITT2 -- INITIALIZE TIMER #2
2487 ;*****
2488 ;* INITT2 - INITIALIZE TIMER # 2
2489 ;*
2490 ;*          CALLING SEQUENCE:
2491 ;*
2492 ;*          JSR      R5,INITT2
2493 ;*          .WORD   <VALUE LOADED INTO "T2L-L" & "T2C-H">
2494 ;*          .BYTE   <BIT 5 WILL BE LOADED INTO "ACR", BIT 4 WILL BE USED
2495 ;*                TO SET OR CLEAR BIT 5 ("T2") OF THE INTERRUPT ENABLE
2496 ;*                REGISTER ("IER")>
2497 ;*          .BYTE   <UNUSED>
2498 ;*
2499 ;*
2500 ;* NOTE:
2501 ;*
2502 ;* FIRST T2L-L IS LOADED, THEN T2C-H. THIS SECOND LOAD WILL RESET THE TIMEOUT
2503 ;* BIT AND COUNTER LOGIC. IT IS EXPECTED AT THIS TIME (5/25/79) THAT THE
2504 ;* INTERRUPT FACILITY OF THE VIA CHIP WILL NOT BE USED -- HOWEVER, ACCESS TO
2505 ;* THE INTERRUPT ENABLE BIT IS GIVEN THROUGH THE SECOND PARAMETER IN THE
2506 ;* CALLING SEQUENCE (BIT 4 = 0 WILL CAUSE THIS ROUTINE TO CLEAR THE ENABLE BIT
2507 ;* ("T2") IN "IER".)
2508 ;*
2509 ;*****
2510
2511 004702 010146          INITT2: MOV      R1,-(SP)          ;SAVE THE REGISTER WE WILL BE USING
2512 004704 012537 005024  MOV      (R5)+,10#       ;SETUP VALUE TO BE WRITTEN IN COUNTER
2513 004710 111501          MOV      (R5),R1        ;GET & PROCESS BIT FOR ACR 5
2514 004712 143701 000337  BICB    337,R1
2515 004716 010137 005014  MOV      R1,4#
2516 004722 112501          MOV      (R5)+,R1
2517
2518 004724 106301          ASLB    R1
2519 004726 106301          ASLB    R1
2520 004730 106301          ASLB    R1
2521
2522
2523
2524
2525 004732 143701 000177  BICB    177,R1
2526 004736 153701 000040  BISB    040,R1
2527 004742 010137 004754  MOV      R1,2#
2528
2529 004746 004537 003660  JSR      R5,WRITEI
2530 004752 120016          VIAIER
2531 004754 000000 2# : .WORD   0
2532
2533 004756 004537 003534  JSR      R5,READI
2534 004762 120013          VIAACR
2535 004764 000000 3# : .WORD   0
2536
2537 004766 013701 004764  MOV      3#,R1
2538 004772 143701 000040  BICB    040,R1
2539 004776 053701 005014  BIS     4#,R1
2540 005002 010137 005014  MOV      R1,4#
2541

```

CVDMDCO DMV11 LINE UNI1 DIAG2  
 CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 60  
 ....INITT2 -- INITIALIZE TIMER #2

```

2542 005006 004537 003660          JSR    R5,WRITEI    ;WRITE TO
2543 005012 120013                   VIAACR                ;THE VIA'S ACR
2544 005014 000000          44:    .WORD    0          ;THE NEW REGISTER SETTING
2545
2546 005016 004537 003660          JSR    R5,WRITEI    ;WRITE TO
2547 005022 120010                   VIAT2A                ;LOW ORDER LATCH & COUNTER (T2L-L & T2C-L)
2548 005024 000000          104:   .WORD    0          ;THE VALUE PASSED
2549
2550 005026 113737 005025 005042    MOVB   104+1,114    ;SETUP FOR AND
2551 005034 004537 003660          JSR    R5,WRITEI    ;WRITE TO
2552 005040 120011                   VIAT2B                ;HIGH ORDER COUNTER (T2C-H) <ALSO STARTS CTR>
2553 005042 000000          114:   .WORD    0          ;THE VALUE PASSED
2554
2555          ; DON'T WAIT AROUND FOR ANYTHING TO HAPPEN -- JUST (JEST) RETURN!
2556
2557 005044 012601                   MOV    (SP)+,R1      ;BUT FIRST RESTORE R1
2558 005046 005205                   INC    R5            ;AND PUT R5 BACK ON A WORD BOUNDARY (THE LAST
2559                                     ;PASSED PARAM. WAS A BYTE, NOT A WORD!)
2560
2561 005050 000205                   RTS    R5            ;THEN RETURN
2562

```

CVDHDCO DMV11 LINE UNIT UJAG2  
CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:20 PAGE 61  
....RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE

2563  
2564  
2565  
2566  
2567  
2568  
2569  
2570  
2571  
2572  
2573 005052  
2574 005052 010146  
2575 005054 010246  
2576  
2577 005056 004537 003660  
2578 005062 120000  
2579 005064 000031  
2580 005066 004537 003660  
2581 005072 120000  
2582 005074 000030  
2583  
2584 005076 005001  
2585 005100 012702 002612  
2586 005104 016137 002502 005116 64:  
2587 005112 004537 003534  
2588 005116 000000 74:  
2589 005120 000000 84:  
2590 005122 123722 005120  
2591 005126 001432  
2592  
2593 005130 010137 002342  
2594 005134 006237 002342  
2595 005140 005037 002330  
2596 005144 116237 177777 002330  
2597 005152 013737 005120 002332  
2598  
2599 005160  
2600  
2601 005160 012737 000001 002176  
2602 005166 012737 000006 002200  
2603 005174 012737 014046 002202  
2604 005202 012737 021540 002204  
2605 005210 000261  
2606 005212 000406  
2607  
2608 005214 062701 000002 94:  
2609 005220 020127 000020  
2610 005224 002727  
2611 005226 000241  
2612 005230 012602 104:  
2613 005232 012601  
2614 005234 000205  
2615  
2616

```
.SBTTL ....RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE
;*****
; RSTCHK - MANUALLY RESET THE USYRT AND VERIFY THAT ALL USYRT REGISTERS
; ARE IN THEIR RESET STATE. AN ERROR MESSAGE IDENTIFYING THE
; FAILING REGISTER IS STACKED IF ONE IS ENCOUNTERED.
;
; CALLING SEQUENCE:
; JSR R5,RSTCHK
;*****
```

```
RSTCHK:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2

JSR R5,WRITEI ;SET PROGRAM RESET BIT IN VIA ORB REG
VIAORB
DTR!RTSND!PRESET

JSR R5,WRITEI ;CLEAR PROGRAM RESET BIT IN VIA ORB REG
VIAORB
DTR!RTSND

CLR R1 ;INIT USYRT REG ADRS PTR
MOV #PATF,R2 ;INIT DATA PATTERN POINTER
MOV USYREG(R1),74 ;SET USYRT READ ADDRESS
JSR R5,READI ;READ A USYRT REG
;USYRT REG ADRS GOES HERE
;DATA READ IS RETURNED HERE
;SEE IF REG CONTAINS EXPECTED DATA
;BR IF MATCH
;WORD 0
;WORD 0
CMPB 84,(R2)+
BEQ 94

MOV R1,REGNUM ;SET USYRT REG NO. FOR PRINTOUT
ASR REGNUM ;GET WORD OFFSET
CLR GDATA ;GET EXPECTED DATA
MOVB -1(R2),GDATA
MOV 84,BDATA ;GET ACTUAL DATA
;STACK "USYRT NOT CLEARED BY PROGRAM RESET" MSG
GTDF EM2,ERR10

; QUEUE "DEVICE FATAL" ERROR # 6
MOV #T.EDF,ERRTYP
MOV #6,ERRNBR
MOV #EM2,ERRMSG
MOV #ERR10,ERRBLK

SEC ;SET C BIT TO FLAG ERROR
BR 104 ;TAKE ERROR EXIT

94: ADD #2,R1 ;INCR USYRT REG ADRS PTR
CMP R1,#16. ;SEE IF ALL REGS READ YET
BLT 64 ;BR IF NOT
CLC ;** CLEAR C BIT FOR NO ERRORS
104: MOV (SP)+,R2 ;RESTORE R2
MOV (SP)+,R1 ;RESTORE R1
RTS R5 ;** RETURN
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 62  
...RSTCHK -- RESET USYRT/VERIFY ALL USYRT REGS @ RESET STATE

2617  
2618  
2619  
2620 005236 010146  
2621 005240 012701 000005  
2622 005244 077101  
2623 005246 012601  
2624 005250 000207  
2625  
2626  
2627  
2628  
2629  
2630  
2631  
2632  
2633  
2634  
2635  
2636  
2637  
2638  
2639  
2640  
2641  
2642  
2643 005252  
2644 005252 004537 003660  
2645 005256 120002  
2646 005260 000377  
2647 005262 004537 003660  
2648 005266 120003  
2649 005270 000001  
2650 005272 004537 003660  
2651 005276 120017  
2652 005300 000000  
2653 005302 004537 003660  
2654 005306 120000  
2655 005310 000030  
2656 005312 004537 003660  
2657 005316 120013  
2658 005320 000350  
2659 005322 004537 003660  
2660 005326 120014  
2661 005330 000022  
2662 005332 004537 003660  
2663 005336 120016  
2664 005340 000177  
2665 005342 000207  
2666  
2667

```

;*****
;* WAIT50 - THIS SUBROUTINE STALLS FOR AT LEAST 50 MICRO-SEC, AND THEN RETURNS.
;*****
WAIT50: MOV     R1, -(SP)           ;SAVE R1
        MOV     @5.,R1           ;INIT COUNTER
3$:     SOB     R1,3$             ;DELAY HERE FOR 23.8 MICRO-SEC'S
        MOV     (SP)+,R1         ;RESTORE R1
        RTS     PC               ;RETURN

;     OVERHEAD (JSR, MOV, MOV, MOV, & RTS) ADD UP TO 25.25 MICRO-SEC'S

;     THEREFORE, ACTUAL TOTAL DELAY IS 49.35 MICRO-SECONDS
    
```

```

.SBTTL ...SETVIA -- SET UP VIA REGISTERS
;*****
;* SETVIA - SET UP THE VIA REGISTERS
;*
;*     THIS SUBROUTINE PROGRAMS THE VIA REGISTERS FOR NORMAL OPERATION, BY
;*     LOADING THE DDRB, DDRA, ORB, ACR, PCR, IER.
;*
;*     CALLING SEQUENCE :
;*     JSR PC,SETVIA
;*****
SETVIA: JSR     R5,WRITEI           ;SET PORT B FOR OUTPUT MODE
        VIADPB
        377
        JSR     R5,WRITEI           ;SET PORT A FOR INPUT MODE
        VIADPA                       ; (BIT0 IS ONLY OUTPUT BIT)
        001
        JSR     R5,WRITEI           ;DISABLE USYRT INTERNAL LOOPBACK
        VIAORA
        000
        JSR     R5,WRITEI           ;INIT PORT B
        VIAORB
        DTR!RTSND
        JSR     R5,WRITEI           ;SET ACR FOR : T1 SQUARE WAVE OUTPUT MODE,
;                                     T2 ONE-SHOT OUTPUT MODE,
;                                     SR AT SYS CLOCK RATE ON CB1
        350
        JSR     R5,WRITEI           ;SET PCR FOR : CB1 NEG TRANS INPUT MODE,
;                                     CA2 NEG TRANS INPUT MODE,
;                                     CA1 NEG TRANS INPUT MODE
        VIAPCR
        022
        JSR     R5,WRITEI           ;DISABLE ALL MICRO-INTRPTS
        VIAIER
        177
        RTS     PC               ;RETURN
    
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 63  
....INIDMV -- INIT DMV (MCLR, VIA SETUP)

2668  
2669  
2670  
2671  
2672  
2673  
2674  
2675  
2676  
2677 005344 004737 003320  
2678 005350 004737 005252  
2679 005354 000207  
2680  
2681  
2682  
2683  
2684  
2685  
2686  
2687  
2688  
2689  
2690  
2691 005356  
2692 005356 004537 003534  
2693 005362 122000  
2694 005364 000000  
2695 005366 122537 005364  
2696 005372 000241  
2697 005374 001430  
2698 005376 012737 000007 002342  
2699 005404 016537 177777 002330  
2700 005412 005037 002332  
2701 005416 113737 005364 002332  
2702  
2703 005424  
2704  
2705 005424 012737 000001 002176  
2706 005432 012737 000007 002200  
2707 005440 012737 015500 002202  
2708 005446 012737 021540 002204  
2709 005454 000261  
2710 005456 005205  
2711 005460 000205  
2712  
2713  
2714  
2715

```

.SBTTL ....INIDMV -- INIT DMV (MCLR, VIA SETUP)
;*****
;* INIDMV - THIS SUBROUTINE INITIALIZES THE DMV-11, BY DOING A MASTER CLEAR,
;* ENTERING THE M-LOOP, AND PROGRAMMING THE VIA REGS FOR DEFAULT
;* OPERATION.
;*
;* CALLING SEQUENCE :
;* JSR PC,INIDMV
;*****
INIDMV: JSR PC,MSTCLR ;MASTER CLR, M-LOOP
        JSR PC,SETVIA ;PROGRAM VIA
        RTS PC ;RETURN

.SBTTL ....CKUSTS -- CHECK USYRT STATUS REGISTERS
;*****
;* CKUSTS - THIS SUBROUTINE CHECKS THE USYRT STATUS BY READING THE USYRT
;* STATUS REGISTER AND COMPARING IT TO THE LOW BYTE OF THE WORD FOLLOWING
;* THE CALL. IF THERE IS A MISMATCH, THE SUBROUTINE STACKS THE ERROR
;* INFORMATION, AND SETS THE "C" BIT AND RETURNS.
;*****
CKUSTS: JSR R5,READI ;READ USYRT STATUS REGISTER
        USTATR
1$: .WORD 0
        CMPB (R5)+,1$ ;SEE IF STATUS MATCHES EXPECTE.
        CLC ;CLEAR C BIT
        BEQ 2$ ;BR IF STATUS OK
        MOV #7,REGNUM ;SET USYRT REG NO. FOR PRINTOUT
        MOV -1(R5),GDATA ;GET EXPECTED DATA
        CLR BDATA ;GET ACTUAL DATA
        MOVB 1$,BDATA
;STACK "USYRT STATUS INCORRECT" ERROR
        GTDF EM68,ERR10
; QUEUE "DEVICE FATAL" ERROR # 7
        MOV #T.EDF,ERRTYP
        MOV #7,ERRNBR
        MOV #EM68,ERRMSG
        MOV #ERR10,ERRBLK
2$: SEC ;SET C BIT FOR ERROR
        INC R5 ;INCREMENT R5 PAST ARGUMENT
        RTS R5 ;RETURN

```

CVDHDCO DMV11 LINE UNIT DIAG2  
CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 64  
....CKTACT -- CHECK TRANSMITTER ACTIVE (TXACT)

2716  
2717  
2718  
2719  
2720  
2721  
2722  
2723  
2724  
2725  
2726  
2727  
2728  
2729  
2730  
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```

.SBTTL ....CKTACT -- CHECK TRANSMITTER ACTIVE (TXACT)
;*****
;* CKTACT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TXACT IN THE USYRT
;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;*
;* CALLING SEQUENCE :
;* JSR R5,CKTACT
;* .WORD <BIT 0 IS EXPECTED VALUE OF TXACT>
;*****
CKTACT:
MOV @7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR R5,READI ;READ USYRT STATUS
USTATR
1$: .WORD 0
BIT @BIT0,(R5) ;GET EXPECTED STATE OF TXACT
BEQ 2$ ;BR IF EXPECTED TXACT = 0
BITB @TXACT,1$ ;SEE IF TXACT = 1
BNE 3$ ;BR IF TXACT = 1
;STACK "TXACT NOT SET" MSG
GTDF EM69,ERR12
; QUEUE "DEVICE FATAL" ERROR # 8
MOV @T.EDF,ERRTYP
MOV @8,ERRNBR
MOV @EM69,ERRMSG
MOV @ERR12,ERRBLK
SEC ;SET C BIT 1L FLAG ERROR
BR 4$ ;TAKE ERROR EXIT
2$: BITB @TXACT,1$ ;SEE IF TXACT = 0
BEQ 3$ ;BR IF TXACT = 0
;STACK "TXACT NOT CLEARED" MSG
GTDF EM70,ERR12
; QUEUE "DEVICE FATAL" ERROR # 9
MOV @T.EDF,ERRTYP
MOV @9,ERRNBR
MOV @EM70,ERRMSG
MOV @ERR12,ERRBLK
3$: SEC ;SET C BIT TO FLAG ERROR
BR 4$ ;TAKE ERROR EXIT
4$: CLC ;CLEAR C BIT FOR NO ERRORS
RTS R5 ;RETURN

```



CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 65  
....CKRACT -- CHECK RECEIVER ACTIVE (RXACT)

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2771 005622  
2772 005622 012737 000007 002342  
2773 005630 004537 003534  
2774 005634 122000  
2775 005636 000000  
2776 005640 032725 000001  
2777 005644 001422  
2778 005646 132737 000040 005636  
2779 005654 001040  
2780  
2781 005656  
2782  
2783 005656 012737 000001 002176  
2784 005664 012737 000012 002200  
2785 005672 012737 015567 002202  
2786 005700 012737 021714 002204  
2787 005706 000261  
2788 005710 000423  
2789 005712 132737 000040 005636  
2790 005720 001416  
2791  
2792 005722  
2793  
2794 005722 012737 000001 002176  
2795 005730 012737 000013 002200  
2796 005736 012737 015605 002202  
2797 005744 012737 021714 002204  
2798 005752 000261  
2799 005754 000401  
2800 005756 000241  
2801 005760 000205  
2802  
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2804  
2805

```
.SBTTL ....CKRACT -- CHECK RECEIVER ACTIVE (RXACT)
;*****
;* CKRACT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RXACT IN THE USYRT
;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;*
;* CALLING SEQUENCE :
;* JSR R5,CKRACT
;* .WORD <BIT 0 IS EXPECTED VALUE OF RXACT>
;*****
CKRACT:
MOV #7,R5,NUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR R5,READI ;READ USYRT STATUS
USTATR
1#: .WORD 0
BIT #BIT0,(R5) ;GET EXPECTED STATE OF RXACT
BEQ 2# ;BR IF EXPECTED RXACT = 0
BITB #RXACT,1# ;SEE IF RXACT = 1
BNE 3# ;BR IF RXACT = 1
;STACK "RXACT NOT SET" MSG
GDF EM71,ERR12
; QUEUE "DEVICE FATAL" ERROR # 10
MOV #T.EDF,ERRTYP
MOV #10,ERRNBR
MOV #EM71,ERRMSG
MOV #ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 4# ;TAKE ERROR EXIT
2#: BITB #RXACT,1# ;SEE IF RXACT = 0
BEQ 3# ;BR IF RXACT = 0
;STACK "RXACT NOT CLEARED" MSG
GDF EM72,ERR12
; QUEUE "DEVICE FATAL" ERROR # 11
MOV #T.EDF,ERRTYP
MOV #11,ERRNBR
MOV #EM72,ERRMSG
MOV #ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 4# ;TAKE ERROR EXIT
3#: CLC ;CLEAR C BIT FOR NO ERRORS
4#: RTS R5 ;RETURN
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 66  
....CKTBMT -- CHECK TRANSMIT BUFFER EMPTY

2806  
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2816 005762  
2817 005762 012737 000007 002342  
2818 005770 004537 003534  
2819 005774 122000  
2820 005776 000000  
2821 006000 032725 000001  
2822 006004 001422  
2823 006006 132737 000100 005776  
2824 006014 001040  
2825  
2826 006016  
2827  
2828 006016 012737 000001 002176  
2829 006024 012737 000014 002200  
2830 006032 012737 015627 002202  
2831 006040 012737 021714 002204  
2832 006046 000261  
2833 006050 000423  
2834 006052 132737 000100 005776  
2835 006060 001416  
2836  
2837 006062  
2838  
2839 006062 012737 000001 002176  
2840 006070 012737 000015 002200  
2841 006076 012737 015644 002202  
2842 006104 012737 021714 002204  
2843 006112 000261  
2844 006114 000401  
2845 006116 000241  
2846 006120 000205  
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```
.SBTTL ....CKTBMT -- CHECK TRANSMIT BUFFER EMPTY
;*****
;* CKTBMT - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TBMT IN THE USYRT
;* STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
;* STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;*
;* CALLING SEQUENCE :
;* JSR R5,CKTBMT
;* .WORD <BIT 0 IS EXPECTED VALUE OF TBMT>
;*****
CKTBMT:
MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR R5,READI ;READ USYRT STATUS
USTATR
14: .WORD 0
BIT @BIT0,(R5) ;GET EXPECTED STATE OF TBMT
BEQ 24 ;BR IF EXPECTED TBMT = 0
BITB @TBMT,14 ;SEE IF TBMT = 1
BNE 34 ;BR IF TBMT = 1
;STACK "TBMT NOT SET" MSG
GTDF EM73,ERR12
; QUEUE "DEVICE FATAL" ERROR # 12
MOV @T.EDF,ERRTYP
MOV @12,ERRNBR
MOV @EM73,ERRMSG
MOV @ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 44 ;TAKE ERROR EXIT
24: BITB @TBMT,14 ;SEE IF TBMT = 0
BEQ 34 ;BR IF TBMT = 0
;STACK "TBMT NOT CLEARED" MSG
GTDF EM74,ERR12
; QUEUE "DEVICE FATAL" ERROR # 13
MOV @T.EDF,ERRTYP
MOV @13,ERRNBR
MOV @EM74,ERRMSG
MOV @ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 44 ;TAKE ERROR EXIT
34: CLC ;CLEAR C BIT FOR NO ERRORS
44: RTS R5 ;RETURN
```

CVDHDCO DMV11 LINE UNIT DIAG2  
 CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 67  
 ....CKRDA -- CHECK RECEIVE DATA AVAILABLE

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 2886  
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 2888  
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 2890  
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 2895

006122				
006122	012737	000007	002342	
006130	004537	003534		
006134	122000			
006136	000000			
006140	012725	000001		
006144	001422			
006146	132737	000200	006136	
006154	001040			
006156				
006156	012737	000001	002176	
006164	012737	000016	002200	
006172	012737	015665	002202	
006200	012737	021714	002204	
006206	000261			
006210	000423			
006212	132737	000200	006136	
006220	001416			
006222				
006222	012737	000001	002176	
006230	012737	000017	002200	
006236	012737	015701	002202	
006244	012737	021714	002204	
006252	000261			
006254	000401			
006256	000241			
006260	000205			

```

.SB:TL ....CKRDA -- CHECK RECEIVE DATA AVAILABLE
;*****
; CKRDA - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RDA IN THE USYRT
; STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
; STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;
; CALLING SEQUENCE :
; JSR    R5,CKRDA
; .WORD  <BIT 0 IS EXPECTED VALUE OF RDA>
;*****
CKRDA:
MOV     #7,REGNUM      ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR     R5,READI      ;READ USYRT STATUS
USTATR
11:    .WORD  0
        BIT   #BIT0,(R5) ;GET EXPECTED STATE OF RDA
        BEQ  21      ;BR IF EXPECTED RDA = 0
        BITB #RDA,11 ;SEE IF RDA = 1
        BNE  31      ;BR IF RDA = 1
;STACK "RDA NOT SET" MSG
        GTDF  EM75,ERR12
;
;        QUEUE "DEVICE FATAL" ERROR # 14
;                                MOV     #T.EDF,ERRTYP
;                                MOV     #14,ERRNBR
;                                MOV     #EM75,ERRMSG
;                                MOV     #ERR12,ERRBLK
;
        SEC          ;SET C BIT TO FLAG ERROR
        BR     41      ;TAKE ERROR EXIT
21:    BITB  #RDA,11 ;SEE IF RDA = 0
        BEQ  31      ;BR IF RDA = 0
;STACK "RDA NOT CLEARED" MSG
        GTDF  EM76,ERR12
;
;        QUEUE "DEVICE FATAL" ERROR # 15
;                                MOV     #T.EDF,ERRTYP
;                                MOV     #15,ERRNBR
;                                MOV     #EM76,ERRMSG
;                                MOV     #ERR12,ERRBLK
;
        SEC          ;SET C BIT TO FLAG ERROR
        BR     41      ;TAKE ERROR EXIT
31:    CLC          ;CLEAR C BIT FOR NO ERRORS
41:    RTS     R5      ;RETURN
    
```

CVDNDCO DMV11 LINE UNIT DIAG2  
CVDNDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 68  
....CKRSA -- CHECK RECEIVER STATUS AVAILABLE

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006262  
006262 012737 000007 002342  
006270 004537 003534  
006274 122000  
006276 000000  
006300 032725 000001  
006304 001422  
006306 132737 000020 006276  
006314 001040  
006316  
006316 012737 000001 002176  
006324 012737 000020 002200  
006332 012737 015721 002202  
006340 012737 021714 002204  
006346 000261  
006350 000423  
006352 132737 000020 006276  
006360 001416  
006362  
006362 012737 000001 002176  
006370 012737 000021 002200  
006376 012737 015735 002202  
006404 012737 021714 002204  
006412 000261  
006414 000401  
006416 000241  
006420 000205

```
.SBTTL ....CKRSA -- CHECK RECEIVER STATUS AVAILABLE
;.....
; CKRSA - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF RSA IN THE USYRT
; STATUS REGISTER, AND REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE
; STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
;
; CALLING SEQUENCE :
; JSR R5,CKRSA
; .WORD <BIT 0 IS EXPECTED VALUE OF RSA>
;.....
CKRSA:
MOV 07,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
JSR R5,READI ;READ USYRT STATUS
USTATR
10: .WORD 0
BIT 0BIT0,(R5) ;GET EXPECTED STATE OF RSA
BEQ 20 ;BR IF EXPECTED RSA = 0
BITB 0RSA,10 ;SEE IF RSA = 1
BNE 30 ;BR IF RSA = 1
;STACK "RSA NOT SET" MSG
GTFD EM77,ERR12
; QUEUE "DEVICE FATAL" ERROR # 16
MOV 0T.EDF,ERRTYP
MOV 016,ERRNBR
MOV 0EM77,ERRMSG
MOV 0ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 40 ;TAKE ERROR EXIT
20: BITB 0RSA,10 ;SEE IF RSA = 0
BEQ 30 ;BR IF RSA = 0
;STACK "RSA NOT CLEARED" MSG
GTFD EM78,ERR12
; QUEUE "DEVICE FATAL" ERROR # 17
MOV 0T.EDF,ERRTYP
MOV 017,ERRNBR
MOV 0EM78,ERRMSG
MOV 0ERR12,ERRBLK
SEC ;SET C BIT TO FLAG ERROR
BR 40 ;TAKE ERROR EXIT
30: CLC ;CLEAR C BIT FOR NO ERRORS
40: RTS R5 ;RETURN
```

CVDNCO DMV11 LINE UNIT DIAG2  
CVDI: ..P11 12-JUL-84 09:26

MACY1: 30A(1052) 12-JUL-84 09:28 PAGE 69  
....CKROR -- CHECK RECEIVER OVERRUN

```

2939 .SBTTL ....CKROR -- CHECK RECEIVER OVERRUN
2940 ;*****
2941 ;* CKROR - THIS SUBROUTINE CHECKS FOR THE OCCURANCE OF RECEIVER OVERRUN IN THE
2942 ;* USYRT RECEIVER STATUS REGISTER (RDSRH), AND REPORTS AN ERROR IF IT IS
2943 ;* NOT PROPERLY SET TO THE STATE OF BIT 0 IN THE WORD FOLLOWING THE CALL.
2944 ;*
2945 ;* CALLING SEQUENCE :
2946 ;* JSR R5,CKROR
2947 ;* .WORD <BIT 0 IS EXPECTED VALUE OF ROR>
2948 ;*****
2949 006422 CKROR:
2950 006422 012737 000001 002342 MOV #1,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
2951 006430 004537 003534 JSR R5,READI ;READ RECEIVER STATUS
2952 006434 120401 RDSRH
2953 006436 000000 1#: .WORD 0
2954 006440 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF ROR
2955 006444 001422 BEQ 2# ;BR IF EXPECTED ROR = 0
2956 006446 132737 000010 006436 BITB #ROR,1# ;SEE IF ROR = 1
2957 006454 001040 BNE 3# ;BR IF ROR = 1
2958 ;STACK "RECEIVER OVRN NOT SET" MSG
2959 006456 GTDF EM90,ERR12
2960 ; QUEUE "DEVICE FATAL" ERROR # 18
2961 006456 012737 000001 002176 MOV #T.EDF,ERRTYP
2962 006464 012737 000022 002200 MOV #18,ERRNBR
2963 006472 012737 016300 002202 MOV #EM90,ERRMSG
2964 006500 012737 021714 002204 MOV #ERR12,ERRBLK
2965 006506 000261 SEC ;SET C BIT TO FLAG ERROR
2966 006510 000423 BR 4# ;TAKE ERROR EXIT
2967 006512 132737 000010 006436 2#: BITB #ROR,1# ;SEE IF ROR = 0
2968 006520 001416 BEQ 3# ;BR IF ROR = 0
2969 ;STACK "ROR NOT CLEARED" MSG
2970 006522 GTDF EM91,ERR12
2971 ; QUEUE "DEVICE FATAL" ERROR # 19
2972 006522 012737 000001 002176 MOV #T.EDF,ERRTYP
2973 006530 012737 000023 002200 MOV #19,ERRNBR
2974 006536 012737 016331 002202 MOV #EM91,ERRMSG
2975 006544 012737 021714 002204 MOV #ERR12,ERRBLK
2976 006552 000261 SEC ;SET C BIT TO FLAG ERROR
2977 006554 000401 BR 4# ;TAKE ERROR EXIT
2978 006556 000241 3#: CLC ;CLEAR C BIT FOR NO ERRORS
2979 006560 000205 4#: RTS R5 ;RETURN
2980
2981
2982

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 70  
....CKSEOM -- CHECK RSOM, REOM

```

2983 .SBTTL ....CKSEOM -- CHECK RSOM, REOM
2984 ;*****
2985 ;* CKSEOM - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF RSOM, REOM IN THE
2986 ;* USYRT RECEIVER STATUS REG (RDSRM) AND REPORTS AN ERROR IF THEY ARE NOT
2987 ;* PROPERLY SET TO THE STATES OF BITS 0,1 IN THE WORD FOLLOWING THE CALL.
2988 ;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
2989 ;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
2990 ;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
2991 ;*
2992 ;* CALLING SEQUENCE :
2993 ;* JSR R5,CKSEOM
2994 ;* <BIT 0 IS EXPECTED VALUE OF RSOM, BIT 1 IS VALUE OF REOM>
2995 ;*****
2996 CKSEOM:
2997 006562 012737 000007 002342 MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
2998 006570 004537 003534 JSR R5,READI ;READ USYRT RECEIVER STATUS
2999 006574 120401 RDSRM
3000 006576 000000 1#: .WORD 0
3001 006600 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF RSOM
3002 006604 001422 BEQ 2# ;BR IF EXPECTED RSOM = 0
3003 006606 132737 000001 006576 BITB #RSOM,1# ;SEE IF RSOM = 1
3004 006614 001040 BNE 3# ;BR IF RSOM = 1
3005 ;STACK "RSOM NOT SET" MSG
3006 006616 GTDF EM29,ERR12
3007 ; QUEUE "DEVICE FATAL" ERROR # 20
3008 006616 012737 000001 002176 MOV #T.EDF,ERRTYP
3009 006624 012737 000024 002200 MOV #20,ERRNBR
3010 006632 012737 014501 002202 MOV #EM29,ERRMSG
3011 006640 012737 021714 002204 MOV #ERR12,ERRBLK
3012 006646 000261 SEC ;SET C BIT TO FLAG ERROR
3013 006650 000473 BR 6# ;TAKE ERROR EXIT
3014 006652 132737 000001 006576 2#: BITB #RSOM,1# ;SEE IF RSOM = 0
3015 006660 001416 BEQ 3# ;BR IF RSOM = 0
3016 ;STACK "RSOM NOT CLEARED" MSG
3017 006662 GTDF EM28,ERR12
3018 ; QUEUE "DEVICE FATAL" ERROR # 21
3019 006662 012737 000001 002176 MOV #T.EDF,ERRTYP
3020 006670 012737 000025 002200 MOV #21,ERRNBR
3021 006676 012737 014460 002202 MOV #EM28,ERRMSG
3022 006704 012737 021714 002204 MOV #ERR12,ERRBLK
3023 006712 000261 SEC ;SET C BIT TO FLAG ERROR
3024 006714 000451 BR 6# ;TAKE ERROR EXIT
3025 006716 032765 000002 177776 3#: BIT #BIT1,-2(R5) ;GET EXPECTED STATE OF REOM
3026 006724 001422 BEQ 4# ;BR IF EXPECTED REOM = 0
3027 006726 132737 000002 006576 BITB #REOM,1# ;SEE IF REOM = 1
3028 006734 001040 BNE 5# ;BR IF REOM = 1
3029 ;STACK "REOM NOT SET" MSG
3030 006736 GTDF EM31,ERR12
3031 ; QUEUE "DEVICE FATAL" ERROR # 22
3032 006736 012737 000001 002176 MOV #T.EDF,ERRTYP
3033 006744 012737 000026 002200 MOV #22,ERRNBR
3034 006752 012737 014537 002202 MOV #EM31,ERRMSG
3035 006760 012737 021714 002204 MOV #ERR12,ERRBLK
3036 006766 000261 SEC ;SET C BIT TO FLAG ERROR
3037 006770 000423 BR 6# ;TAKE ERROR EXIT
3038 006772 132737 000002 006576 4#: BITB #REOM,1# ;SEE IF REOM = 0

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 71  
....CKSEOM -- CHECK RSOM, REOM

```

3039 007000 001416          BEQ      5#          ;BR IF REOM = 0
3040          ;STACK "REOM NOT CLEARED" MSG
3041 007002          GTDF      EM30,ERR12
3042          ;          QUEUE "DEVICE FATAL" ERROR # 23
3043 007002 012737 000001 002176          MOV      @T,EDF,ERRTYP
3044 007010 012737 000027 002200          MOV      @23,ERRNBR
3045 007016 012737 014516 002202          MOV      @EM30,ERRMSG
3046 007024 012737 021714 002204          MOV      @ERR12,ERRBLK
3047 007032 000261          SEC
3048 007034 000401          BR      6#          ;SET C BIT TO FLAG ERROR
3049 007036 000241          5#:    CLC          ;TAKE ERROR EXIT
3050 007040 000205          6#:    RTS      R5    ;CLEAR C BIT FOR NO ERRORS
3051
3052          ;RETURN

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 72  
....CHKTSO -- CHECK TRANSMIT SERIAL OUT BIT

```

3053 .SBTTL ....CHKTSO -- CHECK TRANSMIT SERIAL OUT BIT
3054 ;*****
3055 ;* CHKTSO - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF TSO IN THE USYRT
3056 ;* STATUS REGISTER, AND SETS THE "C" BIT IF IT IS NOT SET TO THE STATE
3057 ;* OF BIT 0 IN THE WORD FOLLOWING THE CALL.
3058 ;*
3059 ;* CALLING SEQUENCE :
3060 ;* JSR R5,CHKTSO
3061 ;* .WORD <BIT 0 IS EXPECTED VALUE OF TSO>
3062 ;*****
3063 CHKTSO:
3064 007042 012737 000007 002342 MOV #7,REGNUM ;SET REG NO. FOR POSSIBLE ERROR REPORT
3065 007050 004537 003534 JSR R5,READI ;READ USYRT STATUS
3066 007054 122000 USTATR
3067 007056 000000 1#: .WORD 0
3068 007060 032725 000001 BIT #BIT0,(R5) ;GET EXPECTED STATE OF TSO
3069 007064 001422 BEQ 2# ;BR IF EXPECTED TSO = 0
3070 007066 132737 000010 007056 BITB #TSO,1# ;SEE IF TSO = 1
3071 007074 001040 BNE 3# ;BR IF TSO = 1
3072 ;*** STACK "TSO NOT SET" ERROR ***
3073 007076 GTDF EM100,ERR12
3074 ; QUEUE "DEVICE FATAL" ERROR # 24
3075 007076 012737 000001 002176 MOV #T.EDF,ERRTYP
3076 007104 012737 000030 002200 MOV #24,ERRNBR
3077 007112 012737 016422 002202 MOV #EM100,ERRMSG
3078 007120 012737 021714 002204 MOV #ERR12,ERRBLK
3079 007126 000261 SEC ;SET C BIT TO FLAG ERROR
3080 007130 000423 BR 4# ;TAKE ERROR EXIT
3081
3082 007132 132737 000010 007056 2#: BITB #TSO,1# ;SEE IF TSO = 0
3083 007140 001416 BEQ 3# ;BR IF TSO = 0
3084 ;*** STACK "TSO NOT CLEARED" ERROR ***
3085 007142 GTDF EM101,ERR12
3086 ; QUEUE "DEVICE FATAL" ERROR # 25
3087 007142 012737 000001 002176 MOV #T.EDF,ERRTYP
3088 007150 012737 000031 002200 MOV #25,ERRNBR
3089 007156 012737 016442 002202 MOV #EM101,ERRMSG
3090 007164 012737 021714 002204 MOV #ERR12,ERRBLK
3091 007172 000261 SEC ;SET C BIT TO FLAG ERROR
3092 007174 000401 BR 4# ;TAKE ERROR EXIT
3093 007176 000241 3#: CLC ;CLEAR C BIT FOR NO ERRORS
3094 007200 000205 4#: RTS R5 ;RETURN
3095

```



CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 73  
....SERIAL -- READ/CHECK TX CHARACTER VIA TSO BIT

```

3096 .SBTTL ....SERIAL -- READ/CHECK TX CHARACTER VIA TSO BIT
3097 ;*****
3098 ;* SERIAL - THIS SUBROUTINE SERIALY READS/CLOCKS/CHECKS A CHARACTER FROM
3099 ;* THE TRANSMIT SERIAL OUT (TSO) BIT OF THE USYRT STATUS REGISTER,
3100 ;* AND STACKS MESSAGE/SETS "C" BIT IF AN INCORRECT CHARACTER IS READ.
3101 ;* NOTE: "EXPECTED VALUE" ARGUMENT IS ALWAYS READ RIGHT-TO-LEFT.
3102 ;*
3103 ;* CALLING SEQUENCE :
3104 ;* JSR R5,SERIAL
3105 ;* .WORD <# OF BITS TO BE READ>
3106 ;* .WORD <EXPECTED VALUE OF SERIAL BIT STREAM>
3107 ;*****
3108 SERIAL:
3109     MOV R1,-(SP) ;SAVE R1
3110     MOV R2,-(SP) ;SAVE R2 (TICKS)
3111     MOV R3,-(SP) ;SAVE R3 (EXPECTED_WORD)
3112
3113     CLR R1 ;CLEAR ASSEMBLED_WORD
3114     MOV (R5)+,R2 ;GET # OF TICKS
3115
3116     1$: ASL R1 ;SHIFT ASSEMBLED_WORD
3117     JSR R5,STEPLU ;CLOCK USYRT ONCE
3118     1
3119
3120     JSR R5,CHKTSO ;CHECK FOR TSO=1
3121     1
3122     BCS 2$ ;BR IF TSO=0
3123     INC R1 ;TSO=1: SET LSB OF ASSEMBLED_WORD
3124     2$: SOB R2,1$ ;LOOP UNTIL NO MORE TICKS
3125
3126     MOV (R5)+,R3 ;GET EXPECTED_WORD
3127     CMP R1,R3 ;COMPARE EXPECTED_ AND ASSEMBLED_WORD
3128     BEQ 3$ ;BR IF CORRECT VALUE READ
3129
3130     MOV R3,GDATA ;EXPECTED_WORD => GDATA
3131     MOV R1,BDATA ;ASSEMBLED_WORD => BDATA
3132     ;*** STACK "TRANSMISSION ERROR" MSG ***
3133     GTDF EM106,ERR13
3134     ; QUEUE "DEVICE FATAL" ERROR # 26
3135     MOV #T.EDF,ERRTYP
3136     MOV #26,ERRNBR
3137     MOV #EM106,ERRMSG
3138     MOV #ERR13,ERRBLK
3139
3140     SEC ;SET C BIT TO FLAG ERROR
3141     BR .+4 ;TAKE ERROR EXIT
3142
3143     3$: CLC ;CLEAR C BIT FOR NO ERRORS
3144     MOV (SP)+,R3 ;RESTORE REGISTERS
3145     MOV (SP)+,R2
3146     MOV (SP)+,R1
3147     4$: RTS R5 ;RETURN
3148

```

CVDHDCO DMV11 LINE UNIT DIAG2  
 CVDHDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 74  
 ....INITRN -- INIT TRANSMISSION OF A MESSAGE

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 3164  
 3165  
 3166 007324  
 3167 007324 010146  
 3168 007326 004537 003660  
 3169 007332 120000  
 3170 007334 000031  
 3171 007336 004537 003660  
 3172 007342 120000  
 3173 007344 000030  
 3174 007346 112537 007360  
 3175 007352 004537 003660  
 3176 007356 120404  
 3177 007360 000000  
 3178 007362 112537 007374  
 3179 007366 004537 003660  
 3180 007372 120405  
 3181 007374 000000  
 3182 007376 112537 007422  
 3183 007402 005037 002406  
 3184 007406 113737 007422 002406  
 3185 007414 004537 003660  
 3186 007420 120407  
 3187 007422 000000  
 3188 007424 004537 003660  
 3189 007430 120013  
 3190 007432 000200  
 3191 007434 004537 003660  
 3192 007440 120006  
 3193 007442 000300  
 3194 007444 004537 003660  
 3195 007450 120007  
 3196 007452 000000  
 3197 007454 004537 005356  
 3198 007460 000110  
 3199 007462 103454  
 3200  
 3201 007464 013737 007620 007504  
 3202 007472 142537 007504  
 3203  
 3204 007476 004537 003660

```
.SBTTL ....INITRN -- INIT TRANSMISSION OF A MESSAGE
;*****
;* INITRN - THIS SUBROUTINE INITIATES TRANSMISSION OF A MESSAGE, BY LOADING
;* THE USYRT PCSARL,H AND THE PCR WITH THE DATA PASSED IN THE 2 WORDS
;* FOLLOWING THE CALL ; LOADING AND CLOCKING 1 SOM UNTIL THE FIRST
;* SYNCH OR FLAG HAS BEEN SERIALIZED IN THE USYRT. THE PROGRAM MONITORS
;* ALL THE FLAGS IN THE USYRT STATUS REGISTER THROUGHOUT THE PROCESS.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION IS STACKED
;* AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE DISCRETION
;* OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR R5,INITRN
;* .WORD <VALUE TO LOAD INTO USYRT PCSARL,H>
;* .WORD <VALUE TO LOAD INTO USYRT PCR (PASSED IN LO BYTE)>
;* <SPECIAL VIAORB MASKING VALUE (PASSED IN HI BYTE)>
;*****
INITRN:
    MOV R1,-(SP) ;SAVE R1
    JSR R5,WRITEI ;RESET THE USYRT
    VIAORB
    RTSND!DTR!PRESET
    JSR R5,WRITEI ;CLEAR USYRT RESET BIT
    VIAORB
    RTSND!DTR
    MOVB (R5),.1# ;GET VALUE TO LOAD INTO USYRT PCSARL
    JSR R5,WRITEI ;LOAD USYRT PCSARL
    PCSARL
    1#: .WORD 0
    MOVB (R5),.2# ;GET VALUE TO LOAD INTO PCSARM
    JSR R5,WRITEI ;LOAD USYRT PCSARM
    PCSARM
    2#: .WORD 0
    MOVB (R5),.3# ;GET VALUE TO LOAD INTO PCR
    CLR SAVLEN
    MOVB 3#,SAVLEN ;SAVE CHAR LENGTH BITS
    JSR R5,WRITEI ;LOAD USYRT PCR
    PCR
    3#: .WORD 0
    JSR R5,WRITEI ;SET ACR FOR T1 ONE-SHOT MODE
    VIAACR
    200
    JSR R5,WRITEI ;LOAD VIA T1L-L
    VIAT1C
    300
    JSR R5,WRITEI ;LOAD VIA T1L-H
    VIAT1D
    000
    JSR R5,CKUSTS ;CHK USYRT STATUS FOR INIT'D STATE
    110 ; TBMT = 1, TSO = 1
    BCS 7# ;IF ERROR, EXIT SUBROUTINE
    MOV 20#,13# ;* SET UP DEFAULT VIAORB PARAMETERS
    BICB (R5),.13# ;* CLEAR ANY SPECIFIED VIAORB BITS.
    JSR R5,WRITEI ;SET UP USYRT
```

CVDNDCO DMV11 LINE UNIT DIAG2  
CVDNDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 75  
....INITRN -- INIT TRANSMISSION OF A MESSAGE

```

3205 007502 120000
3206 007504 000142
3207
3208 007506 004537 003660
3209 007512 120403
3210 007514 000001
3211 007516 004537 003660
3212 007522 120402
3213 007524 000226
3214 007526 004537 005762
3215 007532 000000
3216 007534 103427
3217 007536 005001
3218 007540 004537 011540
3219 007544 000001
3220 007546 004537 003534
3221 007552 122000
3222 007554 000000
3223 007556 132737 000100 007554
3224 007564 001010
3225 007566 005201
3226 007570 020127 000003
3227 007574 002761
3228 007576 004537 005762
3229 007602 000001
3230 007604 103403
3231 007606 004537 005462
3232 007612 000001
3233 007614 012601
3234 007616 000205
3235
3236 007620 000142
3237
3238

```

```

VIAORB
13#: TXEN!RXEN!TTLOOP ;* THIS VALUE MIGHT BE MODIFIED ABOVE
JSR R5,WRITEI ;SET TSOM IN USYRT
TDSRH
TSOM
JSR R5,WRITEI ;LOAD SYNCH CHAR INTO TX BUF
TDSRL
SYNCH
JSR R5,CKTBMT ;CHK FOR TBMT = 0
0
BCS 7# ;IF ERROR, EXIT SUBROUTINE
CLR R1 ;INIT CYCLE COUNTER
4#: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
JSR R5,READI ;READ USYRT STATUS REG
USTATR
5#: .WORD 0
BITB @TBMT,5# ;SEE IF TBMT IS SET YET
BNE 6# ;BR IF YES
INC R1 ;INCR CYCLE COUNTER
CMP R1,#3 ;SEE IF 3 CYCLES DONE YET
BLT 4# ;BR IF LESS THAN 3 CYCLES
JSR R5,CKTBMT ;GO STACK "TBMT NOT SET" MSG
1
BCS 7# ;IF ERROR, EXIT SUBROUTINE
6#: JSR R5,CKTACT ;CHK FOR TFACT = 1
1
7#: MOV (SP)+,R1 ;RESTORE R1
RTS R5 ;RETURN (IF C = 1, WE HAD AN ERROR)
20#: TXEN!RXEN!TTLOOP ;DEFAULT VALUE FOR VIAORB: ENABLE
;TX AND RX ON USYRT, ASSERT RTS, DTR

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 76  
....TXCHAR -- TRANSMIT A CHARACTER

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3250  
3251  
3252  
3253  
3254  
3255  
3256 007622  
3257 007622 010146  
3258 007624 010246  
3259 007626 012537 007640  
3260 007632 004537 003660  
3261 007636 120402  
3262 007640 000000  
3263 007642 005001  
3264 007644 005002  
3265 007646 112502  
3266 007650 001425  
3267 007652 004537 005462  
3268 007656 000001  
3269 007660 103421  
3270 007662 020102  
3271 007664 001414  
3272  
3273 007666 131527 000200  
3274 007672 001004  
3275  
3276 007674 004537 005762  
3277 007700 000000  
3278 007702 103410  
3279 007704 004537 011540  
3280 007710 000001  
3281 007712 005201  
3282 007714 000756  
3283 007716 004537 005762  
3284 007722 000001  
3285 007724 012602  
3286 007726 012601  
3287 007730 005205  
3288 007732 000205  
3289  
3290  
3291  
3292

```

.SBTTL ....TXCHAR -- TRANSMIT A CHARACTER
;*****
;* TXCHAR - THIS SUBROUTINE INITIATES TRANSMISSION OF A CHAR BY LOADING
;* THE USYRT TDSRL WITH THE DATA PASSED IN THE LO BYTE OF THE WORD
;* FOLLOWING THE CALL, AND CLOCKS THE LINE UNIT WITH THE NUMBER OF CYCLES
;* PASSED IN THE SECOND WORD FOLLOWING THE CALL. THE PROGRAM CONTINUALLY
;* MONITORS TBMT AND TXACT THROUGHOUT THE PROCESS.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR R5,TXCHAR
;* .WORD <DATA FOR TDSRL IN LO BYTE>
;* .WORD <NUMBER OF CYCLES TO CLOCK (IN LO BYTE)>
;* <SWITCH TO DISABLE INITIAL TBMT=0 CHECK (MSB IN HI BYTE)>
;*****
TXCHAR:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
MOV (R5)+,1# ;GET DATA FOR TDSRL
JSR R5,WRITEI ;LOAD DATA INTO TDSRL
TDSRL
1#: .WORD 0
CLR R1 ;INIT CYCLE COUNT AND CLEAR C BIT
CLR R2 ;CLEAR REQ'D CYCLE COUNT
MOVB (R5)+,R2 ;GET DESIRED NO. OF CYCLES
BEQ 6# ;BR IF NO CLOCKING DONE
3#: JSR R5,CKTACT ;CHECK TXACT = 1
1
BCS 6# ;BR TO EXIT IF ERROR
CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
BEQ 5# ;BR IF YES
BITB (R5),#NCTBMT ;* CHECK FOR "TBMT=0 CHECK" DISABLE
BNE 7# ;* BR IF MSB IS NOT SET
JSR R5,CKTBMT ;CHECK FOR TBMT = 0
0
BCS 6# ;BR TO EXIT IF ERROR
7#: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
INC R1 ;INCR CYCLE COUNT
BR 3# ;KEEP CLOCKING
5#: JSR R5,CKTBMT ;CHK TBMT = 1
1
6#: MOV (SP)+,R2 ;RESTORE R2
MOV (SP)+,R1 ;RESTORE R1
INC R5 ;ADJUST R5 FOR SAME RETURN
RTS R5 ;RETURN (WITH C BIT = 1 IF ERROR)

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 77  
....TXCTRL -- CONTROL MESSAGE TRANSMISSION (TDSRH)

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3307  
3308  
3309 007734  
3310 007734 010146  
3311 007736 010246  
3312 007740 012537 007752  
3313 007744 004537 003660  
3314 007750 120403  
3315 007752 000000  
3316 007754 005001  
3317 007756 012502  
3318 007760 001422  
3319 007762 004537 005462  
3320 007766 000001  
3321 007770 103416  
3322 007772 020102  
3323 007774 001411  
3324 007776 004537 005762  
3325 010002 000000  
3326 010004 103410  
3327 010006 004537 011540  
3328 010012 000001  
3329 010014 005201  
3330 010016 000761  
3331 010020 004537 005762  
3332 010024 000001  
3333 010026 012602  
3334 010030 012601  
3335 010032 000205  
3336  
3337

```

.SBTTL ....TXCTRL -- CONTROL MESSAGE TRANSMISSION (TDSRH)
;*****
; TXCTRL - THIS SUBROUTINE ALLOWS CONTROL OF MESSAGE TRANSMISSION BY LOADING
; THE USYRT TDSRH WITH THE DATA PASSED IN THE LO BYTE OF THE WORD
; FOLLOWING THE CALL, AND CLOCKS THE LINE UNIT WITH THE NUMBER OF CYCLES
; PASSED IN THE SECOND WORD FOLLOWING THE CALL. THE PROGRAM CONTINUALLY
; MONITORS TBMT AND TXACT THROUGHOUT THE PROCESS.
; IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
; IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
; DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;
; CALLING SEQUENCE :
; JSR R5,TXCTRL
; .WORD <DATA FOR TDSRH IN LO BYTE>
; .WORD <NUMBER OF CYCLES TO CLOCK>
;*****
TXCTRL:
MOV R1,-(SP) ;SAVE R1
MOV R2,-(SP) ;SAVE R2
MOV (R5)+,2# ;GET DATA FOR TDSRH
JSR R5,WRITEI ;LOAD DATA INTO TDSRH
TDSRH
2#: .WORD 0
CLR R1 ;INIT CYCLE COUNT AND CLEAR C BIT
MOV (R5)+,R2 ;GET DESIRED NO. OF CYCLES
BEQ 6# ;BR IF NO CLOCKING DONE
3#: JSR R5,CKTACT ;CHECK TXACT = 1
1
BCS 6# ;BR TO EXIT IF ERROR
CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
BEQ 5# ;BR IF YES
JSR R5,CKTBMT ;CHECK FOR TBMT = 0
0
BCS 6# ;BR TO EXIT IF ERROR
JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
INC R1 ;INCR CYCLE COUNT
BR 3# ;KEEP CLOCKING
5#: JSR R5,CKTBMT ;CHK TBMT = 1
1
6#: MOV (SP)+,R2 ;RESTORE R2
MOV (SP)+,R1 ;RESTORE R1
RTS R5 ;RETURN (WITH C BIT = 1 IF ERROR)

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 78  
...RXCHAR -- RECEIVE A CHARACTER

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3357 010034  
3358 010034 010146  
3359 010036 010246  
3360 010040 004537 003534  
3361 010044 120401  
3362 010046 000000  
3363 010050 004537 003534  
3364 010054 120400  
3365 010056 000000  
3366 010060 111501  
3367 010062 042701 177400  
3368 010066 023727 002406 000347  
3369 010074 001005  
3370 010076 142737 000200 010056  
3371 010104 142701 000200  
3372 010110 123701 010056  
3373 010114 001462  
3374 010116 004537 003534  
3375 010122 122000  
3376 010124 000000  
3377 010126 132737 000002 010124  
3378 010134 001421  
3379 010136 012737 000007 002342  
3380  
3381 010144  
3382  
3383 010144 012737 000001 002176  
3384 010152 012737 000033 002200  
3385 010160 012737 015330 002202  
3386 010166 012737 021714 002204  
3387 010174 000137 011274  
3388 010200 005037 002342  
3389 010204 005037 002330  
3390 010210 110137 002330  
3391 010214 005037 002332  
3392 010220 113737 010056 002332  
3393

```
.SBTTL ....RXCHAR -- RECEIVE A CHARACTER
;*****
;* RXCHAR - THIS SUBROUTINE READS THE USYRT RDSR AND CHECKS THE CONTENTS
;* AGAINST THE DATA PASSED IN THE WORD FOLLOWING THE CALL.
;* IF BIT0 = 0 IN THE SECOND WORD FOLLOWING THE CALL, THE RERR BIT IS
;* NOT CHECKED AGAINST THE EXPECTED VALUE. THEN, IT CLOCKS
;* THE LINE UNIT FOR THE NO. OF CYCLES PASSED IN THE THIRD WORD
;* FOLLOWING THE CALL. THE PROGRAM CONTINUALLY MONITORS RDA AND RXACT.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;
; CALLING SEQUENCE :
; JSR      R5,RXCHAR
; .WORD   <EXPECTED RDSRL IN LO BYTE, RDSRH IN HI BYTE>
; .WORD   <=0 FOR NO RERR CHK, =1 FOR RERR CHK>
; .WORD   <NUMBER OF CYCLES TO CLOCK (IN LO BYTE)>
; .WORD   <SPECIAL DISABLE SWITCHES: NOCRDA,NFCRDA,NCRACK(IN HI BYTE)>
;*****
RXCHAR:
      MOV   R1,-(SP)      ;SAVE R1
      MOV   R2,-(SP)      ;SAVE R2
      JSR   R5,READI      ;READ RDSRH
      RDSRH
24:   .WORD  0
      JSR   R5,READI      ;READ RDSRL
      RDSRL
18:   .WORD  0
      MOVB  (R5),R1       ;GET EXPECTED RDSRL
      BIC   @177400,R1    ;MASK OFF UNUSED BITS
      CMP   SAVLEN,@TXDL!RXDL ;SEE IF 7-BIT CHARS BEING USED
      BNE   34           ;BR IF NOT 7-BIT CHARS
      BICB  @BIT7,14     ;CLEAR 8TH BIT FOR COMPARE
34:   CPMB  14,R1         ;COMPARE RCV'D CHAR YO EXPECTED
      BEQ   64           ;BR IF MATCH
      JSR   R5,READI      ;READ USYRT STATUS REG
      USTATR
44:   .WORD  0
      BITB  @TXU,44     ;SEE IF TX UNDERRUN OCCURRED
      BEQ   54           ;BR IF NOT
      MOV   @7,REGNUM    ;SET USYRT REG NO. FOR STATUS REG
;STACK "TX UNDERRUN" ERROR
      GTDF  EMS4,ERR12
;
;      QUEUE "DEVICE FATAL" ERROR # 27
;      MOV   @T.EDF,ERRTYP
;      MOV   @27,ERRNBR
;      MOV   @EMS4,ERRMSG
;      MOV   @ERR12,ERRBLK
54:   JMP   204         ;TAKE ERROR EXIT
      CLR   REGNUM      ;SET USYRT REG NO. FOR RDSRL
      CLR   GDATA       ;SET EXPECTED DATA
      MOVB  R1,GDATA
      CLR   BDATA       ;SET ACTUAL DATA
      MOVB  14,BDATA
;STACK "RCV'D DATA MISCOMPARE" ERROR
```

CVDFDC0 DMV11 LINE UNIT DIAG2  
CVDFDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL 84 09:28 PAGE 79  
....RXCHAR -- RECEIVE A CHARACTER

```

3394 010226          GTDF      EM34,ERR10
3395                                     ;   QUEUE "DEVICE FATAL" ERROR # 28
3396 010226 012737 000001 002176                                     MOV      #T.EDF,ERRTYP
3397 010234 012737 000034 002200                                     MOV      #28,ERRNBR
3398 010242 012737 014626 002202                                     MOV      #EM34,ERRMSG
3399 010250 012737 021540 002204                                     MOV      #ERR10,ERRBLK
3400 010256 000137 011274
3401 010262 116501 000001          6#:  JMP      20#           ;TAKE ERROR EXIT
3402 010266 042701 177400          MOVB     1(R5),R1       ;GET RDSRH
3403 010272 123701 010046          BIC      #177400,R1    ;MASK OFF UNUSED BITS
3404 010276 001016          CMPB     2#,R1         ;COMPARE RCVD STATUS TO EXPECTED
3405 010300 000137 011160          BNE      7#           ;BR IF MISMATCH
3406 010304 012737 000001 002342          JMP      17#         ;CONTINUE
3407 010312 005037 002330          MOV      #1,REGNUM    ;SET USYRT REG NO. FOR RDSRH
3408 010316 110137 002330          CLR      GDATA        ;SET EXPECTED DATA
3409 010322 005037 002332          MOVB    R1,GDATA
3410 010326 113737 010046 002332          CLR      BDATA        ;SET ACTUAL DATA
3411 010334 012737 000001 002342          MOVB     2#,BDATA
3412 010342 032765 000001 000002          7#:  MOV      #1,REGNUM    ;SET REG NO. FOR PRINTOUT
3413 010350 001447          BIT      #RERCHK,2(R5) ;SEE IF RCV ERROR BIT SHOULD BE IGNORED
3414                                     BEQ      9#           ;BR IF YES
3415 010352 132701 000200          ;CHECK RERR BIT
3416 010356 001022          BITB     #RERR,R1     ;SEE IF EXPECTED BIT = 1
3417 010360 132737 000200 010046          BNE      8#           ;BR IF YES
3418 010366 001440          BITB     #RERR,2#     ;SEE IF ACTUAL BIT = 0
3419                                     BEQ      9#           ;BR IF YES
3420 010370          ;STACK "RERR NOT CLEARED" MSG
3421          GTDF      EM35,ERR12
3422                                     ;   QUEUE "DEVICE FATAL" ERROR # 29
3423 010370 012737 000001 002176                                     MOV      #T.EDF,ERRTYP
3424 010376 012737 000035 002200                                     MOV      #29,ERRNBR
3425 010404 012737 014654 002202                                     MOV      #EM35,ERRMSG
3426 010412 012737 021714 002204                                     MOV      #ERR12,ERRBLK
3427 010420 000137 011274
3428 010424 132737 000200 010046          8#:  JMP      20#           ;TAKE ERROR EXIT
3429 010432 001016          BITB     #RERR,2#     ;SEE IF ACTUAL BIT = 1
3430                                     BNE      9#           ;BR IF YES
3431          ;STACK "RERR NOT SET" MSG
3432          GTDF      EM36,ERR12
3433                                     ;   QUEUE "DEVICE FATAL" ERROR # 30
3434 010434 012737 000001 002176                                     MOV      #T.EDF,ERRTYP
3435 010442 012737 000036 002200                                     MOV      #30,ERRNBR
3436 010450 012737 014675 002202                                     MOV      #EM36,ERRMSG
3437 010456 012737 021714 002204                                     MOV      #ERR12,ERRBLK
3438 010464 000137 011274
3439          ;CHECK ROR BIT
3440 010470 132701 000010          9#:  JMP      20#           ;TAKE ERROR EXIT
3441 010474 001022          BITB     #ROR,R1     ;SEE IF EXPECTED BIT = 1
3442 010476 132737 000010 010046          BNE      10#          ;BR IF YES
3443 010504 001440          BITB     #ROR,2#     ;SEE IF ACTUAL BIT = 0
3444                                     BEQ      11#          ;BR IF YES
3445          ;STACK "ROR NOT CLEARED" MSG
3446          GTDF      EM16,ERR12
3447                                     ;   QUEUE "DEVICE FATAL" ERROR # 31
3448 010506 012737 000001 002176                                     MOV      #T.EDF,ERRTYP
3449 010514 012737 000037 002200                                     MOV      #31,ERRNBR
3450 010522 012737 014327 002202                                     MOV      #EM16,ERRMSG
3451 010530 012737 021714 002204                                     MOV      #ERR12,ERRBLK
3452 010536 000137 011274          JMP      20#           ;TAKE ERROR EXIT

```

CVDHDCO DMV11 LINE UNIT DIAG2 MACY11 30A(1052) 12-JUL-84 09:28 PAGE 80  
 CVDHDC.P11 12-JUL-84 09:26 ....RXCHAR -- RECEIVE A CHARACTER

3450	010542	132737	000010	010046	104:	BITB	@ROR,24		;SEE IF ACTUAL BIT = 1
3451	010550	001016				BNE	114		;BR IF YES
3452					;STACK	"ROR NOT SET" MSG			
3453	010552					GTFD	EM14,ERR12		
3454									; QUEUE "DEVICE FATAL" ERROR # 32
3455	010552	012737	000001	002176				MOV	@T.EDF,ERRTYP
3456	010560	012737	000040	002200				MOV	#32,ERRNBR
3457	010566	012737	014265	002202				MOV	@EM14,ERRMSG
3458	010574	012737	021714	002204				MOV	@ERR12,ERRBLK
3459	010602	000137	011274			JMP	204		;TAKE ERROR EXIT
3460					;CHECK	RABGA BIT			
3461	010606	132701	000004		114:	BITB	@RABGA,R1		;SEE IF EXPECTED BIT = 1
3462	010612	001022				BNE	124		;BR IF YES
3463	010614	132737	000004	010046		BITB	@RABGA,24		;SEE IF ACTUAL BIT = 0
3464	010622	001440				BEQ	134		;BR IF YES
3465					;STACK	"RABGA NOT CLEARED" MSG			
3466	010624					GTFD	EM39,ERR12		
3467									; QUEUE "DEVICE FATAL" ERROR # 33
3468	010624	012737	000001	002176				MOV	@T.EDF,ERRTYP
3469	010632	012737	000041	002200				MOV	#33,ERRNBR
3470	010640	012737	014712	002202				MOV	@EM39,ERRMSG
3471	010646	012737	021714	002204				MOV	@ERR12,ERRBLK
3472	010654	000137	011274			JMP	204		;TAKE ERROR EXIT
3473	010660	132737	000004	010046	124:	BITB	@RABGA,24		;SEE IF ACTUAL BIT = 1
3474	010666	001016				BNE	134		;BR IF YES
3475					;STACK	"RABGA NOT SET" MSG			
3476	010670					GTFD	EM40,ERR12		
3477									; QUEUE "DEVICE FATAL" ERROR # 34
3478	010670	012737	000001	002176				MOV	@T.EDF,ERRTYP
3479	010676	012737	000042	002200				MOV	#34,ERRNBR
3480	010704	012737	014734	002202				MOV	@EM40,ERRMSG
3481	010712	012737	021714	002204				MOV	@ERR12,ERRBLK
3482	010720	000137	011274			JMP	204		;TAKE ERROR EXIT
3483					;CHECK	REOM BIT			
3484	010724	132701	000002		134:	BITB	@REOM,R1		;SEE IF EXPECTED BIT = 1
3485	010730	001022				BNE	144		;BR IF YES
3486	010732	132737	000002	010046		BITB	@REOM,24		;SEE IF ACTUAL BIT = 0
3487	010740	001440				BEQ	154		;BR IF YES
3488					;STACK	"REOM NOT CLEARED" MSG			
3489	010742					GTFD	EM30,ERR12		
3490									; QUEUE "DEVICE FATAL" ERROR # 35
3491	010742	012737	000001	002176				MOV	@T.EDF,ERRTYP
3492	010750	012737	000043	002200				MOV	#35,ERRNBR
3493	010756	012737	014516	002202				MOV	@EM30,ERRMSG
3494	010764	012737	021714	002204				MOV	@ERR12,ERRBLK
3495	010772	000137	011274			JMP	204		;TAKE ERROR EXIT
3496	010776	132737	000002	010046	144:	BITB	@REOM,24		;SEE IF ACTUAL BIT = 1
3497	011004	001016				BNE	154		;BR IF YES
3498					;STACK	"REOM NOT SET" MSG			
3499	011006					GTFD	EM31,ERR12		
3500									; QUEUE "DEVICE FATAL" ERROR # 36
3501	011006	012737	000001	002176				MOV	@T.EDF,ERRTYP
3502	011014	012737	000044	002200				MOV	#36,ERRNBR
3503	011022	012737	014537	002202				MOV	@EM31,ERRMSG
3504	011030	012737	021714	002204				MOV	@ERR12,ERRBLK
3505	011036	000137	011274			JMP	204		;TAKE ERROR EXIT



CYDMCO DMV11 LINE UNIT DIAG2  
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MACY11 30A(1052) 12-JUL-84 09:28 PAGE 81  
....RXCHAR -- RECEIVE A CHARACTER

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3506                                     ;CHECK R50M BIT
3507 011042 132701 000001 150: BITB @R50M,R1 ;SEE IF EXPECTED BIT = 1
3508 011046 001022 BNE 160 ;BR IF YES
3509 011050 132737 000001 010046 BITB @R50M,20 ;SEE IF ACTUAL BIT = 0
3510 011056 001440 BEQ 170 ;BR IF YES
3511                                     ;STACK "R50M NOT CLEARED" MSG
3512 011060 GTDF EM28,ERR12
3513                                     ;
3514 011060 012737 000001 002176 ; QUEUE "DEVICE FATAL" ERROR # 37
3515 011066 012737 000045 002200 MOV @T.EDF,ERRTYP
3516 011074 012737 014460 002202 MOV #37,ERRNBR
3517 011102 012737 021714 002204 MOV @EM28,ERRMSG
3518 011110 000137 011274 002204 MOV @ERR12,ERRBLK
3519 011114 132737 000001 010046 160: JMP 200 ;TAKE ERROR EXIT
3520 011122 001016 BITB @R50M,20 ;SEE IF ACTUAL BIT = 1
3521 BNE 170 ;BR IF YES
3522 011124 ;STACK "R50M NOT SET" MSG
3523 GTDF EM29,ERR12
3524 011124 012737 000001 002176 ;
3525 011132 012737 000046 002200 MOV @T.EDF,ERRTYP
3526 011140 012737 014501 002202 MOV #38,ERRNBR
3527 011146 012737 021714 002204 MOV @EM29,ERRMSG
3528 011154 000137 011274 002204 MOV @ERR12,ERRBLK
3529 JMP 200 ;TAKE ERROR EXIT
3530 011160 116502 000004 170: MOVB 4(R5),R2 ;GET DESIRED NO. OF CYCLES
3531 011164 005001 CLR R1 ;INIT CYCLE COUNT
3532
3533 011166 136527 000005 000040 180: BITB 5(R5),#BITS ;* IS RXACT CHECK TO BE DISABLED ?
3534 011174 001004 BNE 310 ;* BR IF YES
3535 011176 004537 005622 JSR R5,CXRACT ;CHK FOR RACT = 1
3536 011202 000001 1 ;
3537 011204 103433 BCS 200 ;BR TO EXIT IF ERROR
3538
3539 011206 020102 310: CMP R1,R2 ;SEE IF REQUIRED CYCLES DONE YET
3540 011210 001415 BEQ 190 ;BR IF YES
3541
3542 011212 136527 000005 000200 BITB 5(R5),#BIT7 ;* SEE IF INITIAL RDA CHECK DESIRED
3543 011220 001004 BNE 220 ;* BR IF NO
3544 011222 004537 006122 JSR R5,CKRDA ;CHK FOR RDA = 0
3545 011226 000000 0 ;
3546 011230 103421 BCS 200 ;BR TO EXIT IF ERROR
3547
3548 011232 004537 011540 220: JSR R5,STEPLU ;CLOCK LU FOR 1 CYCLE
3549 011236 000001 1 ;
3550 011240 005201 INCL R1 ;INCR CYCLE COUNT
3551 011242 000751 BR 180 ;CONTINUE CLOCKING
3552
3553 011244 136527 000005 000100 190: BITB 5(R5),#BIT6 ;* IS FINAL RDA CHECK TO BE SKIPPED ?
3554 011252 001004 BNE 300 ;* BR IF YES
3555 011254 004537 006122 JSR R5,CKRDA ;CHK RDA = 1
3556 011260 000001 1 ;
3557 011262 103404 BCS 200 ;BR IF ERROR
3558
3559 011264 062705 000006 300: ADD @6,R5 ;FIX UP RETURN ADRS
3560 011270 000241 CLC ;SET C = 0 FOR NO ERROR
3561 011272 000403 BR 210 ;TAKE ERROR-FREE EXIT

```

CYDMDCO DMV11 LINE UNIT DIAG2  
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....RXCHAR -- RECEIVE A CHARACTER

3562 011274 062705 000006  
3563 011300 000261  
3564 011302 012602  
3565 011304 012601  
3566 011306 000205  
3567

208: ADD 06,R5 ;FIX UP RETURN ADDRESS  
SEC ;SET C BIT FOR ERROR  
218: MOV (SP),R2 ;RESTORE R2  
MOV (SP),R1 ;RESTORE R1  
RTS R5 ;RETURN

CVDMDCO DMV11 LINE UNIT DIAG2  
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...RCV1ST -- RECEIVE FIRST CHARACTER OF MESSAGE

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3582				
3583	011310			
3584	011310	010146		
3585	011312	010246		
3586	011314	005001		
3587	011316	012502		
3588	011320	062702	000003	
3589	011324	004537	005622	
3590	011330	000000		
3591	011332	103446		
3592	011334	004537	006122	
3593	011340	000000		
3594	011342	103442		
3595	011344	004537	006562	
3596	011350	000000		
3597	011352	103436		
3598	011354	004537	011540	
3599	011360	000001		
3600	011362	005201		
3601	011364	004537	003534	
3602	011370	122000		
3603	011372	000000		
3604	011374	132737	000200	011372
3605	011402	001006		
3606	011404	020102		
3607	011406	002762		
3608	011410	004537	006122	
3609	011414	000001		
3610	011416	103414		
3611	011420	020165	177776	
3612	011424	002004		
3613	011426	004537	006122	
3614	011432	000000		
3615	011434	103405		

```

.SBTTL ....RCV1ST -- RECEIVE FIRST CHARACTER OF MESSAGE
;*****
;* RCV1ST - THIS SUBROUTINE RECEIVES THE FIRST CHAR OF A MESSAGE AND MONITORS
;* THE STATUS OF THE RECEIVER. FIRST, A CHECK IS MADE FOR RXACT = 0,
;* RDA = 0, RSA = 0, RSOM = 0. THEN, THE LINE UNIT IS CLOCKED UNTIL
;* RDA = 1. THE PROGRAM CHECKS FOR THIS TO OCCUR WITHIN 3 CYCLES AFTER
;* THE NO. OF CYCLES PASSED IN THE SECOND WORD FOLLOWING THE CALL.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;*
;* CALLING SEQUENCE :
;* JSR    R5,RCV1ST
;* .WORD  <EXPECTED RECEIVER CYCLE COUNT>
;*****
RCV1ST:
MOV     R1,-(SP)      ;SAVE R1
MOV     R2,-(SP)      ;SAVE R2
CLR     R1            ;INIT CYCLE COUNT
MOV     (R5)+,R2      ;GET CYCLE COUNT LIMIT
ADD     #3,R2
JSR     R5,CKRACT    ;CHK FOR RXACT = 0
0
BCS     6#           ;BR TO EXIT IF ERROR
JSR     R5,CKRDA     ;CHK FOR RDA = 0
0
BCS     6#           ;BR TO EXIT IF ERROR
JSR     R5,CKSEOM    ;CHK FOR RSOM = 0, REOM = 0
0
BCS     6#           ;BR TO EXIT IF ERROR
1#:     JSR     R5,STEPLU ;CLOCK LU FOR 1 CYCLE
1
INC     R1            ;INCREMENT CYCLE COUNT
JSR     R5,READI     ;READ USYRT STATUS REG
USTATR
2#:     .WORD  0
BITB   #RDA,2#      ;SEE IF RDA SET YET
BNE    3#           ;BR IF YES
CMP    R1,R2        ;SEE IF LIMIT EXCEEDED
BLT   1#           ;BR IF NOT YET
JSR   R5,CKRDA     ;GO STACK "RDA NOT SET" MSG
1
BCS   6#           ;BR TO EXIT IF ERROR
3#:   CMP    R1,-2(R5) ;SEE IF LESS THAN REQUIRED CYCLES
BGE   4#           ;BR IF NOT
JSR   R5,CKRDA     ;GO STACK "RDA NOT CLEARED" MSG
0
BCS   6#           ;BR TO EXIT IF ERROR

```

CVDMDCO DMV11 LINE UNIT DIAG2  
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....RCV1ST -- RECEIVE FIRST CHARACTER OF MESSAGE

3616	011436	004537	005622	4#:	JSR	R5,CKRACT	;CHK FOR RXACT = 1
3617	011442	000001			1		
3618	011444	103401			BCS	6#	;BR TO EXIT IF ERROR
3619	011446	000241		5#:	CLC		;CLEAR C BIT FOR NO ERRORS
3620	011450	012602		6#:	MOV	(SP)+,R2	;RESTORE R2
3621	011452	012601			MOV	(SP)+,R1	;RESTORE R1
3622	011454	000205			RTS	R5	;RETURN (WITH C BIT = 1 IF ERROR)
3623							
3624							

CVDMDCO DMV11 LINE UNIT DIAG2  
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....ENDTRN -- SHUT DOWN TRANSMITTER/RECEIVER

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3637  
3638  
3639  
3640 011456  
3641 011456 012537 011516  
3642 011462 004537 005462  
3643 011466 000001  
3644 011470 103422  
3645 011472 004537 005622  
3646 011476 000001  
3647 011500 103416  
3648 011502 004537 003660  
3649 011506 120000  
3650 011510 000002  
3651 011512 004537 011540  
3652 011516 000000  
3653 011520 004537 005462  
3654 011524 000000  
3655 011526 103403  
3656 011530 004537 005622  
3657 011534 000000  
3658 011536 000205  
3659  
3660

```
.SBTTL ....ENDTRN -- SHUT DOWN TRANSMITTER/RECEIVER
;*****
;* ENDTRN - THIS SUBROUTINE TERMINATES A MESSAGE BY CLEARING TXEN AND RXEN,
;* CLOCKING THE LINE UNIT FOR THE NUMBER OF CYCLES PASSED IN THE WORD
;* FOLLOWING THE CALL, AND CHECKING FOR THE USYRT TRANSMITTER AND
;* RECEIVER TO BE SHUT DOWN.
;* IF THE SUBROUTINE DETECTS AN ERROR, THE ERROR INFORMATION
;* IS STACKED, AND THE C-BIT SET, WHICH LEAVES THE ERROR REPORTING AT THE
;* DISCRETION OF THE CALLING ROUTINE OR SUBROUTINE.
;* NOTE: THIS ROUTINE ASSUMES THAT TTLOOP SHOULD BE ENABLED.
;*
;* CALLING SEQUENCE :
;* JSR R5,ENDTRN
;* <NO. OF CYCLES TO CLOCK>
;*****
ENDTRN:
MOV (R5)+,2# ;GET DESIRED NO. OF CYCLES TO CLOCK
JSR R5,CKTACT ;CHK FOR TXACT = 1
1
BCS 6# ;BR IF ERROR
JSR R5,CKRACT ;CHK FOR RXACT = 1
1
BCS 6#
JSR R5,WRITEI ;CLEAR TXEN AND RXEN IN USYRT
VIAORB ; ** BUT LEAVE TTLOOP ENABLED **
TTLOOP
JSR R5,STEPLU ;CLOCK LU FOR DESIRED NO. OF CYCLES
2#: .WORD 0
JSR R5,CKTACT ;CHK FOR TXACT = 0
0
BCS 6# ;BR IF ERROR
JSR R5,CKRACT ;CHK FOR RXACT = 0
0
6#: RTS R5
```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

MACY11 30A(1052) 12-JUL-84 09:28 PAGE 86  
....STEPLU -- CLOCK THE USYRT N TIMES

3661  
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3672  
3673  
3674 011540  
3675 011540 010146  
3676 011542 012501  
3677 011544 004537 003660  
3678 011550 120005  
3679 011552 000000  
3680 011554 005301  
3681 011556 001372  
3682 011560 012601  
3683 011562 000205  
3684  
3685  
3686  
3687  
3688  
3689

```

.SBTTL ....STEPLU -- CLOCK THE USYRT N TIMES
;*****
;* STEPLU - THIS SUBROUTINE CLOCKS THE LINE UNIT FOR THE NUMBER OF CYCLES
;* PASSED IN THE WORD FOLLOWING THE CALL. THE VIA ACR MUST BE PREVIOUSLY
;* SET UP FOR T1 ONE-SHOT MODE, AND THE T1 LATCHES MUST BE PREVIOUSLY SET
;* TO CONTROL THE WIDTH OF THE CLOCK PULSE. ALL THAT THIS SUBROUTINE
;* DOES IS TO LOAD 000 INTO THE HI BYTE OF THE T1 COUNTER, FOR THE
;* DESIRED NUMBER OF TIMES.
;*
;* CALLING SEQUENCE :
;* JSR R5,STEPLU
;* .WORD <NUMBER OF CYCLES TO CLOCK>
;*****
STEPLU:
      MOV R1, -(SP)           ;SAVE R1
      MOV (R5)+, R1          ;INIT CYCLE COUNTER
1$:   JSR R5, WRITEI         ;LOAD TIC-H, START COUNTER, CLOCK 1 CYCLE
      VIAT1B
      OOO
      DEC R1                 ;DECR CYCLE COUNTER
      BNE 1$                 ;BR IF ALL CYCLES NOT DONE YET
      MOV (SP)+, R1          ;RESTORE R1
      RTS R5                 ;RETURN

```

CVDMDCO DMV11 LINE UNIT DIAG2  
CVDMDC.P11 12-JUL-84 09:26

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GLOBAL ERROR REPORT SECTION

.SBTTL GLOBAL ERROR REPORT SECTION

;/ THE GLOBAL ERROR REPORT SECTION CONTAINS ERROR MESSAGES  
;/ THAT ARE USED IN MORE THAN ONE TEST.  
;////////////////////////////////////

3690  
3691  
3692  
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3696  
3697

```

011564 047045 047045 000 .NLIST BEX
011571 045 000116 ENDEMB: .ASCIZ /#N#N/
                                NEWLIN: .ASCIZ /#N/
                                ;USED TO TERMINATE ERROR MESSAGES

011574 047045 040445 040506 FMT2: .ASCIZ /#M#AFAILING REG = #T#ASFL#01/
011631 045 022516 020101 FMT3: .ASCIZ /#M#A EXPECTED: #03#A ACTUAL: #03#A XOR: #03/
011715 045 022516 052101 FMT4: .ASCIZ /#M#ATHE CONTENTS OF ALL#T#M#T/
011753 045 022516 030523 FMT4A: .ASCIZ /#M#S1#03#S5#03#S5#03#S5#03/
012006 047045 052045 000 FMT4B: .ASCIZ /#M#T/
012013 045 022516 032523 FMT4C: .ASCIZ /#M#S5#03#S5#03#S5#03#S5#03/
012046 047045 040445 020040 FMT5: .ASCIZ /#M#A WHEN #03#A LOADED INTO BSEL1/
012111 045 022516 020101 FMT5A: .ASCIZ /#M#A ATTEMPTING "M-LOOP" FUNCTION CODE #02#A (#A)/
012176 047045 040445 042115 FMT7: .ASCIZ /#M#ANDIAG #03#A FAILED/

012226 047045 040445 020040 FMT10: .ASCIZ /#M#A EXPECTED: #08#A ACTUAL: #08#A XOR: #08/
012302 040445 020040 051514 FMT10A: .ASCIZ /#A LSI ADDR: #08/
012323 045 022516 034117 FMT11: .ASCIZ /#M#08#08#08#08/
012342 047045 047045 052045 FMT12: .ASCIZ /#M#M#T/
012351 045 022516 022524 FMT13: .ASCIZ /#M#T#03#S2#03#S2#03#S2#03#S2#03#S2#03/
012417 045 031123 047445 FMT14: .ASCIZ /#S2#03#S2#03/
012434 040445 020040 042504 FMT15: .ASCIZ /#A DETECTED IN #T#T#A --/
012466 040445 020040 042504 FMT15A: .ASCIZ /#A DETECTED @ TEST PATTERN ELEMENT @ #02/
012540 047045 052045 047445 FMT16: .ASCIZ /#M#T#03#S4#03#S#03/
012563 045 022516 022524 FMT16A: .ASCIZ /#M#T#03#S#03#S#03#S4#03#S#03#S#03/
012625 045 020101 020040 FMT17: .ASCIZ /#A VALUE SENT TO NPR CONTROL REGISTER: #03/
012704 047045 040445 020040 FMT17A: .ASCIZ /#M#A VALUE READ FROM CONTROL REGISTER: #03/
012765 045 022516 020101 FMT17B: .ASCIZ /#M#A LSI-11 MEMORY ADDRESS ACCESSED: #08/
013040 047045 040445 020040 FMT17C: .ASCIZ /#M#A INFORMATION ON THE FIRST OF #05#A ERRORS:/

013120 047045 040445 042524 FMT19: .ASCIZ /#M#ATEST #02#A NOT RUN#N/
013151 045 022524 033117 FMT21: .ASCIZ /#T#06#N/
013161 045 022516 043101 FMT22: .ASCIZ /#M#AFAILING REG: /
013203 045 042501 050130 FMT23: .ASCIZ /#AEXPECTED: #03#S5#A ACTUAL: #03#S5#A XOR: #03#N/
013262 047045 052045 047045 FMT24: .ASCIZ /#M#T#M#T#N/
013275 045 031517 051445 FMT25: .ASCIZ /#03#S5#03#S5#03#S5#03#N/
013325 045 032123 047445 FMT26: .ASCIZ /#S4#03#S5#03#S5#03#S5#03#N/
013360 052045 052045 047045 FMT27: .ASCIZ /#T#T#N/
013367 045 042501 052130 FMT28: .ASCIZ /#AEXTENDED REG AX#01#A-#T#N/
013423 045 022524 000116 FMT29: .ASCIZ /#T#N/
013430 047045 040445 047506 FMT30: .ASCIZ /#M#AFOR BAUD RATE SPECIFIED./
013465 045 022516 044501 FMT31: .ASCIZ /#M#ADPROPER CONNECTOR TYPE SPECIFIED/
013533 045 022516 043101 FMT32: .ASCIZ /#M#AFOR OPTION SPECIFIED./
013565 045 022516 052101 FMT39: .ASCIZ /#M#ATEST #02#A NOT RUN#N/
013616 047045 040445 040506 FMT40: .ASCIZ /#M#AFAILING RAM ADRS: #06#A (OCT)#N/
013662 047045 040445 042522 FMT50: .ASCIZ /#M#ARESPONDING ADRS: #03#A (OCT)#N/
013725 045 022516 042501 FMT51: .ASCIZ /#M#AEXPECTED COUNT: #01#A ACTUAL COUNT: #01#N/

014007 122 043505 047040 EM1: .ASCIZ /REG NOT INITIALIZED BY MST CLR/
014046 051525 051131 020124 EM2: .ASCIZ /USYRT NOT INITIALIZED BY PROGRAM RECLT/

```

CVDHDCO DMV11 LINE UNIT DIAG2 MACY11 30A(1052) 12-JUL-84 09:28 PAGE 88  
 CVDHDC.P11 12-JUL-84 09:26 GLOBAL ERROR REPORT SECTION

014115	115	041511	047522	EM3:	.ASCIZ	/MICRO-DIAG. FAILURE/
014141	115	042122	020131	EM4:	.ASCIZ	/MRDY TIMEOUT/
014156	052516	046114	041440	EM5:	.ASCIZ	/NULL CLK BIT STUCK AT 0/
014206	052516	046114	041440	EM6:	.ASCIZ	/NULL CLK BIT STUCK AT 1/
014236	047522	020122	047516	EM13:	.ASCIZ	/ROR NOT CLEARED BY SOM/
014265	122	051117	047040	EM14:	.ASCIZ	/ROR NOT SET/
014301	122	051117	047040	EM15:	.ASCIZ	/ROR NOT CLEARED BY OC/
014327	122	051117	047040	EM16:	.ASCIZ	/ROR NOT CLEARED/
014347	122	040505	027504	EM25:	.ASCIZ	'READ/WRITE DATA ERROR'
014375	111	041516	051117	EM26:	.ASCIZ	/INCORRECT DATA CHAR RCV'D/
014427	111	041516	051117	EM27:	.ASCIZ	/INCORRECT CRC BYTE RCV'D/
014460	051522	046517	047040	EM28:	.ASCIZ	/RSOM NOT CLEARED/
014501	122	047523	020115	EM29:	.ASCIZ	/RSOM NOT SET/
014516	042522	046517	047040	EM30:	.ASCIZ	/REOM NOT CLEARED/
014537	122	047505	020115	EM31:	.ASCIZ	/REOM NOT SET/
014554	054124	040504	040524	EM32:	.ASCIZ	/TXDATA BIT NOT CLEARED/
014603	124	042130	052101	EM33:	.ASCIZ	/TXDATA BIT NOT SET/
014626	041522	023526	020104	EM34:	.ASCIZ	/RCV'D DATA MISCOMPARE/
014654	042522	051122	047040	EM35:	.ASCIZ	/RERR NOT CLEARED/
014675	122	051105	020122	EM36:	.ASCIZ	/RERR NOT SET/
014712	040522	043502	020101	EM39:	.ASCIZ	/RABGA NOT CLEARED/
014734	040522	043502	020101	EM40:	.ASCIZ	/RABGA NOT SET/
014752	053117	051122	047040	EM41:	.ASCIZ	/OVRN NOT CLEARED/
014773	117	051126	020122	EM42:	.ASCIZ	/OVRN NOT SET/
015010	053523	050040	041501	EM43:	.ASCIZ	/SM PACK #1 INCORRECT/
015035	123	020127	040520	EM44:	.ASCIZ	/SM PACK #2 INCORRECT/
015062	053523	050040	041501	EM45:	.ASCIZ	/SM PACK #3 INCORRECT/
015107	101	051523	046505	EM47:	.ASCIZ	/ASSEMB BIT COUNT INCORRECT/
015142	042117	020104	051126	EM48:	.ASCIZ	/ODD VRC PARITY BIT NOT SET/
015175	117	042104	053040	EM49:	.ASCIZ	/ODD VRC PARITY BIT NOT CLEARED/
015234	053105	047105	053040	EM50:	.ASCIZ	/EVEN VRC PARITY BIT NOT SET/
015270	053105	047105	053040	EM51:	.ASCIZ	/EVEN VRC PARITY BIT NOT CLEARED/
015330	054124	052440	042116	EM54:	.ASCIZ	/TX UNDERRUN ERROR/
015352	052122	020123	047516	EM60:	.ASCIZ	/RTS NOT SET/
015366	052122	020123	047516	EM65:	.ASCIZ	/RTS NOT CLEARED/
015406	042522	020107	044515	EM66:	.ASCIZ	/REG MISCOMPARE/
015425	122	043505	047040	EM67:	.ASCIZ	/REG NOT INITIALIZED BY UNIBUS RESET (INIT)/
015500	051525	051131	020124	EM68:	.ASCIZ	/USYRT STATUS INCORRECT/
015527	124	040530	052103	EM69:	.ASCIZ	/TXACT NOT SET/
015545	124	040530	052103	EM70:	.ASCIZ	/TXACT NOT CLEARED/
015567	122	040530	052103	EM71:	.ASCIZ	/RXACT NOT SET/
015605	122	040530	052103	EM72:	.ASCIZ	/RXACT NOT CLEARED/
015627	124	046502	020124	EM73:	.ASCIZ	/TBMT NOT SET/
015644	041124	052115	047040	EM74:	.ASCIZ	/TBMT NOT CLEARED/
015665	122	040504	047040	EM75:	.ASCIZ	/RDA NOT SET/
015701	122	040504	047040	EM76:	.ASCIZ	/RDA NOT CLEARED/
015721	122	040523	047040	EM77:	.ASCIZ	/RSA NOT SET/
015735	122	040523	047040	EM78:	.ASCIZ	/RSA NOT CLEARED/
015755	122	046501	042440	EM79:	.ASCIZ	/RAM ERROR LOADING MICROCODE/
016011	103	051101	044522	EM80:	.ASCIZ	/CARRIER NOT SET/
016031	103	051101	044522	EM81:	.ASCIZ	/CARRIER NOT CLEARED/
016055	111	053116	046101	EM82:	.ASCIZ	/INVALID ERROR CODE FROM 6502/
016112	047515	042504	020115	EM83:	.ASCIZ	/MODEM STATUS INCORRECT/
016141	103	051524	047040	EM84:	.ASCIZ	/CTS NOT CLRD/
016156	052103	020123	047516	EM85:	.ASCIZ	/CTS NOT SET/
016172	040503	051122	042511	EM86:	.ASCIZ	/CARRIER NOT CLRD/



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```

016213 103 051101 044522 EM87: .ASCIZ /CARRIER NOT SET/
016233 115 042117 046505 EM88: .ASCIZ /MODEM RDY NOT CLRD/
016256 047515 042504 020115 EM89: .ASCIZ /MODEM RDY NOT SET/
016300 042522 042503 053111 EM90: .ASCIZ /RECEIVER OVERRUN NOT SET/
016331 122 041505 044505 EM91: .ASCIZ /RECEIVER OVERRUN NOT CLEARED/
016366 041124 052115 044440 EM92: .ASCIZ /TBMT INTERRUPT TEST FAILURE/
016422 051524 020117 044502 EM100: .ASCIZ /TSO BIT NOT SET/
016442 051524 020117 044502 EM101: .ASCIZ /TSO BIT NOT CLEARED/
016466 051525 051131 020124 EM102: .ASCIZ /USYRT RESPONDED TO THE WRONG ADDR/
016530 051525 051131 020124 EM103: .ASCIZ /USYRT DIDN'T RESPOND TO SECONDARY STATION ADDR/
016607 125 054523 052122 EM104: .ASCIZ /USYRT DIDN'T RESPOND TO ALL-PARTIES-ADDR(377)/
016665 125 054523 052122 EM105: .ASCIZ /USYRT ASSEMBLED BIT COUNT WAS INCORRECT/
016735 124 040522 051516 EM106: .ASCIZ /TRANSMISSION ERROR (AS READ BY TSO BIT)/
    
```

.SBTTL ....TEXT STRINGS FOR ERROR HANDLERS -- "TXT\_\_\_"

```

;-----
;----- TEXT USED BY ERROR HANDLERS -----
;-----
    
```

```

017005 102 042523 030114 TXT1: .ASCIZ /BSEL0 BSEL1 BSEL2 BSEL3/
017043 040 020040 041040 TXT2: .ASCIZ / BSEL4 BSEL5 BSEL6 BSEL7/
017105 102 042523 030514 TXT2A: .ASCIZ /BSEL10 BSEL11 BSEL12 BSEL13/
017144 020040 020040 051502 TXT2B: .ASCIZ / BSEL14 BSEL15 BSEL16 BSEL17/
017207 040 054502 042524 TXT3: .ASCIZ / BYTE SELECT REG'S ARE:/
017237 040 020040 042523 TXT4: .ASCIZ / SEL0 SEL2 SEL4 SEL6/
017277 040 020040 042523 TXT4A: .ASCIZ / SEL10 SEL12 SEL14 SEL16/
017340 000102 TXT5: .ASCIZ /B/
017342 051440 046105 041505 TXT6: .ASCIZ / SELECT REG'S ARE:/
017365 040 042522 044507 TXT7: .ASCIZ / REGISTERS ORB ORA DDRB DDRA T1CL T1CH T1LL T1LH /
017455 040 020040 020040 TXT7A: .ASCIZ / T2CL T2CH SR ACR PCR IFR IER ORA /
017545 040 054105 042520 TXT8: .ASCIZ / EXPECTED: /
017565 040 041501 052524 TXT9: .ASCIZ / ACTUAL: /
017605 040 047530 035122 TXT10: .ASCIZ / XOR: /
017625 040 047040 020040 TXT11: .ASCIZ / N P R R E G I S T E R S:/
017677 040 020040 020040 TXT11A: .ASCIZ / CONTRL D A T A/
017735 040 020040 020040 TXT11B: .ASCIZ / OUT ADDR. IN ADDR./
020005 104 053105 041511 TXT12: .ASCIZ /DEVICE CSR ADDRESS : /
020033 125 054523 052122 TXT13: .ASCIZ /USYRT REGS :/
020050 042122 051123 020114 TXT14: .ASCIZ /RDSRL RDSRH TDSRL TDSRH/
020106 020040 020040 041520 TXT15: .ASCIZ / PCSARL PCSARH PCR USTAT/
020150 044526 020101 042522 TXT16: .ASCIZ /VIA REGS :/
020163 117 041122 020040 TXT17: .ASCIZ /ORB ORA DDRB DDRA/
020220 020040 020040 030524 TXT18: .ASCIZ / T1CL T1CH T1LL T1LH/
020261 124 041462 020114 TXT19: .ASCIZ /T2CL T2CH SR ACR/
020315 040 020040 050040 TXT20: .ASCIZ / PCR IFR IER ORA/

020355 021 000 TXTNUL: .BYTE 21.0 ;CTL-Q -- THIS (WE HOPE) IS HARMLESS

020357 116 050117 000 TXTML0: .ASCIZ /NOP/
020363 122 040505 020104 TXTML1: .ASCIZ /READ 1 BYTE/
020377 127 044522 042524 TXTML2: .ASCIZ /WRITE 1 BYTE/
020414 050116 026522 052517 TXTML3: .ASCIZ /NPR-OUT 256 BYTES/
020436 050116 026522 047111 TXTML4: .ASCIZ /NPR-IN 256 BYTES/
020457 123 052105 046440 TXTML5: .ASCIZ /SET MICROPROCESSOR'S PC/
020507 125 042116 043105 TXTML6: .ASCIZ /UNDEFINED/
020521 101 046114 053517 TXTML7: .ASCIZ /ALLOW U-PROCESSOR INTERRUPTS/
    
```

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....TEXT STRINGS FOR ERROR HANDLERS -- "TXT\_..."

020556	044526	020101	042522	TXTVR:	.ASCIZ	/VIA REGISTER /	
020574	051117	000102		TXTVR0:	.ASCIZ	/ORB/	
020600	051117	000101		TXTVR1:	.ASCIZ	/ORA/	
020604	042104	041122	000	TXTVR2:	.ASCIZ	/DORB/	
020611	104	051104	000101	TXTVR3:	.ASCIZ	/DORA/	
020616	030524	046103	000	TXTVR4:	.ASCIZ	/T1CL/	
020623	124	041461	000110	TXTVR5:	.ASCIZ	/T1CH/	
020630	030524	046114	000	TXTVR6:	.ASCIZ	/T1LL/	
020635	124	046061	000110	TXTVR7:	.ASCIZ	/T1LH/	
020642	031124	046103	000	TXTVR8:	.ASCIZ	/T2CL/	
020647	124	041462	000110	TXTVR9:	.ASCIZ	/T2CH/	
020654	051123	000		TXTVRA:	.ASCIZ	/SR/	
020657	101	051103	000	TXTVRB:	.ASCIZ	/ACR/	
020663	120	051103	000	TXTVRC:	.ASCIZ	/PCR/	
020667	111	051106	000	TXTVRD:	.ASCIZ	/IFR/	
020673	111	051105	000	TXTVRE:	.ASCIZ	/IER/	
020677	117	040522	000	TXTVRF:	.ASCIZ	/ORA/	
020703	116	051120	000040	TXTNP:	.ASCIZ	/NPR /	
020710	047503	052116	047522	TXTNP0:	.ASCIZ	/CONTROL/	
020720	040504	040524	044040	TXTNP1:	.ASCIZ	/DATA HI/	
020730	040504	040524	046040	TXTNP2:	.ASCIZ	/DATA LO/	
020740	042101	051104	020056	TXTNP3:	.ASCIZ	/ADDR. OUT EX/	
020755	101	042104	027122	TXTNP4:	.ASCIZ	/ADDR. OUT HI/	
020772	042101	051104	020056	TXTNP5:	.ASCIZ	/ADDR. OUT LO/	
021007	101	042104	027122	TXTNP6:	.ASCIZ	/ADDR. IN EX/	
021023	101	042104	027122	TXTNP7:	.ASCIZ	/ADDR. IN HI/	
021037	101	042104	027122	TXTNP8:	.ASCIZ	/ADDR. IN LO/	
021053	125	054523	052122	TXTUR:	.ASCIZ	/USYRT REG /	
021066	042122	051123	000114	TXTUR0:	.ASCIZ	/RDSRL/	
021074	042122	051123	000110	TXTUR1:	.ASCIZ	/RDSRH/	
021102	042124	051123	000114	TXTUR2:	.ASCIZ	/TDSRL/	
021110	042124	051123	000110	TXTUR3:	.ASCIZ	/TDSRH/	
021116	041520	040523	046122	TXTUR4:	.ASCIZ	/PCSARL/	
021125	120	051503	051101	TXTUR5:	.ASCIZ	/PCSARH/	
021134	041520	000122		TXTUR6:	.ASCIZ	/PCR/	
021140	051525	040524	000124	TXTUR7:	.ASCIZ	/USTAT/	
				.LIST	BEX		
				.EVEN			
3698							
3699							
3700							
3701				.SBTTL	....TEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT_T"		
3702				;	-----		
3703				;	----- TEXT ADDRESS TABLES USED BY ERROR HANDLERS -----		
3704				;	-----		
3705							
3706	021146	020357	020363	020377	TXTMLT:	.WORD	TXTML0,TXTML1,TXTML2,TXTML3,TXTML4,TXTML5,TXTML6,TXTML7
3707	021154	020414	020436	020457			
3708	021162	020507	020521				
3709							
3710	021166	020556				.WORD	TXTVR
3711	021170	020574	020600	020604	TXTVRT:	.WORD	TXTVR0,TXTVR1,TXTVR2,TXTVR3,TXTVR4,TXTVR5,TXTVR6,TXTVR7
3712	021176	020611	020616	020623			
3713	021204	020630	020635				

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....TEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT\_T"

3714	021210	020642	020647	020654		.WORD	TXTVR8,TXTVR9,TXTVRA,TXTVRB,TXTVRC,TXTVRD,TXTVRE,TXTVRF
3715	021216	020657	020663	020667			
3716	021224	020673	020677				
3717							
3718	021230	020703				.WORD	TXTNP
3719	021232	020710	020720	020730	TXTNPT:	.WORD	TXTNP0,TXTNP1,TXTNP2,TXTNP3,TXTNP4,TXTNP5,TXTNP6,TXTNP7,TXTNP8
3720	021240	020740	020755	020772			
3721	021246	021007	021023	021037			
3722	021254	021066	021074	021102	TXTURT:	.WORD	TXTUR0,TXTUR1,TXTUR2,TXTUR3,TXTUR4,TXTUR5,TXTUR6,TXTUR7
3723	021262	021110	021116	021125			
3724	021270	021134	021140				
3725							
3726							

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....TEXT ADDRESS TABLES FOR ERROR HANDLERS -- "TXT\_T"

```

3727
3728
3729
3730 021274
3731 021274
3732 021274 105037 002331
3733 021300 010146
3734 021302 013701 002330
3735 021306 022701 000017
3736 021312 002012
3737 021314
3738 021314 010146
3739 021316 012746 012046
3740 021322 012746 000002
3741 021326 010600
3742 021330 104415
3743 021332 062706 000006
3744 021336 000424
3745
3746 021340 001001
3747 021342 005001
3748 021344 022701 000007
3749 021350 002002
3750 021352 012701 000006
3751 021356 006301
3752 021360
3753 021360 016146 021146
3754 021364 013746 002330
3755 021370 012746 012111
3756 021374 012746 000003
3757 021400 010600
3758 021402 104415
3759 021404 062706 000010
3760
3761 021410 012601
3762 021412 004737 022724
3763 021416
3764 021416
3765 021416 104423
3766
3767
3768
3769 021420
3770 021420
3771 021420 113701 002342
3772 021424 006301
3773 021426
3774 021426 016146 021254
3775 021432 012746 021053
3776 021436 012746 012434
3777 021442 012746 000003
3778 021446 010600
3779 021450 104414
3780 021452 062706 000010
3781 021456 004737 022352
3782 021462

```

```

-----
:SBTTL ....ERROR HANDLER -- ERR4 -- M-LOOP TIMEOUT ERROR HANDLING
-----
      BGNMSG  ERR4
                                ERR4::
      CLR      GDATA+1          ;MAKE SURE BIT 8 DOESN'T PRINT!
      MOV      R1,-(SP)         ;SAVE THE WORKING REGISTER
      MOV      GDATA,R1        ;SAVE THIS FOR LATER
      CMP      #17,R1          ;WAS THIS AN M-LOOP REQUEST?
      BGE      5#              ;YES, THEN REPORT THE FUNCTION CODE
      PRINTX   #FMT5,R1        ;NO, THEN IT MUST BE A BSEL1 SETTING
                                MOV      R1,-(SP)
                                MOV      #FMT5,-(SP)
                                MOV      #2,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTX
                                ADD      #6,SP
      BR       20#
5#:    BNE      6#
      CLR      R1
6#:    CMP      #7,R1          ;IF IT WAS A 17, THIS IS A "NOP" AND
                                ; THE TEXT POINTER MUST SO REFLECT.
      BGE      7#              ;IS FUNCTION CODE > 7?
      MOV      #6,R1          ;NO, THEN WE CAN HANDLE IT
      ASL      R1              ;YES, THEN IT'S UNDEFINED -- SAY SO
      PRINTX   #FMT5A,GDATA,TXTMLT(R1) ;REPORT THE FAILING FUNCTION
                                MOV      TXTMLT(R1),-(SP)
                                MOV      GDATA,-(SP)
                                MOV      #FMT5A,-(SP)
                                MOV      #3,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTX
                                ADD      #10,SP
20#:   MOV      (SP)+,R1        ;RESTORE THE WORKING REGISTER
      JSR      PC,ERR5#        ;DUMP THE SELECT REGISTERS
      ENDMSG
                                L10002:
                                TRAP     C#MSG
-----
:SBTTL ....ERROR HANDLER -- ERR7A -- USYRT REGISTER ERRORS
-----
      BGNMSG  ERR7A
                                ERR7A::
      MOV      REGNUM,R1
      ASL      R1              ;AS PASSED, THIS WAS A BYTE OFFSET
      PRINTB   #FMT15,#TXTUR,TXTURT(R1)
                                MOV      TXTURT(R1),-(SP)
                                MOV      #TXTUR,-(SP)
                                MOV      #FMT15,-(SP)
                                MOV      #3,-(SP)
                                MOV      SP,RO
                                TRAP     C#PNTB
                                ADD      #10,SP
      JSR      PC,XORGB
      PRINTB   #FMT3,GDATA,BDATA,XDATA

```

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....ERROR HANDLER -- ERR7A -- USYRT REGISTER ERRORS

3783 021462 013746 002334  
3784 021466 013746 002332  
3785 021472 013746 002330  
3786 021476 012746 011631  
3787 021502 012746 000004  
3788 021506 010600  
3789 021510 104414  
3790 021512 062706 000012  
3791 021516  
3792 021516 012746 011564  
3793 021522 012746 000001  
3794 021526 010600  
3795 021530 104414  
3796 021532 062706 000004  
3797 021536  
3798 021536  
3799 021536 104423  
3800  
3801  
3802  
3803  
3804 021540  
3805 021540  
3806 021540  
3807 021540 013746 002422  
3808 021544 012746 020005  
3809 021550 012746 013151  
3810 021554 012746 000003  
3811 021560 010600  
3812 021562 104414  
3813 021564 062706 000010  
3814 021570  
3815 021570 012746 013161  
3816 021574 012746 000001  
3817 021600 010600  
3818 021602 104414  
3819 021604 062706 000004  
3820 021610 013701 002342  
3821 021614 006301  
3822 021616  
3823 021616 016146 021254  
3824 021622 012746 021053  
3825 021626 012746 013360  
3826 021632 012746 000003  
3827 021636 010600  
3828 021640 104414  
3829 021642 062706 000010  
3830 021646 004737 022352  
3831 021652  
3832 021652 013746 002334  
3833 021656 013746 002332  
3834 021662 013746 002330  
3835 021666 012746 013203  
3836 021672 012746 000004  
3837 021676 010600  
3838 021700 104414

PRINTB @ENDEMB

ENDMSG

L10003:

MOV XDATA,-(SP)  
MOV BDATA,-(SP)  
MOV GDATA,-(SP)  
MOV @FMT3,-(SP)  
MOV @4,-(SP)  
MOV SP,RO  
TRAP C@PNTB  
ADD @12,SP  
  
MOV @ENDEMB,-(SP)  
MOV @1,-(SP)  
MOV SP,RO  
TRAP C@PNTB  
ADD @4,SP  
  
TRAP C@MSG

-----  
;SBTTL ....ERROR HANDLER -- ERR10 -- USYRT REG ERROR (XOR, REG PRINTOUT)  
-----

BGNMSG ERR10

ERR10::

PRINTB @FMT21,@TXT12,MPCSR

MOV MPCSR,-(SP)  
MOV @TXT12,-(SP)  
MOV @FMT21,-(SP)  
MOV @3,-(SP)  
MOV SP,RO  
TRAP C@PNTB  
ADD @10,SP  
  
MOV @FMT22,-(SP)  
MOV @1,-(SP)  
MOV SP,RO  
TRAP C@PNTB  
ADD @4,SP

PRINTB @FMT22

MOV REGNUM,R1

ASL R1

;GET PTR TO USYRT REG ASCII

PRINTB @FMT27,@TXTUR,TXTURT(R1)

MOV TXTURT(R1),-(SP)  
MOV @TXTUR,-(SP)  
MOV @FMT27,-(SP)  
MOV @3,-(SP)  
MOV SP,RO  
TRAP C@PNTB  
ADD @10,SP

JSR PC,XORGB

;COMPUTE XOR OF GOOD AND BAD DATA

PRINTB @FMT23,GDATA,BDATA,XDATA

MOV XDATA,-(SP)  
MOV BDATA,-(SP)  
MOV GDATA,-(SP)  
MOV @FMT23,-(SP)  
MOV @4,-(SP)  
MOV SP,RO  
TRAP C@PNTB

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....ERROR HANDLER -- ERR10 -- USYRT REG ERROR (XOR, REG PRINTOUT)

3839 021702 062706 000012  
3840 021706 004737 023454  
3841 021712  
3842 021712  
3843 021712 104423  
3844  
3845

JSR PC,ERR12 ;GET & PRINT USYRT REGISTERS  
ENDMSG  
L10004:  
TRAP CMSG

ADD #12,SP

-----  
SBTTL ....ERROR HANDLER -- ERR12 -- USYRT REG ERROR (USYRT PRINTOUT)  
-----

3848 021714  
3849 021714  
3850 021714  
3851 021714 013746 002422  
3852 021720 012746 020005  
3853 021724 012746 013151  
3854 021730 012746 000003  
3855 021734 010600  
3856 021736 104414  
3857 021740 062706 000010  
3858 021744

BGNMSG ERR12  
PRINTB #FMT21,@TXT12,MPCSR

ERR12::

MOV MPCSR,-(SP)  
MOV @TXT12,-(SP)  
MOV #FMT21,-(SP)  
MOV #3,-(SP)  
MOV SP,R0  
TRAP C@PNTB  
ADD #10,SP

3859 021744 012746 013161  
3860 021750 012746 000001  
3861 021754 010600  
3862 021756 104414  
3863 021760 062706 000004  
3864 021764 013701 002342  
3865 021770 006301

PRINTB #FMT22

MOV #FMT22,(SP)  
MOV #1,-(SP)  
MOV SP,R0  
TRAP C@PNTB  
ADD #4,SP

3866 021772  
3867 021772 016146 021254  
3868 021776 012746 021053  
3869 022002 012746 013360  
3870 022006 012746 000003  
3871 022012 010600  
3872 022014 104414  
3873 022016 062706 000010  
3874 022022 004737 023454  
3875 022026

MOV REGNUM,R1  
ASL R1 ;GET PTR TO USYRT REG ASCII  
PRINTB #FMT27,@TXTUR,TXTURT(R1)

MOV TXTURT(R1),-(SP)  
MOV @TXTUR,-(SP)  
MOV #FMT27,-(SP)  
MOV #3,-(SP)  
MOV SP,R0  
TRAP C@PNTB  
ADD #10,SP

3876 022026  
3877 022026 104423  
3878  
3879

JSR PC,ERR12 ;GET & PRINT USYRT REGISTERS  
ENDMSG

L10005:  
TRAP CMSG

-----  
SBTTL ....ERROR HANDLER -- ERR13 -- RAM ADDRESS ERRORS  
-----

3883 022030  
3884 022030  
3885 022030  
3886 022030 013746 002422  
3887 022034 012746 020005  
3888 022040 012746 013151  
3889 022044 012746 000003  
3890 022050 010600  
3891 022052 104414  
3892 022054 062706 000010  
3893 022060  
3894 022060 013746 002342

BGNMSG ERR13  
PRINTB #FMT21,@TXT12,MPCSR

ERR13::

MOV MPCSR,-(SP)  
MOV @TXT12,-(SP)  
MOV #FMT21,-(SP)  
MOV #3,-(SP)  
MOV SP,R0  
TRAP C@PNTB  
ADD #10,SP

PRINTB #FMT40,REGNUM

MOV REGNUM,-(SP)

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....ERROR HANDLER -- ERR13 -- RAM ADDRESS ERRORS

```

3895 022064 012746 013616          MOV    #FMT40,-(SP)
3896 022070 012746 000002          MOV    #2,-(SP)
3897 022074 010600                   MOV    SP,R0
3898 022076 104414                   TRAP  C#PNTB
3899 022100 062706 000006          ADD    #6,SP
3900 022104 004737 022352          JSR    PC,XORGB      ;COMPUTE XOR OF GOOD AND BAD DATA
3901 022110                   PRINTB #FMT23,GDATA,BDATA,XDATA
3902 022110 013746 002334          MOV    XDATA,-(SP)
3903 022114 013746 002332          MOV    BDATA,-(SP)
3904 022120 013746 002330          MOV    GDATA,-(SP)
3905 022124 012746 013203          MOV    #FMT23,-(SP)
3906 022130 012746 000004          MOV    #4,-(SP)
3907 022134 010600                   MOV    SP,R0
3908 022136 104414                   TRAP  C#PNTB
3909 022140 062706 000012          ADD    #12,SP
3910 022144                   ENDMSG
3911 022144                   L10006:
3912 022144 104423                   TRAP  C#MSG
3913
3914
3915 ;-----
3916 ;SBTTL ... ERROR HANDLER -- ERR20 -- USYRT REG DUMP
3917 ;-----
3917 022146                   BGNMSG ERR20
3918 022146                   ERR20::
3919 022146                   PRINTB #FMT21,#TXT12,MPCSR
3920 022146 013746 002422          MOV    MPCSR,-(SP)
3921 022152 012746 020005          MOV    #TXT12,-(SP)
3922 022156 012746 013151          MOV    #FMT21,-(SP)
3923 022162 012746 000003          MOV    #3,-(SP)
3924 022166 010600                   MOV    SP,R0
3925 022170 104414                   TRAP  C#PNTB
3926 022172 062706 000010          ADD    #10,SP
3927 022176 004737 023454          JSR    PC,ERR12;    ;GET & PRINT USYRT REGISTERS
3928 022202                   ENDMSG
3929 022202                   L10007:
3930 022202 104423                   TRAP  C#MSG
3931
3932
3933 ;-----
3934 ;SBTTL ....ERROR HANDLER -- ERR21 -- USYRT "WRONG ADDR" ERROR
3935 ;-----
3935 022204                   BGNMSG ERR21
3936 022204                   ERR21::
3937 022204                   PRINTB #FMT21,#TXT12,MPCSR
3938 022204 013746 003422          MOV    MPCSR,-(SP)
3939 022210 012746 020005          MOV    #TXT12,-(SP)
3940 022214 012746 013151          MOV    #FMT21,-(SP)
3941 022220 012746 000003          MOV    #3,-(SP)
3942 022224 010600                   MOV    SP,R0
3943 022226 104414                   TRAP  C#PNTB
3944 022230 062706 000010          ADD    #10,SP
3945 022234                   PRINTB #FMT50,R3    ;GET/PRINT RESPONDING ADDRESS
3946 022234 010346                   MOV    R3,-(SP)
3947 022236 012746 013662          MOV    #FMT50,-(SP)
3948 022242 012746 000002          MOV    #2,-(SP)
3949 022246 010600                   MOV    SP,R0
3950 022250 104414                   TRAP  C#PNTB

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 ....ERROR HANDLER -- ERR21 -- USYRT "WRONG ADDR" ERROR

```

3951 022252 062706 000006
3952 022256 004737 023454      JSR      PC,ERR121      ;GET & PRINT USYRT REGISTERS
3953 022262                                ENDMSG
3954 022262                                L10010:
3955 022262 104423                                TRAP      C#MSG
3956
3957
3958 ;-----
3959 ;.SBTTL ....ERROR HANDLER -- ERR22 -- ASSEMBLED BIT COUNT ERROR
3960 ;-----
3960 022264      BGNMSG      ERR22
3961 022264
3962 022264      PRINTB     #FMT21,#TXT12,MPCSR      ERR22::
3963 022264 013746 002422                                MOV      MPCSR,-(SP)
3964 022270 012746 020005                                MOV      #TXT12,-(SP)
3965 022274 012746 013151                                MOV      #FMT21,-(SP)
3966 022300 012746 000003                                MOV      #3,-(SP)
3967 022304 010600                                MOV      SP,R0
3968 022306 104414                                TRAP     C#PNTB
3969 022310 062706 000010                                ADD      #10,SP
3970 022314      PRINTB     #FMT51,GDATA,BDATA      ;GET/PRINT GOOD/BAD BIT COUNTS
3971 022314 013746 002332                                MOV      BDATA,-(SP)
3972 022320 013746 002330                                MOV      GDATA,-(SP)
3973 022324 012746 013725                                MOV      #FMT51,-(SP)
3974 022330 012746 000003                                MOV      #3,-(SP)
3975 022334 010600                                MOV      SP,R0
3976 022336 104414                                TRAP     C#PNTB
3977 022340 062706 000010                                ADD      #10,SP
3978 022344 004737 023454      JSR      PC,ERR121      ;GET & PRINT USYRT REGISTERS
3979 022350                                ENDMSG
3980 022350                                L10011:
3981 022350 104423                                TRAP      C#MSG
3982
3983
3984 ;.SBTTL ....ERROR HANDLER SUBROUTINES
3985 ;*****
3986 ;***** SUBROUTINES USED ONLY BY ERROR HANDLERS *****
3987 ;*****
3988 ;-----
3989 ;.SBTTL .....ERROR HANDLER SUBROUTINE -- XORGB
3990 ;-----
3991 ;      PERFORM EXCLUSIVE OR BETWEEN "GDATA" & "BDATA" PUTTING
3992 ;      THE RESULT IN "XDATA"
3993
3994 022352 010146      XORGB:  MOV      R1,-(SP)      ;PRESERVE WORKING REGISTER
3995 022354 013701 002330      MOV      GDATA,R1      ;GET "GOOD" DATA
3996 022360 013737 002332 002334      MOV      BDATA,XDATA   ;AND "BAD" DATA
3997 022366 074137 002334      XOR      R1,XDATA      ;PERFORM EXCLUSIVE OR
3998 022372 012601      MOV      (SP)+,R1      ;RESTORE R1
3999 022374 000207      RTS      PC            ;RETURN
4000
4001
4002 ;-----
4003 ;.SBTTL .....ERROR HANDLER SUBROUTINE -- ERR41
4004 ;-----
4005 ;      IDENTIFY & DUMP THE BYTE SELECT REGISTERS
4006 022376      ERR41: PRINTX   #FMT4,#TXT3,#TXT1
    
```



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.....ERROR HANDLER SUBROUTINE -- ERR41

4007 022376 012746 017005  
4008 022402 012746 017207  
4009 022406 012746 011715  
4010 022412 012746 000003  
4011 022416 010600  
4012 022420 104415  
4013 022422 062706 000010  
4014 022426  
4015 022426 013746 002214  
4016 022432 013746 002212  
4017 022436 013746 002210  
4018 022442 013746 002206  
4019 022446 012746 011753  
4020 022452 012746 000005  
4021 022456 010600  
4022 022460 104415  
4023 022462 062706 000014  
4024 022466  
4025 022466 012746 017043  
4026 022472 012746 012006  
4027 022476 012746 000002  
4028 022502 010600  
4029 022504 104415  
4030 022506 062706 000006  
4031 022512  
4032 022512 013746 002224  
4033 022516 013746 002222  
4034 022522 013746 002220  
4035 022526 013746 002216  
4036 022532 012746 012013  
4037 022536 012746 000005  
4038 022542 010600  
4039 022544 104415  
4040 022546 062706 000014  
4041 022552  
4042 022552 012746 017105  
4043 022556 012746 012006  
4044 022562 012746 000002  
4045 022566 010600  
4046 022570 104415  
4047 022572 062706 000006  
4048 022576  
4049 022576 013746 002234  
4050 022602 013746 002232  
4051 022606 013746 002230  
4052 022612 013746 002226  
4053 022616 012746 011753  
4054 022622 012746 000005  
4055 022626 010600  
4056 022630 104415  
4057 022632 062706 000014  
4058 022636  
4059 022636 012746 017144  
4060 022642 012746 012006  
4061 022646 012746 000002  
4062 022652 010600

PRINTX #FMT4A,BSR0,BSR1,BSR2,BSR3

PRINTX #FMT4B,#TXT2

PRINTX #FMT4C,BSR4,BSR5,BSR6,BSR7

PRINTX #FMT4B,#TXT2A

PRINTX #FMT4A,BSR10,BSR11,BSR12,BSR13

PRINTX #FMT4B,#TXT2B

MOV #TXT1,-(SP)  
MOV #TXT3,-(SP)  
MOV #FMT4,-(SP)  
MOV #3,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #10,SP  
  
MOV BSR3,-(SP)  
MOV BSR2,-(SP)  
MOV BSR1,-(SP)  
MOV BSR0,-(SP)  
MOV #FMT4A,-(SP)  
MOV #5,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #14,SP  
  
MOV #TXT2,-(SP)  
MOV #FMT4B,-(SP)  
MOV #2,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #6,SP  
  
MOV BSR7,-(SP)  
MOV BSR6,-(SP)  
MOV BSR5,-(SP)  
MOV BSR4,-(SP)  
MOV #FMT4C,-(SP)  
MOV #5,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #14,SP  
  
MOV #TXT2A,-(SP)  
MOV #FMT4B,-(SP)  
MOV #2,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #6,SP  
  
MOV BSR13,-(SP)  
MOV BSR12,-(SP)  
MOV BSR11,-(SP)  
MOV BSR10,-(SP)  
MOV #FMT4A,-(SP)  
MOV #5,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #14,SP  
  
MOV #TXT2B,-(SP)  
MOV #FMT4B,-(SP)  
MOV #2,-(SP)  
MOV SP,R0

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.....ERROR HANDLER SUBROUTINE -- ERR4

4063	022654	104415			TRAP	C#PNTX
4064	022656	062706	000006		ADD	#6,SP
4065	022662			PRINTX	#FMT4C,BSR14,BSR15,BSR16,BSR17	
4066	022662	013746	002244		MOV	BSR17,-(SP)
4067	022666	013746	002242		MOV	BSR16,-(SP)
4068	022672	013746	002240		MOV	BSR15,-(SP)
4069	022676	013746	002236		MOV	BSR14,-(SP)
4070	022702	012746	012013		MOV	#FMT4C,-(SP)
4071	022706	012746	000005		MOV	#5,-(SP)
4072	022712	010600			MOV	SP,R0
4073	022714	104415			TRAP	C#PNTX
4074	022716	062706	000014		ADD	#14,SP
4075	022722	000207		RTS	PC	
4076						
4077						
4078				;-----		
4079				;SBTTL .....ERROR HANDLER SUBROUTINE -- ERR5		
4080				;-----		
4081	022724			; COMMON ERROR SUBROUTINE TO PRINT SELECT REGISTERS		
4082	022724			ERR5:		
4083	022724	012746	017237	PRINTX	#FMT4,#TXT6,#TXT4	
4084	022730	012746	017342		MOV	#TXT4,-(SP)
4085	022734	012746	011715		MOV	#TXT6,-(SP)
4086	022740	012746	000003		MOV	#FMT4,-(SP)
4087	022744	010600			MOV	#3,-(SP)
4088	022746	104415			MOV	SP,R0
4089	022750	062706	000010		TRAP	C#PNTX
4090	022754				ADD	#10,SP
4091	022754	013746	002214	PRINTX	#FMT11,WSR0,WSR2,WSR4,WSR6 ;DUMP THE SELECT REGISTERS	
4092	022760	013746	002212		MOV	WSR6,-(SP)
4093	022764	013746	002210		MOV	WSR4,-(SP)
4094	022770	013746	002206		MOV	WSR2,-(SP)
4095	022774	012746	012323		MOV	WSR0,-(SP)
4096	023000	012746	000005		MOV	#FMT11,-(SP)
4097	023004	010600			MOV	#5,-(SP)
4098	023006	104415			MOV	SP,R0
4099	023010	062706	000014		TRAP	C#PNTX
4100	023014				ADD	#14,SP
4101	023014	012746	017277	PRINTX	#FMT4B,#1X14A	
4102	023020	012746	012006		MOV	#TXT4A,-(SP)
4103	023024	012746	000002		MOV	#FMT4B,-(SP)
4104	023030	010600			MOV	#2,-(SP)
4105	023032	104415			MOV	SP,R0
4106	023034	062706	000006		TRAP	C#PNTX
4107	023040				ADD	#6,SP
4108	023040	013746	002224	PRINTX	#FMT11,WSR10,WSR12,WSR14,WSR16 ;DUMP THE SELECT REGISTERS	
4109	023044	013746	002222		MOV	WSR16,-(SP)
4110	023050	013746	002220		MOV	WSR14,-(SP)
4111	023054	013746	002216		MOV	WSR12,-(SP)
4112	023060	012746	012323		MOV	WSR10,-(SP)
4113	023064	012746	000005		MOV	#FMT11,-(SP)
4114	023070	010600			MOV	#5,-(SP)
4115	023072	104415			MOV	SP,R0
4116	023074	062706	000014		TRAP	C#PNTX
4117	023100				ADD	#14,SP
4118	023100	012746	011564	PRINTB	#ENDEMB	
					MOV	#ENDEMB,-(SP)

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.....ERROR HANDLER SUBROUTINE -- ERR54

4119 023104 012746 000001  
4120 023110 010600  
4121 023112 104414  
4122 023114 062706 000004  
4123 023120 000207  
4124  
4125  
4126  
4127  
4128  
4129  
4130 023122 004737 004426  
4131 023126  
4132 023126 012746 020163  
4133 023132 012746 020150  
4134 023136 012746 013262  
4135 023142 012746 000003  
4136 023146 010600  
4137 023150 104415  
4138 023152 062706 000010  
4139 023156  
4140 023156 013746 002274  
4141 023162 013746 002272  
4142 023166 013746 002270  
4143 023172 013746 002266  
4144 023176 012746 013275  
4145 023202 012746 000005  
4146 023206 010600  
4147 023210 104415  
4148 023212 062706 000014  
4149 023216  
4150 023216 012746 020220  
4151 023222 012746 013423  
4152 023226 012746 000002  
4153 023232 010600  
4154 023234 104415  
4155 023236 062706 000006  
4156 023242  
4157 023242 013746 002304  
4158 023246 013746 002302  
4159 023252 013746 002300  
4160 023256 013746 002276  
4161 023262 012746 013325  
4162 023266 012746 000005  
4163 023272 010600  
4164 023274 104415  
4165 023276 062706 000014  
4166 023302  
4167 023302 012746 020261  
4168 023306 012746 013423  
4169 023312 012746 000002  
4170 023316 010600  
4171 023320 104415  
4172 023322 062706 000006  
4173 023326  
4174 023326 013746 002314

RTS PC

-----  
;SBTTL .....ERROR HANDLER SUBROUTINE -- ERR114  
-----

; COMMON ERROR SUBROUTINE TO GET/PRINT VIA REGISTERS

ERR114: JSR PC,GETVRS ;GET VIA REGS FOR PRINTOUT  
PRINTX #FMT24,#TXT16,#TXT17

MOV #1,-(SP)  
MOV SP,R0  
TRAP C#PNTB  
ADD #4,SP

PRINTX #FMT25,VREGS+0,VREGS+2,VREGS+4,VREGS+6

MOV #TXT17,-(SP)  
MOV #TXT16,-(SP)  
MOV #FMT24,-(SP)  
MOV #3,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #10,SP

PRINTX #FMT29 #TXT18

MOV VREGS+6,-(SP)  
MOV VREGS+4,-(SP)  
MOV VREGS+2,-(SP)  
MOV VREGS+0,-(SP)  
MOV #FMT25,-(SP,  
MOV #5,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #14,SP

PRINTX #FMT26,VREGS+8.,VREGS+10.,VREGS+12.,VREGS+14.

MOV #TXT18,-(SP)  
MOV #FMT29,-(SP)  
MOV #2,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #6,SP

PRINTX #FMT29,#TXT19

MOV VREGS+14.-,(SP)  
MOV VREGS+12.-,(SP)  
MOV VREGS+10.-,(SP)  
MOV VREGS+8.-,(SP)  
MOV #FMT26,-(SP)  
MOV #5,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #14,SP

PRINTX #FMT25,VREGS+16.,VREGS+18.,VREGS+20.,VREGS+22.

MOV #TXT19,-(SP)  
MOV #FMT29,-(SP)  
MOV #2,-(SP)  
MOV SP,R0  
TRAP C#PNTX  
ADD #6,SP

MOV VREGS+22.-,(SP)

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.....ERROR HANDLER SUBROUTINE -- ERR11#

4175	023332	013746	002312		MOV	VREGS+20.,-(SP)
4176	023336	013746	002310		MOV	VREGS+18.,-(SP)
4177	023342	013746	002306		MOV	VREGS+16.,-(SP)
4178	023346	012746	013275		MOV	#FMT25.,-(SP)
4179	023352	012746	000005		MOV	#5.,-(SP)
4180	023356	010600			MOV	SP,R0
4181	023360	104415			TRAP	C#PNTX
4182	023362	062706	000014		ADD	#14,SP
4183	023366			PRINTX	#FMT29,#TXT20	
4184	023366	012746	020315		MOV	#TXT20.,-(SP)
4185	023372	012746	013423		MOV	#FMT29.,-(SP)
4186	023376	012746	000002		MOV	#2.,-(SP)
4187	023402	010600			MOV	SP,R0
4188	023404	104415			TRAP	C#PNTX
4189	023406	062706	000006		ADD	#6,SP
4190	023412			PRINTX	#FMT26,VREGS+24.,VREGS+26.,VREGS+28.,VREGS+30.	
4191	023412	013746	002324		MOV	VREGS+30.,-(SP)
4192	023416	013746	002322		MOV	VREGS+28.,-(SP)
4193	023422	013746	002320		MOV	VREGS+26.,-(SP)
4194	023426	013746	002316		MOV	VREGS+24.,-(SP)
4195	023432	012746	013325		MOV	#FMT26.,-(SP)
4196	023436	012746	000005		MOV	#5.,-(SP)
4197	023442	010600			MOV	SP,R0
4198	023444	104415			TRAP	C#PNTX
4199	023446	062706	000014		ADD	#14,SP
4200	023452	000207		RTS	PC	
4201						
4202						
4203				;	-----	
4204				.SBTTL	.....ERROR HANDLER SUBROUTINE -- ERR12#	
4205				;	-----	
4206				;	COMMON ERROR ROUTINE TO GET AND PRINTOUT USYRT REGISTERS	
4207	023454	004737	004326	ERR12#:	JSR PC,GETURS ;GET USYRT REGS FOR PRINTOUT	
4208	023460				PRINTX #FMT24,#TXT13,#TXT14	
4209	023460	012746	020050		MOV	#TXT14.,-(SP)
4210	023464	012746	020033		MOV	#TXT13.,-(SP)
4211	023470	012746	013262		MOV	#FMT24.,-(SP)
4212	023474	012746	000003		MOV	#3.,-(SP)
4213	023500	010600			MOV	SP,R0
4214	023502	104415			TRAP	C#PNTX
4215	023504	062706	000010		ADD	#10,SP
4216	023510			PRINTX	#FMT25,UREGS+0,UREGS+2,UREGS+4,UREGS+6	
4217	023510	013746	002254		MOV	UREGS+6.,-(SP)
4218	023514	013746	002252		MOV	UREGS+4.,-(SP)
4219	023520	013746	002250		MOV	UREGS+2.,-(SP)
4220	023524	013746	002246		MOV	UREGS+0.,-(SP)
4221	023530	012746	013275		MOV	#FMT25.,-(SP)
4222	023534	012746	000005		MOV	#5.,-(SP)
4223	023540	010600			MOV	SP,R0
4224	023542	104415			TRAP	C#PNTX
4225	023544	062706	000014		ADD	#14,SP
4226	023550			PRINTX	#FMT29,#TXT15	
4227	023550	012746	020106		MOV	#TXT15.,-(SP)
4228	023554	012746	013423		MOV	#FMT29.,-(SP)
4229	023560	012746	000002		MOV	#2.,-(SP)
4230	023564	010600			MOV	SP,R0

CVDMDCO DMV11 LINE UNIT DIAG2  
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.....ERROR HANDLER SUBROUTINE -- ERR12#

SEQ 100

4231	023566	104415	
4232	023570	062706	000006
4233	023574		
4234	023574	013746	002264
4235	023600	013746	002262
4236	023604	013746	002260
4237	023610	013746	002256
4238	023614	012746	013325
4239	023620	012746	000005
4240	023624	010600	
4241	023626	104415	
4242	023630	062706	000014
4243	023634	000207	
4244			
4245			

PRINTX #FMT26,UREGS+10,UREGS+12,UREGS+14,UREGS+16

RTS PC

.EVEN

TRAP	C#PNTX
ADD	#6,SP
MOV	UREGS+16,-(SP)
MOV	UREGS+14,-(SP)
MOV	UREGS+12,-(SP)
MOV	UREGS+10,-(SP)
MOV	#FMT26,-(SP)
MOV	#5,-(SP)
MOV	SP,RO
TRAP	C#PNTX
ADD	#14,SP

CVDMDCO DMV11 LINE UNIT DIAG2  
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LOAD DEVICE PROTECTION TABLE

.SBTTL LOAD DEVICE PROTECTION TABLE

;/;;;  
;/ THIS TABLE IDENTIFIES THE LOAD DEVICE TO THE SUPERVISOR, SO THAT IT CAN BE  
;/ PROTECTED FROM TESTING, IF DESIRED.  
;/;;;

4246  
4247  
4248  
4249  
4250  
4251  
4252  
4253 023636  
4254 023636  
4255 023636 177777  
4256 023640 177777  
4257 023642 177777  
4258 023644

BGNPROT

.WORD -1 ;DON'T CHK CSR ADRS  
.WORD -1 ;DON'T CHK MASSBUS UNIT NO.  
.WORD -1 ;DON'T CHK DRIVE NO.  
ENDPROT

L#PROT::

CVDHDCO DMV11 LINE UNIT DIAG2  
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INITIALIZE SECTION

```

4259          .SBTTL  INITIALIZE SECTION
4260
4261          ;////////////////////////////////////
4262          ;// THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
4263          ;// AT THE BEGINNING OF THE TEST SEQUENCE ON THE NEXT UNIT.
4264          ;////////////////////////////////////
4265
4266          BGNINIT
4267          L#INIT::
4268
4269          023644 010637 002344      MOV      SP,PSTACK      ;SAVE BASE-LEVEL STACK POINTER
4270          023650 005037 002350      CLR      SUBRPC        ;CLEAR SUBR CALL PC
4271          023654 005037 002404      CLR      CHPTYP       ;CLEAR USYRT CHIP TYPE INDICATOR
4272          023660 005037 002402      CLR      ERROR1      ;CLEAR ERROR FLAG
4273          023664 005037 002406      CLR      SAVLEN      ;CLEAR CHAR LENGTH FROM SETUP
4274          023670 005737 002374      TST     FRSTIM       ;SEE IF FIRST TIME THROUGH AFTER LOAD
4275          023674 001007                BNE     6#           ;BR IF NOT
4276          023676 013737 000004 002376  MOV     8#4,SAVE4    ;SAVE ERROR TRAP VECTOR
4277          023704 013737 000006 002400  MOV     8#6,SAVE6
4278          023712 000406                BR      9#
4279
4280          023714 013737 002376 000004 6#:   MOV     SAVE4,8#4    ;RESTORE ERROR TRAP VECTOR
4281          023722 013737 002400 000006  MOV     SAVE6,8#6
4282
4283          023730 012737 000001 002374  9#:   MOV     #1,FRSTIM   ;MARK FLAG FOR NEXT TIME THROUGH
4284
4285          ;SEE IF PROGRAM JUST STARTED, BR IF YES
4286          023736                READEF  #EF.START
4287          023736 012700 000040                MOV     #EF.START,R0
4288          023742 104447                TRAP   C#REFG
4289          023744                BCOMPLETE      STARST
4290          023744 103415                BCS    STARST
4291
4292          ;SEE IF PROGRAM JUST RESTARTED, BR IF YES
4293          023746                READEF  #EF.RESTART
4294          023746 012700 000037                MOV     #EF.RESTART,R0
4295          023752 104447                TRAP   C#REFG
4296          023754                BCOMPLETE      STARST
4297          023754 103411                BCS    STARST
4298
4299          ;SEE IF THIS IS A NEW PASS, BR IF YES
4300          023756                READEF  #EF.NEW
4301          023756 012700 000035                MOV     #EF.NEW,R0
4302          023762 104447                TRAP   C#REFG
4303          023764                BCOMPLETE      NEWST
4304          023764 103411                BCS    NEWST
4305
4306          ;SEE IF PROGRAM WAS JUST CONTINUED
4307          023766                READEF  #EF.CONTINUE
4308          023766 012700 000036                MOV     #EF.CONTINUE,R0
4309          023772 104447                TRAP   C#REFG
4310          023774                BCOMPLETE      ENDIT
4311          023774 103473                BCS    ENDIT
4312          023776 000414                BR      GETPRM
4313
4314          024000          STARST:

```

CVDHDCO DMV11 LINE UNIT DIAG2 MACY11 30A(1052) 12-JUL-84 09:28 PAGE 104  
 CVDHDC.P11 12-JUL-84 09:26 INITIALIZE SECTION

```

4315 024000 005037 002416          CLR      STARES          ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
4316
4317          ;CLEAR DEVICE MAP
4318 024004 005037 002410          CLR      DEVMAP
4319 024010
4320 024010 012737 177777 002340 NEWST:
4321 024016 005237 002416          MOV      #-1,LOGDEV      ;RESET LOGICAL DEVICE TO -1
4322 024022 012737 000001 002412          INC      STARES          ;INCREMENT NO. OF PASSES SINCE STA OR RES
4323          MOV      #BIT0,DEVPTR      ;INIT DEVICE MAP BIT POINTER
4324          ; GET UNIBUS ADDRESS, VECTOR, PRIORITY LEVEL, SWITCH PACKS, TEST
4325          ; CONNECTOR INFORMATION FOR THIS LOGICAL DEVICE
4326 024030
4327 024030 005237 002340          GETPRM:
4328 024034          INC      LOGDEV          ;INCREMENT LOGICAL DEVICE NUMBER
4329 024034 013700 002340          GPHARD  LOGDEV,R1      ;GET P-TABLE POINTER INTO R1
4330 024040 104442
4331 024042 010001
4332 024044          BCOMPLETE 10#          ;BR IF DEVICE AVAILABLE
4333 024044 103403
4334 024046 006337 002412          ASL      DEVPTR          ;SHIFT DEVICE POINTER
4335 024052 000766          BR       GETPRM          ;SKIP THIS DEVICE
4336 024054 053737 002412 002410 10#:
4337 024062 006337 002412          BIS      DEVPTR,DEVMAP  ;SET BIT FOR THIS DEVICE
4338          ASL      DEVPTR          ;SHIFT BIT POINTER
4339 024066 012102          MOV      (R1),R2          ;R2=CSR ADDR VALUE
4340 024070 012703 002422          MOV      #MPCSR,R3       ;R3=POINTFR TO CSR ADDR STORAGE AREA
4341
4342 024074 010223          11#:
4343 024076 005202          MOV      R2,(R3)         ;PUT CSR ADDRESSES IN 'BSEL' AREA
4344 024100 022703 002462          INC      R2              ;BUMP BSEL ADDR
4345 024104 001373          CMP      #BSEL17+2,R3    ;ALL 16 ADDRESSES MOVED ?
4346          BNE      11#          ;NO: DO ANOTHER ADDRESS
4347          ;YES: CONTINUE
4348 024106 011137 002462          MOV      (R1),MPIVEC      ;GET DMV11 INPUT INTRPT VECTOR
4349 024112 012137 002464          MOV      (R1),MPOVEC      ;GET DMV11 OUTPUT INTRPT VECTOR
4350 024116 062737 000004 002464          ADD      #4,MPOVEC
4351 024124 012137 002466          MOV      (R1),MPRIOR      ;GET DMV11 DEVICE PRIORITY
4352 024130 012137 002470          MOV      (R1),LUSW1       ;GET LU SWITCH PACK #1
4353 024134 012137 002472          MOV      (R1),LUSW2       ;GET LU SWITCH PACK #2
4354 024140 012137 002474          MOV      (R1),BRDTYP      ;GET DMV-11 BOARD TYPE
4355 024144 012137 002476          MOV      (R1),TSTCON      ;GET TEST CONNECTOR INDICATOR
4356 024150 011137 002500          MOV      (R1),BORATE      ;GET BAUD RATE FOR THIS DEVICE
4357          ;ISSUE LSI BUS RESET, TO INIT DMV11
4358 024154          BRESET
4359 024154 104433
4360 024156 005000
4361 024160 000240          15#:
4362 024162 077002          CLR      R0              ;# TIME DELAY TO ALLOW COMPLETION
4363 024164          NOP
4364 024164          SOB      R0,15#         ;# OF DMV11 MICRODIAGNOSTICS.
4365 024164
4366 024164 104411          ENDIT:
4366          ENDINIT
4366          L10013:
4366          TRAP      C#INIT

```



CVDMDCO DMV11 LINE UNIT DIAG2  
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AUTO DROP UNIT SECTION

4367  
4368  
4369  
4370  
4371  
4372  
4373  
4374  
4375  
4376  
4377  
4378  
4379  
4380  
4381  
4382  
4383 024166  
4384 024166  
4385  
4386 024166  
4387 024166 012746 000000  
4388 024172 012746 024304  
4389 024176 012746 000004  
4390 024202 012746 000003  
4391 024206 104437  
4392 024210 062706 000010  
4393 024214 005037 002552  
4394 024220 012702 000001  
4395 024224 013703 002422  
4396  
4397 024230 105723  
4398 024232 006302  
4399 024234 103375  
4400  
4401 024236 013703 002422  
4402 024242 012702 000001  
4403 024246 005723  
4404 024250 006302  
4405 024252 006302  
4406 024254 103374  
4407  
4408 024256  
4409 024256 012700 000004  
4410 024262 104436  
4411 024264 005737 002552  
4412 024270 001403  
4413 024272  
4414 024272 013700 002340  
4415 024276 104451  
4416  
4417 024300 000240  
4418  
4419 024302  
4420 024302  
4421 024302 104461  
4422

.SBTTL AUTO DROP UNIT SECTION

;/ THE AUTO DROP CODING DETERMINES WHETHER OR NOT THE DEVICE WHOSE P-TABLE  
;/ WAS JUST OBTAINED IS READY FOR TESTING, AND IT IS DROPPED IF NOT READY.

THIS ALGORITHM IS THE SAME A CVDMA TEST # 1 EXCEPT THAT TEST  
WILL JUST REPORT THE FAILURE AND GO ON -- THIS ROUTINE WILL CAUSE THE  
DEVICE TO BE DROPPED IF A BUS-TIMEOUT OCCURS WHEN ANY OF THE CSR'S  
ARE ACCESSED WITH EITHER A "TST" OR "TSTB" INSTRUCTION.

BGNAUTO

L\$AUTO::

```

SETVEC #4,#AD.HIT,#0 ;SETUP INVALID-ADDRESS TRAP VECTOR
MOV #0,-(SP)
MOV #AD.HIT,-(SP)
MOV #4,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP

CLR TMP0 ;INITIALIZE TRAP FLAG REGISTER
MOV #1,R2 ;FLAG BIT
MOV BSELO,R3 ;INIT ADDRESS POINTER

1$: TSTB (R3)+ ;ACCESS THE CSR'S BY BYTES.
ASL R2
BCC 1$

MOV BSELO,R3 ;RE-INIT ADDRESS POINTER
MOV #1,R2 ;RE-INIT FLAG BIT
2$: TST (R3)+ ;ACCESS THE CSR'S BY WORDS.
ASL R2
ASL R2
BCC 2$

CLRVEC #4 ;RESTORE THE VECTOR TO DS
MOV #4,R0
TRAP C$CVEC

TST TMP0 ;DID WE GET HIT WITH AN INVALID ADDRESS TRAP?
BEQ AD.OK ;NO, EXIT TEST
DODU LOGDEV ;YES, DROP THIS LOGICAL DEV.
MOV LOCDEV,R0
TRAP C$DODU

AD.OK: NOP ;(FOR PATCHING IN A HALT IF NECESSARY)

ENDAUTO

L10014: TRAP C$AUTO
    
```

CVDMDCO DMV11 LINE UNIT DIAG2  
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AUTO DROP UNIT SECTION

4423 024304 050237 002552  
4424 024310 000002  
4425

AD.HIT: BIS R2.TMPO  
RTI

;FLAG THE HIT IF WE GET IT!  
;RETURN

CVDMDCO DMV11 LINE UNIT DIAG2  
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CLEANUP CODING SECTION

.SBTTL CLEANUP CODING SECTION

////////////////////////////////////  
;// THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED  
;// AT THE END OF THE TEST SEQUENCE ON A PARTICULAR UNIT.  
////////////////////////////////////

4426  
4427  
4428  
4429  
4430  
4431  
4432  
4433 024312  
4434 024312  
4435  
4436  
4437 024312  
4438 024312  
4439 024312 104412

BGNCLN

L0CLEAN::

ENDCLN

L10015: TRAP C0CLEAN

CVDMDCO DMV11 LINE UNIT DIAG2  
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DROP UNIT SECTION

4440  
4441  
4442  
4443  
4444  
4445  
4446  
4447 024314  
4448 024314  
4449  
4450 024314  
4451 024314 104433  
4452 024316  
4453 024316  
4454 024316 104453

.SBTTL DROP UNIT SECTION

;/;;;  
;/ THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE  
;/ TO NO LONGER BE TESTED.  
;/;;;

BGNDU

;ISSUE UNIBUS RESET TO CLEAN UP  
BRESET

ENDDU

L#DU::

TRAP C#RESET

L10016:

TRAP C#DU

CVDMDCO DMV11 LINE UNIT DIAG2  
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ADD UNIT SECTION

.SBTTL ADD UNIT SECTION

;///  
;/ THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE  
;/ TO BE (A) TESTED FOR THE FIRST TIME, OR (B) RESUMED IN TESTING. IF  
;/ "EF.AUNIT" IS SET, THE UNIT WILL BE TESTED AS A NEW UNIT.  
;///

4455  
4456  
4457  
4458  
4459  
4460  
4461  
4462  
4463 024320  
4464 024320  
4465 024320  
4466 024320  
4467 024320 104452

BGNAU  
ENDAU

L#AU::  
L10017:  
TRAP C#AU

CVDMDCO DMV11 LINE UNIT DIAG2  
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TEST 1 -- VRC PARITY GENERATION TEST

.SBTTL TEST 1 -- VRC PARITY GENERATION TEST

.....

\*  
\* TEST 1 -- VRC PARITY GENERATION TEST  
\*

\* SUBTEST 1 - TEST OF CORRECT ODD VRC PARITY GENERATION :  
\* THE LINE UNIT IS PLACED IN CHAR MODE, WITH ODD VRC. AND 7-BIT CHARS SELECTED.  
\* THE DATA CHARS IN PATTERN Q ARE LOADED/TRANSMITTED/READ. AS THE 8TH BIT  
\* (PARITY BIT) OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TSO FOR THE PROPER  
\* STATE. FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 1, FOR THE  
\* LAST 4 CHARACTERS IT SHOULD = 0.

\* SUBTEST 2 - TEST OF CORRECT EVEN VRC PARITY GENERATION :  
\* THE LINE UNIT IS PLACED IN CHAR MODE, WITH EVEN VRC AND 7-BIT CHARS SELECTED.  
\* THE DATA CHARS IN PATTERN Q ARE LOADED/TRANSMITTED/READ. AS THE 8TH BIT  
\* (PARITY BIT) OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TSO FOR THE PROPER  
\* STATE. FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 0, FOR THE  
\* LAST 4 CHARACTERS IT SHOULD = 1.

\* DATA PATTERN Q = 000,003,014,060,001,007,037,177

\* NOTE: SINCE THE ROUTINE "SERIAL" TREATS THE FIRST BIT RECEIVED FROM THE  
\* USYRT AS THE MSB, THE "EXPECTED BIT SEQUENCE" WILL HAVE A REVERSED  
\* BIT ORDER.

.....

BGNTST

T1::

-----  
SUBTEST #1: ODD VRC PARITY CHECK  
-----

BGNSUB

T1.1:

TRAP C#BSUB

JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP

JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE  
DDCMP!OVRC!226 ;SET DDCMP,ODD VRC CHECK,SYNCH=226

TXDL ;USE 7 BIT TX CHARS

BCC .+8. ;BR IF NO ERROR

ERROR ;REPORT STACKED ERROR

TRAP C#ERROR

ESCAPE SUB ;SKIP REMAINDER OF THIS SUBTEST

TRAP C#ESCAPE

.WORD L10021-

JSR R5,TXCTRL ;CLEAR TSOM

000

0

JSR R5,WRITEI ;LOAD 1ST DATA CHARACTER (000)

TDSRL

000

BCC .+8. ;BR IF NO ERROR

4468  
4469  
4470  
4471  
4472  
4473  
4474  
4475  
4476  
4477  
4478  
4479  
4480  
4481  
4482  
4483  
4484  
4485  
4486  
4487  
4488  
4489  
4490  
4491  
4492  
4493  
4494  
4495  
4496  
4497 024322  
4498  
4499  
4500  
4501 024322  
4502 024322  
4503 024322 104402  
4504 024324 004737 005344  
4505  
4506 024330 004537 007324  
4507 024334 042226  
4508 024336 000340  
4509 024340 103003  
4510 024342  
4511 024342 104460  
4512 024344  
4513 024344 104410  
4514 024346 000310  
4515  
4516 024350 004537 007734  
4517 024354 000000  
4518 024356 000000  
4519  
4520 024360 004537 003660  
4521 024364 120402  
4522 024366 000000  
4523 024370 103003

CVDHDC0 DMV11 LINE UNIT DIAG2  
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TEST 1 -- VRC PARITY GENERATION TEST

4524	024372			ERROR		;PRINT STACKED ERROR MESSAGE		
4525	024372	104460		ESCAPE SUB		;AND EXIT SUBTEST	TRAP	C#ERROR
4526	024374							
4527	024374	104410					TRAP	C#ESCAPE
4528	024376	000260					.WORD	L10021-
4529								
4530	024400	004537	007042					
4531	024404	000000		JSR	R5,CHKTSO	;CHECK 1ST BIT OF EXPECTED "SYNCH"		
4532	024406	103003		0		; CHARACTER (SHOULD BE 0)		
4533	024410			BCC	.+8.	;BR IF NO ERROR		
4534	024410	104460		ERROR		;REPORT STACKED ERROR		
4535	024412			ESCAPE SUB		;AND EXIT SUBTEST	TRAP	C#ERROR
4536	024412	104410					TRAP	C#ESCAPE
4537	024414	000242					.WORD	L10021-
4538								
4539	024416	004537	007202	JSR	R5,SERIAL	;READ REMAINING 7 BITS OF "SYNCH" CHARACTER		
4540	024422	000007		7.		; (OFF OF TSO BIT)		
4541	024424	000150		150		; EXPECTED BIT SEQUENCE (0010110)		
4542	024426	103003		BCC	.+8.	;BR IF NO ERROR		
4543	024430			ERROR		;REPORT STACKED ERROR		
4544	024430	104460		ESCAPE SUB		;AND EXIT SUBTEST	TRAP	C#ERROR
4545	024432							
4546	024432	104410					TRAP	C#ESCAPE
4547	024434	000222					.WORD	L10021-
4548								
4549	024436	012703	003012					
4550	024442	012704	003021					
4551	024446	112337	024464	1#:	MOV	#PATQ+1,R3	;SET UP TX CHARACTER POINTER	
4552	024452	112437	024504		MOV	#PATQB,R4	;SET UP RX CHARACTER POINTER	
4553					MOVB	(R3)+,2#	;SET UP NEXT TX CHAR	
4554	024456	004537	003660		MOVB	(R4)+,3#	;SET UP NEXT RX CHARACTER	
4555	024462	120402			JSR	R5,WRITEI	;LOAD NEXT TX CHARACTER	
4556	024464	000000		2#:	TDSRL			
4557	024466	103003			000		;** HOLE FOR TX CHARACTER	
4558	024470				BCC	.+8.	;BR IF NO ERROR	
4559	024470	104460		ERROR		;PRINT STACKED ERROR MESSAGE	TRAP	C#ERROR
4560	024472			ESCAPE SUB		;AND EXIT SUBTEST		
4561	024472	104410					TRAP	C#ESCAPE
4562	024474	000162					.WORD	L10021-
4563								
4564	024476	004537	007202	JSR	R5,SERIAL	;CLOCK/CHECK PREVIOUS TX CHAR (1 CHAR BUFFER)		
4565	024502	000007		7				
4566	024504	000000		3#:	000		;** HOLE FOR EXPECTED BIT SEQUENCE	
4567	024506	103003			BCC	.+8.	;BR IF NO ERROR	
4568	024510			ERROR		;REPORT STACKED ERROR	TRAP	C#ERROR
4569	024510	104460		ESCAPE SUB		;SKIP REMAINDER OF THIS SUBTEST		
4570	024512						TRAP	C#ESCAPE
4571	024512	104410					.WORD	L10021-
4572	024514	000142						
4573								
4574	024516	004537	011540	JSR	R5,STEPLU	;CLOCK PARITY BIT TO TSO		
4575	024522	000001		1				
4576								
4577	024524	004537	007042	JSR	R5,CHKTSO	;CHECK STATE OF PARITY BIT		
4578	024530	000001		1		; (SHOULD BE 1)		
4579	024532	103006		BCC	4#	;BR IF NO ERROR		





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TEST 1 -- VRC PARITY GENERATION TEST

```

4636 024660                                     T1.2:
4637 024660 104402                               TRAP  C#BSUB
4638 024662 004737 005344                       JSR    PC,INIDMV      ;INIT DMV-11, ENTER M-LOOP
4639
4640 024666 004537 007324                       JSR    R5,INITRN     ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
4641 024672 042626                               DDCMP!EVRC!226      ;SET DDCMP,EVEN VRC CHECK,SYNCH=226
4642 024674 000340                               TXDL                ;USE 7 BIT TX CHARS
4643 024676 103003                               BCC    .+8.         ;BR IF NO ERROR
4644 024700                               ERROR              ;REPORT STACKED ERROR
4645 024700 104460                               ESCAPE SUB          ;SKIP TO END OF SUBTEST
4646 024702
4647 024702 104410                               TRAP  C#ESCAPE
4648 024704 000320                               .WORD L10022-.
4649
4650 024706 004537 007734                       JSR    R5,TXCTRL    ;CLEAR TSOM
4651 024712 000000                               000
4652 024714 000000                               0
4653 024716 004537 003660                       JSR    R5,WRITEI    ;LOAD 1ST DATA CHARACTER (000)
4654 024722 120402                               TDSRL
4655 024724 000000                               000
4656 024726 103003                               BCC    .+8.         ;BR IF NO ERROR
4657 024730                               ERROR              ;PRINT STACKED ERROR MESSAGE
4658 024730 104460                               ESCAPE SUB          ;AND EXIT SUBTEST
4659 024732
4660 024732 104410                               TRAP  C#ESCAPE
4661 024734 000270                               .WORD L10022-.
4662
;----- READ SYNCH CHARACTER -----
4663 024736 004537 007042                       JSR    R5,CHKTSO    ;CHECK 1ST BIT OF EXPECTED "SYNCH"
4664 024742 000000                               0                  ; CHARACTER (SHOULD BE 0)
4665 024744 103003                               BCC    .+8.         ;BR IF NO ERROR
4666 024746                               ERROR              ;REPORT STACKED ERROR
4667 024746 104460                               ESCAPE SUB          ;AND EXIT SUBTEST
4668 024750
4669 024750 104410                               TRAP  C#ESCAPE
4670 024752 000252                               .WORD L10022-.
4671
4672 024754 004537 007202                       JSR    R5,SERIAL    ;READ REMAINING 7 BITS OF "SYNCH" CHARACTER
4673 024760 000007                               7.                ; (OFF OF TSO BIT)
4674 024762 000151                               151                ; EXPECTED BIT SEQUENCE (0010110)
4675 024764 103003                               BCC    .+8.         ;BR IF NO ERROR
4676 024766                               ERROR              ;REPORT STACKED ERROR
4677 024766 104460                               ESCAPE SUB          ;AND EXIT SUBTEST
4678 024770
4679 024770 104410                               TRAP  C#ESCAPE
4680 024772 000232                               .WORD L10022-.
4681
;----- LOAD/TX/READ PARITY BIT=0 CHARACTERS -----
4682 024774 012703 003012                       MOV    @PATQ+1,R3   ;SET UP TX CHARACTER POINTER
4683 025000 012704 003021                       MOV    @PATQB,R4    ;SET UP RX CHARACTER POINTER
4684 025004 112337 025022                       1#:  MOVB  (R3)+,2#   ;SET UP NEXT TX CHAR
4685 025010 112437 025042                       MOVB  (R4)+,3#     ;SET UP NEXT RX CHARACTER
4686
4687 025014 004537 003660                       JSR    R5,WRITEI    ;LOAD NEXT TX CHARACTER
4688 025020 120402                               TDSRL
4689 025022 000000                               2#:  000           ;** HOLE FOR TX CHARACTER
4690 025024 103003                               BCC    .+8.         ;BR IF NO ERROR
4691 025026                               ERROR              ;PRINT STACKED ERROR MESSAGE

```

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4692	025026	104460					TRAP	C#ERROR
4693	025030			ESCAPE	SUB	;AND EXIT SUBTEST		
4694	025030	104410					TRAP	C#ESCAPE
4695	025032	000172					.WORD	L10022-.
4696								
4697	025034	004537	007202	JSR	R5,SERIAL	;CLOCK/CHECK PREVIOUS TX CHAR (1 CHAR BUFFER)		
4698	025040	000007		7				
4699	025042	000000		34:	000	;** HOLE FOR EXPECTED BIT SEQUENCE		
4700	025044	103003		BCC	.+8.	;BR IF NO ERROR		
4701	025046			ERROR		;REPORT STACKED ERROR		
4702	025046	104460					TRAP	C#ERROR
4703	025050			ESCAPE	SUB	;SKIP REMAINDER OF THIS SUBTEST		
4704	025050	104410					TRAP	C#ESCAPE
4705	025052	000152					.WORD	L10022-.
4706								
4707	025054	004537	011540	JSR	R5,STEPLU	;CLOCK PARITY BIT TO TSO		
4708	025060	000001		1				
4709								
4710	025062	004537	007042	JSR	R5,CHKTSO	;CHECK STATE OF PARITY BIT		
4711	025066	000000		0		; (SHOULD BE 0)		
4712	025070	103006		BCC	4#	;BR IF NO ERROR		
4713	025072			GEDF	EM51,ERR12	;REPORT "EVEN VRC PARITY NOT CLEARED"		
4714						; "DEVICE FATAL" ERROR # 41		
4715	025072	104455					TRAP	C#ERDF
4716	025074	000051					.WORD	41
4717	025076	015270					.WORD	EM51
4718	025100	021714					.WORD	ERR12
4719	025102			ESCAPE	SUB	;SKIP REMAINDER OF THIS SUBTEST		
4720	025102	104410					TRAP	C#ESCAPE
4721	025104	000120					.WORD	L10022-.
4722								
4723	025106	020327	003016	44:	CMP	R3,#PATQ*5		
4724	025112	001334			BNE	1#	;BR IF TSO=0 CHECKS ARE NOT COMPLETE	
4725								
4726	025114	112337	025132	114:	MOVW	(R3)+,12#	;SET UP NEXT TX CHAR	
4727	025120	112437	025152		MOVW	(R4)+,13#	;SET UP NEXT RX CHARACTER	
4728								
4729	025124	004537	003660		JSR	R5,WRITEI	;LOAD NEXT TX CHARACTER	
4730	025130	120402			TDSRL			
4731	025132	000000		124:	000	;** HOLE FOR TX CHARACTER		
4732	025134	103003		BCC	.+8.	;BR IF NO ERROR		
4733	025136			ERROR		;PRINT STACKED ERROR MESSAGE		
4734	025136	104460					TRAP	C#ERROR
4735	025140			ESCAPE	SUB	;AND EXIT SUBTEST		
4736	025140	104410					TRAP	C#ESCAPE
4737	025142	000062					.WORD	L10022-.
4738								
4739	025144	004537	007202	JSR	R5,SERIAL	;CLOCK/CHECK PREVIOUS TX CHAR (1 CHAR BUFFER)		
4740	025150	000007		7				
4741	025152	000000		134:	000	;** HOLE FOR EXPECTED BIT SEQUENCE		
4742	025154	103003		BCC	.+8.	;BR IF NO ERROR		
4743	025156			ERROR		;REPORT STACKED ERROR		
4744	025156	104460					TRAP	C#ERROR
4745	025160			ESCAPE	SUB	;SKIP REMAINDER OF THIS SUBTEST		
4746	025160	104410					TRAP	C#ESCAPE
4747	025162	000042					.WORD	L10022-.

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TEST 1 -- VRC PARITY GENERATION TEST

```

4748
4749 025164 004537 011540      JSR    R5,STEPLU      ;CLOCK PARITY BIT TO TSO
4750 025170 000001              1
4751
4752 025172 004537 007042      JSR    R5,CHKTSO      ;CHECK STATE OF PARITY BIT
4753 025176 000001              1      ; (SHOULD BE 1)
4754 025200 103006      BCC    14$            ;BR IF NO ERROR
4755 025202              GEDF   EMS0,ERR12     ;REPORT "EVEN VRC PARITY NOT SET"
4756                          ;          "DEVICE FATAL" ERROR # 42
4757 025202 104455              TRAP   C#ERDF
4758 025204 000052              .WORD 42
4759 025206 015234              .WORD EMS0
4760 025210 021714              .WORD ERR12
4761 025212              ESCAPE SUB           ;SKIP REMAINDER OF SUBTEST
4762 025212 104410              TRAP   C#ESCAPE
4763 025214 000010              .WORD L10022-.
4764
4765 025216 020327 003022      14$:  CMP    R3,#PATQ*9. ;
4766 025222 001334              BNE    11$            ;BR IF TSO=1 CHECKS ARE NOT COMPLETE
4767 025224              ENDSUB
4768
4769 025224 104403              L10022: TRAP   C#ESUB
4770 025226              ENDTST
4771 025226              L10020: TRAP
4772 025226 104401              TRAP   C#ETST

```

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TEST 2 -- VRC ERROR DETECTION TEST

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4801 025230  
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4805 025230  
4806 025230  
4807 025230 104402  
4808 025232 004737 005344  
4809 025236 004537 007324  
4810 025242 042226  
4811 025244 000347  
4812 025246 103003  
4813 025250  
4814 025250 104460  
4815 025252  
4816 025252 104410  
4817 025254 000256  
4818  
4819 025256 004537 007734  
4820 025262 000001  
4821 025264 000007  
4822 025266 004537 007734  
4823 025272 000001  
4824 025274 000010  
4825 025276 004537 007734  
4826 025302 000000  
4827 025304 000000  
4828 025306 004537 007622

.SBTTL TEST 2 -- VRC ERROR DETECTION TEST

```
*****
;*
;* TEST 2 -- VRC ERROR DETECTION TEST
;*
;* SUBTEST 1 - FORCING OF RERR USING ODD VRC
;* THE USYRT IS PLACED IN CHAR MODE WITH ODD VRC AND BOTH TX AND RX CHAR
;* LENGTH=7 BITS. THE RECEIVER AND TRANSMITTER ARE THEN SYNC'D. WHEN THE FIRST
;* DATA CHARACTER IS LOADED INTO TXDB, THE RX CHAR LENGTH IS CHANGED TO 6 BITS.
;* TWO 7 BIT CHARACTERS (+PARITY) ARE THEN TRANSMITTED, RESULTING IN A 16 BIT
;* STREAM WHICH THE RECEIVER WILL READ AS TWO 6 BIT CHARS (+PARITY + 2 LEFT).
;* THE FIRST "CHARACTER" READ WILL HAVE THE CORRECT PARITY; THE SECOND WILL
;* NOT.
;*
;* SUBTEST 2 - FORCING OF RERR USING EVEN VRC
;* THE USYRT IS PLACED IN CHAR MODE WITH EVEN VRC AND BOTH TX AND RX CHAR
;* LENGTH=7 BITS. THE RECEIVER AND TRANSMITTER ARE THEN SYNC'D. WHEN THE FIRST
;* DATA CHARACTER IS LOADED INTO TXDB, THE RX CHAR LENGTH IS CHANGED TO 6 BITS.
;* TWO 7 BIT CHARACTERS (+PARITY) ARE THEN TRANSMITTED, RESULTING IN A 16 BIT
;* STREAM WHICH THE RECEIVER WILL READ AS TWO 6 BIT CHARS (+PARITY + 2 LEFT).
;* THE FIRST "CHARACTER" READ WILL HAVE THE CORRECT PARITY; THE SECOND WILL
;* NOT.
;*
```

BGNTST

T2::

-----  
SUBTEST #1: FORCING ODD VRC ERROR  
-----

BGNSUB

T2.1:

TRAP C#BSUB

```
JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
DCCMP!OVRC!226 ;SET DCCMP,ODD VRC CHECK,SYNCH=226
TXDL!RXDL ;TX/RX CHAR LENGTH=7 BITS
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR
TRAP C#ERROR
ESCAPE SUB ;SKIP TO END OF TEST
TRAP C#ESCAPE
.WORD L10024-.

JSR R5, TXCTRL ;SET TSOM
TSOM
7.
JSR R5, TXCTRL ;SET TSOM AGAIN (KNOCK DOWN TBMT)
TSOM
8.
JSR R5, TXCTRL ;CLEAR TSOM
000
0
JSR R5, TXCHAR ;LOAD 043, TX 3RD SYNCH
```

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TEST 2 -- VRC ERROR DETECTION TEST

4829	025312	000043		043				
4830	025314	000010		8.				
4831	025316	103003		BCC	.+8.		;BR IF NO ERROR	
4832	025320			ERROR			;REPORT STACKED ERROR	
4833	025320	104460						TRAP C#ERROR
4834	025322			ESCAPE	SUB		;SKIP TO END OF TEST	
4835	025322	104410						TRAP C#ESCAPE
4836	025324	000206						.WORD L10024-
4837								
4838	025326	004537	003660	JSR	R5,WRITEI		;SET RX CHAR LENGTH=6 BITS	
4839	025332	120407		PCR				
4840	025334	000346		TXDL!6			;TXCL=7, RXCL=6	
4841	025336	103003		BCC	.+8.		;BR IF NO ERROR	
4842	025340			ERROR			;PRINT STACKED ERROR MESSAGE	
4843	025340	104460						TRAP C#ERROR
4844	025342			ESCAPE	SUB		;AND EXIT SUBTEST	
4845	025342	104410						TRAP C#ESCAPE
4846	025344	000166						.WORD L10024-
4847								
4848	025346	004537	007622	JSR	R5, TXCHAR		;LOAD 036	
4849	025352	000036		036				
4850	025354	000010		8.				
4851	025356	103003		BCC	.+8.		;BR IF NO ERROR	
4852	025360			ERROR			;REPORT STACKED ERROR	
4853	025360	104460						TRAP C#ERROR
4854	025362			ESCAPE	SUB		;SKIP TO END OF TEST	
4855	025362	104410						TRAP C#ESCAPE
4856	025364	000146						.WORD L10024-
4857								
4858	025366	004537	007622	JSR	R5, TXCHAR		;LOAD FILLER (000)	
4859	025372	000000		000				
4860	025374	000010		8.				
4861	025376	103003		BCC	.+8.		;BR IF NO ERROR	
4862	025400			ERROR			;REPORT STACKED ERROR	
4863	025400	104460						TRAP C#ERROR
4864	025402			ESCAPE	SUB		;SKIP TO END OF TEST	
4865	025402	104410						TRAP C#ESCAPE
4866	025404	000126						.WORD L10024-
4867								
4868	025406	004537	007622	JSR	R5, TXCHAR		;LOAD FILLER (000)	
4869	025412	000000		000				
4870	025414	000010		8.				
4871	025416	103003		BCC	.+8.		;BR IF NO ERROR	
4872	025420			ERROR			;REPORT STACKED ERROR	
4873	025420	104460						TRAP C#ERROR
4874	025422			ESCAPE	SUB		;SKIP TO END OF TEST	
4875	025422	104410						TRAP C#ESCAPE
4876	025424	000106						.WORD L10024-
4877								
4878	025426	004537	010034	JSR	R5, RXCHAR		;READ/CHK SYNCH CHARACTER	
4879	025432	000026		026				
4880	025434	000001		RERCHK			;CHECK RERR (NO VRC ERROR EXPECTED)	
4881	025436	100000		NOCRDA			;NO INITIAL CHECK OF RDA=0	
4882	025440	103003		BCC	.+8.		;BR IF NO ERROR	
4883	025442			ERROR			;REPORT STACKED ERROR	
4884	025442	104460						TRAP C#ERROR

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TEST 2 -- VRC ERROR DETECTION TEST

```

4885 025444          ESCAPE SUB          ;SKIP TO END OF TEST
4886 025444 104410          TRAP      C#ESCAPE
4887 025446 000064          .WORD      L10024-.
4888
4889 025450 004537 010034    JSR      R5,RXCHAR      ;READ/CHK 6 BIT CHARACTER
4890 025454 000043          043                    ;EXPECTED 1ST "CHARACTER" (043)
4891 025456 000001          RERCHK                  ;CHECK RERR (NO VRC ERROR EXPECTED)
4892 025460 100000          NOCRDA                  ;DON'T CHECK INITIAL RDA=0
4893 025462 103003          BCC      .+8.          ;BR IF NO ERROR
4894 025464          ERROR                  ;REPORT STACKED ERROR
4895 025464 104460          TRAP      C#ERROR
4896 025466          ESCAPE SUB          ;SKIP TO END OF TEST
4897 025466 104410          TRAP      C#ESCAPE
4898 025470 000042          .WORD      L10024-.
4899
4900 025472 004537 010034    JSR      R5,RXCHAR      ;READ/CHK 6 BIT CHARACTER
4901 025476 100074          RXERR!074              ;EXPECTED 2ND "CHARACTER" (074)
4902 025500 000001          RERCHK                  ;CHECK RERR (VRC ERROR IS EXPECTED)
4903 025502 100000          NOCRDA                  ;DON'T CHECK INITIAL RDA=0
4904 025504 103003          BCC      .+8.          ;BR IF NO ERROR
4905 025506          ERROR                  ;REPORT STACKED ERROR
4906 025506 104460          TRAP      C#ERROR
4907 025510          ESCAPE SUB          ;SKIP TO END OF TEST
4908 025510 104410          TRAP      C#ESCAPE
4909 025512 000020          .WORD      L10024-.
4910
4911 025514 004537 011456    JSR      R5,ENDTRN      ;SHUT DOWN TRANSMITTER, RECEIVER
4912 025520 000011          9.
4913 025522 103003          BCC      .+8.          ;BR IF NO ERROR
4914 025524          ERROR                  ;REPORT STACKED ERROR
4915 025524 104460          TRAP      C#ERROR
4916 025526          ESCAPE SUB          ;SKIP TO NEXT SUBTEST
4917 025526 104410          TRAP      C#ESCAPE
4918 025530 000002          .WORD      L10024-.
4919 025532          ENDSUB
4920 025532          L10024:
4921 025532 104403          TRAP      C#ESUB
4922
4923          ;-----
4924          ; SUBTEST #2: FORCING EVEN VRC ERROR
4925          ;-----
4925 025534          BGNSUB
4926 025534          T2.2:
4927 025534 104402          TRAP      C#BSUB
4928 025536 004737 005344    JSR      PC,INIDMV      ;INIT DMV-11, ENTER M-LOOP
4929 025542 004537 007324    JSR      R5,INITRN      ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
4930 025546 042626          DDCMP!EVRC!226        ;SET DDCMP,EVEN VRC CHECK,SYNCH=226
4931 025550 000347          TXDL!RXDL            ;TX/RX CHAR LENGTH=7 BITS
4932 025552 103003          BCC      .+8.          ;BR IF NO ERROR
4933 025554          ERROR                  ;REPORT STACKED ERROR
4934 025554 104460          TRAP      C#ERROR
4935 025556          ESCAPE SUB          ;SKIP TO END OF TEST
4936 025556 104410          TRAP      C#ESCAPE
4937 025560 000256          .WORD      L10025-.
4938
4939 025562 004537 007734    JSR      R5,TXCTRL      ;SET TSOM
4940 025566 000001          TSOM

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TEST 2 - VRC ERROR DETECTION TEST

4941	025570	000007		7.					
4942	025572	004537	007734	JSR	RS, TXCTRL				
4943	025576	000001		TSOM					
4944	025600	000010		8.					
4945	025602	004537	007734	JSR	RS, TXCTRL				
4946	025606	000000		000					
4947	025610	000000		0					
4948	025612	004537	007622	JSR	RS, TXCHAR				
4949	025616	000143		143					
4950	025620	000010		8.					
4951	025622	103003		BCC	.+8.				
4952	025624			ERROR					
4953	025624	104460						TRAP	C#ERROR
4954	025626			ESCAPE	SUB				
4955	025626	104410						TRAP	C#ESCAPE
4956	025630	000206						.WORD	L10025-.
4957									
4958	025632	004537	003660	JSR	RS, WRITEI				
4959	025636	120407		PCR					
4960	025640	000346		TXDL!6					
4961	025642	103003		BCC	.+8.				
4962	025644			ERROR					
4963	025644	104460						TRAP	C#ERROR
4964	025646			ESCAPE	SUB				
4965	025646	104410						TRAP	C#ESCAPE
4966	025650	000166						.WORD	L10025-.
4967									
4968	025652	004537	007622	JSR	RS, TXCHAR				
4969	025656	000026		026					
4970	025660	000010		8.					
4971	025662	103003		BCC	.+8.				
4972	025664			ERROR					
4973	025664	104460						TRAP	C#ERROR
4974	025666			ESCAPE	SUB				
4975	025666	104410						TRAP	C#ESCAPE
4976	025670	000146						.WORD	L10025-.
4977									
4978	025672	004537	007622	JSR	RS, TXCHAR				
4979	025676	000000		000					
4980	025700	000010		8.					
4981	025702	103003		BCC	.+8.				
4982	025704			ERROR					
4983	025704	104460						TRAP	C#ERROR
4984	025706			ESCAPE	SUB				
4985	025706	104410						TRAP	C#ESCAPE
4986	025710	000126						.WORD	L10025-.
4987									
4988	025712	004537	007622	JSR	RS, TXCHAR				
4989	025716	000000		000					
4990	025720	000010		8.					
4991	025722	103003		BCC	.+8.				
4992	025724			ERROR					
4993	025724	104460						TRAP	C#ERROR
4994	025726			ESCAPE	SUB				
4995	025726	104410						TRAP	C#ESCAPE
4996	025730	000106						.WORD	L10025-.

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4997								
4998	025732	004537	010034	JSR	R5,RXCHAR		;READ/CHK SYNCH CHARACTER	
4999	025736	000026		026			;	
5000	025740	000001		RERCHK			;CHECK RERR (NO VRC ERROR EXPECTED)	
5001	025742	100000		NOCRDA			;NO INITIAL CHECK OF RDA=0	
5002	025744	103003		BCC	.+8.		;BR IF NO ERROR	
5003	025746			ERROR			;REPORT STACKED ERROR	
5004	025746	104460						TRAP C!ERROR
5005	025750			ESCAPE	SUB		;SKIP TO END OF TEST	
5006	025750	104410						TRAP C!ESCAPE
5007	025752	000064						.WORD L10025-
5008								
5009	025754	004537	010034	JSR	R5,RXCHAR		;READ/CHK 6 BIT CHARACTER	
5010	025760	000043		043			;EXPECTED 1ST "CHARACTER" (043)	
5011	025762	000001		RERCHK			;CHECK RERR (NO VRC ERROR EXPECTED)	
5012	025764	100000		NOCRDA			;DON'T CHECK INITIAL RDA=0	
5013	025766	103003		BCC	.+8.		;BR IF NO ERROR	
5014	025770			ERROR			;REPORT STACKED ERROR	
5015	025770	104460						TRAP C!ERROR
5016	025772			ESCAPE	SUB		;SKIP TO END OF TEST	
5017	025772	104410						TRAP C!ESCAPE
5018	025774	000042						.WORD L10025-
5019								
5020	025776	004537	010034	JSR	R5,RXCHAR		;READ/CHK 6 BIT CHARACTER	
5021	026002	100054		RXERR!054			;EXPECTED 2ND "CHARACTER" (054)	
5022	026004	000001		RERCHK			;CHECK RERR (VRC ERROR IS EXPECTED)	
5023	026006	100000		NOCRDA			;DON'T CHECK INITIAL RDA=0	
5024	026010	103003		BCC	.+8.		;BR IF NO ERROR	
5025	026012			ERROR			;REPORT STACKED ERROR	
5026	026012	104460						TRAP C!ERROR
5027	026014			ESCAPE	SUB		;SKIP TO END OF TEST	
5028	026014	104410						TRAP C!ESCAPE
5029	026016	000020						.WORD L10025-
5030								
5031	026020	004537	011456	JSR	R5,ENDTRN		;SHUT DOWN TRANSMITTER, RECEIVER	
5032	026024	000011		9.				
5033	026026	103003		BCC	.+8.		;BR IF NO ERROR	
5034	026030			ERROR			;REPORT STACKED ERROR	
5035	026030	104460						TRAP C!ERROR
5036	026032			ESCAPE	SUB		;SKIP TO NEXT SUBTEST	
5037	026032	104410						TRAP C!ESCAPE
5038	026034	000002						.WORD L10025-
5039	026036			ENDSUB				
5040	026036							L10025:
5041	026036	104403						TRAP C!ESUB
5042	026040							
5043	026040							L10023:
5044	026040	104401						TRAP C!ETST

ENDTST



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TEST 3 -- BCP CRC GENERATION/DETECTION TEST

.SBTTL TEST 3 -- BCP CRC GENERATION/DETECTION TEST

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5062 026042  
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5066 026042  
5067 026042  
5068 026042 104402  
5069 026044 004737 005344  
5070 026050 004537 007324  
5071 026054 065626  
5072 026056 000000  
5073 026060 103003  
5074 026062  
5075 026062 104460  
5076 026064  
5077 026064 104410  
5078 026066 000544  
5079  
5080  
5081 026070 004537 007734  
5082 026074 000001  
5083 026076 000007  
5084 026100 004537 007734  
5085 026104 000000  
5086 026106 000000  
5087  
5088  
5089 026110 012703 026634  
5090 026114 112337 026124  
5091  
5092 026120 004537 007622  
5093 026124 000000  
5094 026126 000010  
5095 026130 103003  
5096 026132  
5097 026132 104460  
5098 026134  
5099 026134 104410  
5100 026136 000474

.....

TEST 3 -- BCP CRC GENERATION/DETECTION TEST

THIS TEST IS COMPOSED OF 2 SUBTESTS -- #1 EXPECTS GOOD CRC  
GENERATION AND REPORT ERRORS -- #2 FORCES AN ERROR AND ONLY  
REPORT WHEN THE CRC IS ACCEPTED AS GOOD. EACH IS  
RUN AT THE CHARACTER LENGTHS OF 8 BITS FOR THE ENTIRITY  
OF EACH MESSAGE. BOTH THE TRANSMITTER AND RECEIVER WILL BE SET TO  
THE SAME CHARACTER LENGTH. ERROR LOOPING WILL BE ON THE FAILING  
SUBTEST. TEXT STRINGS WILL BE LIMITED TO 5 CHARACTERS.

-----

BGNTST

T3::

-----  
SUBTEST #1 : GOOD CRC-16 GENERATION  
-----

BGNSUB

T3.1:

TRAP C#BSUB

JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP  
JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE  
DDCMP!STRIPS!IDLES!CRC16!SYNCH ;SET DDCMP, STRIP, IDLE, CRC-16, SYNCH=226  
0 ;USE 8 BIT CHARS  
BCC .+8. ;BR IF NO ERROR  
ERROR ;REPORT STACKED ERROR  
ESCAPE TST ;SKIP TO END OF TEST  
TRAP C#ERROR  
TRAP C#ESCAPE  
.WORD L10026-

JSR R5, TXCTRL ;SET TSOM, TX 1ST SYNCH  
TSOM  
7.  
JSR R5, TXCTRL ;CLEAR TSOM  
000  
0

-----  
NOW TRANSMIT THE FIVE 8-BIT DATA CHARACTERS TO THE RECEIVER/FIFO  
-----

MOV #TO1TBL, R3 ;SET UP DATA TABLE POINTER  
104: MOVB (R3)+, 10 ;INSTALL NEXT TX CHARACTER  
JSR R5, TXCHAR ;TRANSMIT CHARACTER ( \*\*> RX/FIFO )  
16: 000 ;\*\* HOLE FOR NEXT CHARACTER \*\*  
8.  
BCC .+8. ;BR IF NO ERROR  
ERROR ;REPORT STACKED ERROR  
TRAP C#ERROR  
ESCAPE TST ;SKIP TO END OF TEST  
TRAP C#ESCAPE  
.WORD L10026-



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TEST 3 -- BCP CRC GENERATION/DETECTION TEST

```

5157
5158 026304 004537 010034      JSR      R5,RXCHAR      ;READ & CHK 000, CHECK CRC :
5159 026310 100000              RXERR!000              ; RERR=1 (IF CRC-16 WAS OK).
5160 026312 000001              RERCHK
5161 026314 100000              NOCRDA                ;NO INITIAL CHECK OF RDA=0
5162 026316 103003              BCC      .+8.          ;BR IF NO ERROR
5163 026320 104460              ERROR                ;REPORT STACKED ERROR
5164 026320 104460              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ERROR
5165 026322 104410              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ESCAPE
5166 026322 104410              ESCAPE  TST          ;SKIP TO END OF TEST          .WORD    L10026-.
5167 026324 000306
5168
5169 026326 004537 011456      JSR      R5,ENDTRN     ;SHUT DOWN TRANSMITTER, RECEIVER
5170 026332 000011              9.
5171 026334 103003              BCC      .+8.          ;BR IF NO ERROR
5172 026336 104460              ERROR                ;REPORT STACKED ERROR
5173 026336 104460              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ERROR
5174 026340 104410              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ESCAPE
5175 026340 104410              ESCAPE  TST          ;SKIP TO END OF TEST          .WORD    L10026-.
5176 026342 000270
5177 026344
5178 026344
5179 026344 104403      ENDSUB
5180
5181
5182
5183
5184
5185 026346 104402 005344      BGNSUB
5186 026350 004737 007324      JSR      PC,INIDMV     ;INIT DMV-11, ENTER M-LOOP
5187 026354 004537 007324      JSR      R5,INITRN     ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
5188 026360 065626      DDCMP!STRIPS!IDLES!CRC16!SYNCH ;SET DDCMP, STRIP,IDLE,CRC-16, SYNCH=226
5189 026362 000000              0                    ;USE 8 BIT CHARS
5190 026364 103003              BCC      .+8.          ;BR IF NO ERROR
5191 026366 104460              ERROR                ;REPORT STACKED ERROR
5192 026366 104460              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ERROR
5193 026370 104410              ESCAPE  TST          ;SKIP TO END OF TEST          TRAP      C$ESCAPE
5194 026370 104410              ESCAPE  TST          ;SKIP TO END OF TEST          .WORD    L10026-.
5195 026372 000240
5196
5197 026374 004537 007734      JSR      R5,TXCTRL     ;SET TSOM, TX 1ST SYNCH
5198 026400 000001              TSOM
5199 026402 000007              7.
5200 026404 004537 007734      JSR      R5,TXCTRL     ;CLEAR TSOM
5201 026410 000000              000
5202 026412 000000              0
5203
5204
5205
5206
5207 026414 012703 026634      ;*****
5208 026420 112337 026430      ; NOW TRANSMIT THE FIVE 8-BIT DATA CHARACTERS PLUS THE ADDITIONAL
5209
5210
5211
5212
104:  MOV      @T01TBL,R3      ;SET UP DATA TABLE POINTER
      MOVB    (R3)+,18        ;INSTALL NEXT TX CHARACTER
11:   JSR      R5,TXCHAR     ;TRANSMIT CHARACTER ( ==> RX/FIFO )
      000                    ;** HOLE FOR NEXT CHARACTER **
      8.

```

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TEST 3 -- BCP CRC GENERATION/DETECTION TEST

5213	026434	103003		BCC	..8.		;BR IF NO ERROR		
5214	026436			ERROR			;REPORT STACKED ERROR		
5215	026436	104460						TRAP	C#ERROR
5216	026440			ESCAPE	TST		;SKIP TO END OF TEST		
5217	026440	104410						TRAP	C#ESCAPE
5218	026442	000170						.WORD	L10026--
5219									
5220	026444	022703	026643	CMP	@T01TBL+7,R3		;ALL CHARACTERS TRANSMITTED ?		
5221	026450	001363		BNE	10#		; IF NOT, TX ANOTHER ONE		
5222									
5223	026452	004537	011540	JSR	R5,STEPLU				
5224	026456	000010							
5225									
5226	026460	004537	010034	JSR	R5,RXCHAR		;READ & CHK 000, RCV 125		
5227	026464	000000							
5228	026466	000000							
5229	026470	100000					;NO INITIAL CHECK OF RDA=0		
5230	026472	103003		NOCRDA					
5231	026474			BCC	..8.		;BR IF NO ERROR		
5232	026474	104460		ERROR			;REPORT STACKED ERROR		
5233	026476			ESCAPE	TST		;SKIP TO END OF TEST	TRAP	C#ERROR
5234	026476	104410						TRAP	C#ESCAPE
5235	026500	000132						.WORD	L10026--
5236									
5237	026502	004537	010034	JSR	R5,RXCHAR		;READ & CHK 125, RCV 252		
5238	026506	000125							
5239	026510	000000							
5240	026512	100000					;NO INITIAL CHECK OF RDA=0		
5241	026514	103003		NOCRDA					
5242	026516			BCC	..8.		;BR IF NO ERROR		
5243	026516	104460		ERROR			;REPORT STACKED ERROR		
5244	026520			ESCAPE	TST		;SKIP TO END OF TEST	TRAP	C#ERROR
5245	026520	104410						TRAP	C#ESCAPE
5246	026522	000110						.WORD	L10026--
5247									
5248	026524	004537	010034	JSR	R5,RXCHAR		;READ & CHK 252, RCV 377		
5249	026530	000252							
5250	026532	000000							
5251	026534	100010					;NO INITIAL CHECK OF RDA=0		
5252	026536	103003		NOCRDA!8.					
5253	026540			BCC	..8.		;BR IF NO ERROR		
5254	026540	104460		ERROR			;REPORT STACKED ERROR		
5255	026542			ESCAPE	TST		;SKIP TO END OF TEST	TRAP	C#ERROR
5256	026542	104410						TRAP	C#ESCAPE
5257	026544	000066						.WORD	L10026--
5258									
5259	026546	004537	010034	JSR	R5,RXCHAR		;READ & CHK 377, RCV 000		
5260	026552	000377							
5261	026554	000000							
5262	026556	103010					;NO INITIAL CHECK OF RDA=0		
5263	026560	103003		NOCRDA!8.					
5264	026562			BCC	..8.		;BR IF NO ERROR		
5265	026562	104460		ERROR			;REPORT STACKED ERROR		
5266	026564			ESCAPE	TST		;SKIP TO END OF TEST	TRAP	C#ERROR
5267	026564	104410						TRAP	C#ESCAPE
5268	026566	000044						.WORD	L10026--

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 TEST 3 -- BCP CRC GENERATION/DETECTION TEST

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5269
5270 026570 004537 010034      JSR    R5,RXCHAR      ;READ & CHK 000, CHECK CRC :
5271 026574 000000              000                    ; RERR=0 IF BAD CRC-16 (EXPECTED).
5272 026576 000001      RERCHK
5273 026600 100000      NOCRDA      ;NO INITIAL CHECK OF RDA=0
5274 026602 103003      BCC    .+8.          ;BR IF NO ERROR
5275 026604              ERROR          ;REPORT STACKED ERROR
5276 026604 104460              ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C#ERROR
5277 026606              ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
5278 026606 104410              ESCAPE TST          ;SKIP TO END OF TEST          .WORD  L10026-.
5279 026610 000022              ESCAPE TST          ;SKIP TO END OF TEST          .WORD  L10026-.
5280
5281 026612 004537 011456      JSR    R5,ENDTRN     ;SHUT DOWN TRANSMITTER, RECEIVER
5282 026616 000011              9.
5283 026620 103003      BCC    .+8.          ;BR IF NO ERROR
5284 026622              ERROR          ;REPORT STACKED ERROR
5285 026622 104460              ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C#ERROR
5286 026624              ESCAPE TST          ;SKIP TO END OF TEST          TRAP    C#ESCAPE
5287 026624 104410              ESCAPE TST          ;SKIP TO END OF TEST          .WORD  L10026-.
5288 026626 000004              ESCAPE TST          ;SKIP TO END OF TEST          .WORD  L10026-.
5289 026630              ENDSUB
5290 026630              ENDSUB          L10030:
5291 026630 104403              ENDSUB          TRAP    C#ESUB
5292 026632              ENDTST
5293 026632              ENDTST          L10026:
5294 026632 104401              ENDTST          TRAP    C#ETST
5295
5296 026634 000          ;-----
5297 026635 125          ;TO1TBL: .BYTE 000      ;01
5298 026636 252          ;.BYTE 125      ;02
5299 026637 377          ;.BYTE 252      ;03
5300 026640 000          ;.BYTE 377      ;04
5301 026641 377          ;.BYTE 000      ;05
5302 026642 377          ;.BYTE 377      ;BAD CRC1
5303 026644          ;.BYTE 377      ;BAD CRC2
5304          ;EVEN
;-----
    
```

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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

.SBTTL TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

THE USYRT IS INITIALIZED FOR BOP MODE WITH TTL LOOPBACK SELECTED.  
"SECONDARY STATION ADDRESS" IS NOT USED AND NO CRC/VRC IS CALCULATED.  
A PATTERN IS TRANSMITTED AND TERMINATED FOLLOWED BY A SECOND MESSAGE.  
TERMINATION OF THE FIRST MESSAGE IS ACCOMPLISHED WITH A FLAG  
CHARACTER BUT RXE IS NOT DROPPED SO THAT THE SECOND MESSAGE CAN BE  
SENT WITHOUT RE-SYNCRONIZATION. SEVERAL FLAG'S ARE IDLED BETWEEN THE  
TWO MESSAGES. DURING THE SECOND MESSAGE A RECEIVER OVERRUN CONDITION  
IS FORCED. THROUGHOUT THIS TEST, BASIC RECEIVER OPERATION AND TIMING  
IS CHECKED. TRANSMITTED INFORMATION IS VERIFIED BY CHECKING THE DATA  
MADE AVAILABLE AT RXDB.

TRANSMITTED PATTERN: FLAG FLAG 123 321 000 377 101 FLAG. . FLAG  
321 123 377 000 276.

RECEIVED PATTERN: 123 321 000 377 101 ..... 321 123.

.....

BGNTST

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T4::
JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
JSR RS,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
NOCHK!SYNCH ;SET BOP MODE,SYNCH REG=226
0 ;USE 8 BIT CHARS
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR TRAP C#ERROR
ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
;WORD L10031-.

JSR RS, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
TSOM
7.
JSR RS, TXCTRL ;CLEAR TSOM
000
0

JSR RS, TXCHAR ;LOAD 123(DATA1), TX 2ND FLAG
123
8.
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR TRAP C#ERROR
ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
;WORD L10031-.

JSR RS, TXCHAR ;LOAD 321(DATA2), TX 123(DATA1)

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5330 026644  
5331 026644 004737 005344  
5332  
5333 026650 004537 007324  
5334 026654 003626  
5335 026656 000000  
5336 026660 103003  
5337 026662  
5338 026662 104460  
5339 026664  
5340 026664 104410  
5341 026666 000602  
5342  
5343 026670 004537 007734  
5344 026674 000001  
5345 026676 000007  
5346 026700 004537 007734  
5347 026704 000000  
5348 026706 000000  
5349  
5350 026710 004537 007622  
5351 026714 000123  
5352 026716 000010  
5353 026720 103003  
5354 026722  
5355 026722 104460  
5356 026724  
5357 026724 104410  
5358 026726 000542  
5359  
5360 026730 004537 007622

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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

5361	026734	000321		321				
5362	026736	000010		8.				
5363	026740	103003		BCC	.+8.		;BR IF NO ERROR	
5364	026742			ERROR			;REPORT STACKED ERROR	
5365	026742	104460		ESCAPE	TST			TRAP C#ERROR
5366	026744						;SKIP TO END OF TEST	
5367	026744	104410						TRAP C#ESCAPE
5368	026746	000522						.WORD L10031-.
5369								
5370	026750	004537	007622	JSR	R5, TXCHAR		;LOAD 000(DATA3), TX 321(DATA2)	
5371	026754	000000		000				
5372	026756	000010		8.				
5373	026760	103003		BCC	.+8.		;BR IF NO ERROR	
5374	026762			ERROR			;REPORT STACKED ERROR	
5375	026762	104460		ESCAPE	TST			TRAP C#ERROR
5376	026764						;SKIP TO END OF TEST	
5377	026764	104410						TRAP C#ESCAPE
5378	026766	000502						.WORD L10031-.
5379								
5380	026770	004537	007622	JSR	R5, TXCHAR		;LOAD 377(DATA4)	
5381	026774	000377		377				
5382	026776	000000		0				
5383	027000	103003		BCC	.+8.		;BR IF NO ERROR	
5384	027002			ERROR			;REPORT STACKED ERROR	
5385	027002	104460		ESCAPE	TST			TRAP C#ERROR
5386	027004						;SKIP TO END OF TEST	
5387	027004	104410						TRAP C#ESCAPE
5388	027006	000462						.WORD L10031-.
5389								
5390	027010	004537	011310	JSR	R5, RCV1ST		;CLOCK AND RCV 123(DATA1)	
5391	027014	000000		0				
5392	027016	103003		BCC	.+8.		;BR IF NO ERROR	
5393	027020			ERROR			;REPORT STACKED ERROR	
5394	027020	104460		ESCAPE	TST			TRAP C#ERROR
5395	027022						;SKIP TO END OF TEST	
5396	027022	104410						TRAP C#ESCAPE
5397	027024	000444						.WORD L10031-.
5398								
5399	027026	004537	010034	JSR	R5, RXCHAR		;READ & CHK 123(DATA1), RCV 321(DATA2)	
5400	027032	000523		RXSOM:123			; & CHECK RSOM=1	
5401	027034	000000		0				
5402	027036	000010		8.				
5403	027040	103003		BCC	.+8.		;BR IF NO ERROR	
5404	027042			ERROR			;REPORT STACKED ERROR	
5405	027042	104460		ESCAPE	TST			TRAP C#ERROR
5406	027044						;SKIP TO END OF TEST	
5407	027044	104410						TRAP C#ESCAPE
5408	027046	000422						.WORD L10031-.
5409								
5410	027050	004537	007622	JSR	R5, TXCHAR		;LOAD 101(DATA5)	
5411	027054	000101		101				
5412	027056	000000		0				
5413	027060	103003		BCC	.+8.		;BR IF NO ERROR	
5414	027062			ERROR			;REPORT STACKED ERROR	
5415	027062	104460		ESCAPE	TST			TRAP C#ERROR
5416	027064						;SKIP TO END OF TEST	

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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

5417	027064	104410					TRAP	C#ESCAPE
5418	027066	000402					.WORD	L10031-.
5419								
5420	027070	004537	010034	JSR	R5,RXCHAR	;READ/CHECK 321(DATA2),RCV 000(DATA3)		
5421	027074	000321		321				
5422	027076	000000		0				
5423	027100	000010		8.				
5424	027102	103003		BCC	.+8.	;BR IF NO ERROR		
5425	027104			ERROR		;REPORT STACKED ERROR		
5426	027104	104460					TRAP	C#ERROR
5427	027106			ESCAPE	TST	;SKIP TO END OF TEST		
5428	027106	104410					TRAP	C#ESCAPE
5429	027110	000360					.WORD	L10031-.
5430								
5431	027112	004537	007734	JSR	R5, TXCTRL	;LOAD TEOM		
5432	027116	000002		TEOM				
5433	027120	000000		0				
5434								
5435	027122	004537	010034	JSR	R5,RXCHAR	;READ/CHECK 000(DATA3),RCV 377(DATA4)		
5436	027126	000000		000				
5437	027130	000000		0				
5438	027132	000010		8.				
5439	027134	103003		BCC	.+8.	;BR IF NO ERROR		
5440	027136			ERROR		;REPORT STACKED ERROR		
5441	027136	104460					TRAP	C#ERROR
5442	027140			ESCAPE	TST	;SKIP TO END OF TEST		
5443	027140	104410					TRAP	C#ESCAPE
5444	027142	000326					.WORD	L10031-.
5445								
5446	027144	004537	007734	JSR	R5, TXCTRL	;LOAD TEOM		
5447	027150	000002		TEOM				
5448	027152	000000		0				
5449								
5450	027154	004537	010034	JSR	R5,RXCHAR	;HEAD/CHECK 377(DATA4),RCV 101(DATA5)		
5451	027160	000377		377		; AND TX (FLAG1)		
5452	027162	000000		0				
5453	027164	020010		NCRACT!8.		;DON'T CHECK RECEIVER ACTIVE		
5454	027166	103003		BCC	.+8.	;BR IF NO ERROR		
5455	027170			ERROR		;REPORT STACKED ERROR		
5456	027170	104460					TRAP	C#ERROR
5457	027172			ESCAPE	TST	;SKIP TO END OF TEST		
5458	027172	104410					TRAP	C#ESCAPE
5459	027174	000274					.WORD	L10031-.
5460								
5461	027176	004537	007734	JSR	R5, TXCTRL	;LOAD TEOM		
5462	027202	000002		TEOM				
5463	027204	000000		0				
5464								
5465	027206	004537	010034	JSR	R5,RXCHAR	;READ/CHECK 101(DATA5),RCV (FLAG1)		
5466	027212	001101		RXEOM!101		; TX (FLAG2) & CHECK REOM		
5467	027214	000000		0				
5468	027216	060010		NFCRDA!NCRACT!8.		;DON'T CHECK FOR FINAL RDA=RXACT=1		
5469	027220	103003		BCC	.+8.	;BR IF NO ERROR		
5470	027222			ERROR		;REPORT STACKED ERROR		
5471	027222	104460					TRAP	C#ERROR
5472	027224			ESCAPE	TST	;SKIP TO END OF TEST		



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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

5473	027224	104410				TRAP	C#ESCAPE
5474	027226	000242				.WORD	L10031-.
5475							
5476	027230	004537	007734	JSR	R5,TXCTRL		;CLEAR TEOM
5477	027234	000000		000			
5478	027236	000000		0			
5479							
5480	027240	004537	007622	JSR	R5,TXCHAR		;LOAD 321(DATA6),TX (FLAG3)
5481	027244	000321		321			
5482	027246	100010		NCTBMT*256.!8.			;DON'T CHECK TBMT
5483	027250	103003		BCC	.*8.		;BR IF NO ERROR
5484	027252			ERROR			;REPORT STACKED ERROR
5485	027252	104460				TRAP	C#ERROR
5486	027254			ESCAPE	TST		;SKIP TO END OF TEST
5487	027254	104410				TRAP	C#ESCAPE
5488	027256	000212				.WORD	L10031-.
5489							
5490	027260	004537	007622	JSR	R5,TXCHAR		;LOAD 123(DATA7),TX(DATA6)
5491	027264	000123		123			
5492	027266	100010		NCTBMT*256.!8.			;DON'T CHECK TBMT
5493	027270	103003		BCC	.*8.		;BR IF NO ERROR
5494	027272			ERROR			;REPORT STACKED ERROR
5495	027272	104460				TRAP	C#ERROR
5496	027274			ESCAPE	TST		;SKIP TO END OF TEST
5497	027274	104410				TRAP	C#ESCAPE
5498	027276	000172				.WORD	L10031-.
5499							
5500	027300	004537	007622	JSR	R5,TXCHAR		;LOAD 377(DATA8),TX(DATA7)
5501	027304	000377		377			
5502	027306	100010		NCTBMT*256.!8.			;DON'T CHECK FINAL TBMT
5503	027310	103003		BCC	.*8.		;BR IF NO ERROR
5504	027312			ERROR			;REPORT STACKED ERROR
5505	027312	104460				TRAP	C#ERROR
5506	027314			ESCAPE	TST		;SKIP TO END OF TEST
5507	027314	104410				TRAP	C#ESCAPE
5508	027316	000152				.WORD	L10031-.
5509							
5510	027320	004537	007622	JSR	R5,TXCHAR		;LOAD 000(DATA9)
5511	027324	000000		000			
5512	027326	000000		0			
5513	027330	103003		BCC	.*8.		;BR IF NO ERROR
5514	027332			ERROR			;REPORT STACKED ERROR
5515	027332	104460				TRAP	C#ERROR
5516	027334			ESCAPE	TST		;SKIP TO END OF TEST
5517	027334	104410				TRAP	C#ESCAPE
5518	027336	000132				.WORD	L10031-.
5519							
5520	027340	004537	010034	JSR	R5,RXCHAR		;READ/CHECK 321(DATA6),RCV 123(DATA7)
5521	027344	000721		RXSON!321			
5522	027346	000000		0			
5523	027350	000010		8.			
5524	027352	103003		BCC	.*8.		;BR IF NO ERROR
5525	027354			ERROR			;REPORT STACKED ERROR
5526	027354	104460				TRAP	C#ERROR
5527	027356			ESCAPE	TST		;SKIP TO END OF TEST
5528	027356	104410				TRAP	C#ESCAPE

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TEST 4 -- BOP RX BASIC RECEIVE/FLAG RECOGNITION TEST

5529	027360	000110				.WORD	L10031-.
5530							
5531	027362	004537	007622	JSR	R5, TXCHAR		;LOAD 276(DATA10)
5532	027366	000276			276		
5533	027370	000000			0		
5534	027372	103003		BCC	.+8.		;BR IF NO ERROR
5535	027374			ERROR			;REPORT STACKED ERROR
5536	027374	104460				TRAP	C#ERROR
5537	027376			ESCAPE	TST		;SKIP TO END OF TEST
5538	027376	104410				TRAP	C#ESCAPE
5539	027400	000070				.WORD	L10031-.
5540							
5541	027402	004537	010034	JSR	R5, RXCHAR		;READ/CHECK 123(DATA7),RCV 377(DATA8)
5542	027406	000123			123		
5543	027410	000000			0		
5544	027412	100014			NOCRDA!12.		;NO CHECK OF INITIAL RDA=0
5545	027414	103003		BCC	.+8.		;BR IF NO ERROR
5546	027416			ERROR			;REPORT STACKED ERROR
5547	027416	104460				TRAP	C#ERROR
5548	027420			ESCAPE	TST		;SKIP TO END OF TEST
5549	027420	104410				TRAP	C#ESCAPE
5550	027422	000046				.WORD	L10031-.
5551							
5552	027424	012704	000010				
5553	027430	004537	007622	5#:	MOV #8.,R4		;INIT CHARACTER COUNT
5554	027434	000000			JSR R5, TXCHAR		;LOAD/TX FILLER (OVERFLOW FIFO)
5555	027436	100010			000		
5556	027440	103003			NCTBMT*256.!8.		;DON'T CHECK FINAL TBMT
5557	027442			BCC	.+8.		;BR IF NO ERROR
5558	027442	104460		ERROR			;REPORT STACKED ERROR
5559	027444			ESCAPE	TST	TRAP	C#ERROR
5560	027444	104410				TRAP	C#ESCAPE
5561	027446	000022				.WORD	L10031-.
5562							
5563	027450	077411					
5564							
5565							
5566	027452	004537	006422	JSR	R5, CKROR		;CHECK RECEIVER OVERRUN BIT
5567	027456	000001			1		; (IT SHOULD BE SET)
5568	027460	103003		BCC	.+8.		;BR IF NO ERROR
5569	027462			ERROR			;REPORT STACKED ERROR
5570	027462	104460				TRAP	C#ERROR
5571	027464			ESCAPE	TST		;SKIP TO END OF TEST
5572	027464	104410				TRAP	C#ESCAPE
5573	027466	000002				.WORD	L10031-.
5574	027470			ENDTST			
5575	027470						
5576	027470	104401				L10031:	TRAP C#ETST

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TEST 5 -- BOP RX SECONDARY STATION ADDRESSING

.SBTTL TEST 5 -- BOP RX SECONDARY STATION ADDRESSING

```

;*****
;*
;* TEST 5 -- BOP RX SECONDARY STATION ADDRESSING
;*
;* THE USYRT IS INITIALIZED FOR BOP MODE WITH TTL LEVEL LOOPBACK,
;* SAM = 1, APA=0, AND ECM = 7. USING SHORT MESSAGES, THE ADDRESSES
;* 000, 125, 252, 176, AND 177 ARE CHECKED TO SEE THAT THE RECEIVER
;* RECOGNIZES THEM CORRECTLY. IN EACH CASE (AT EACH ADDRESS), A SERIES OF
;* 20 DIFFERENT MESSAGES ARE SENT TO VERIFY THAT THE USYRT WILL ONLY
;* RESPOND TO THE SPECIFIED VALUE.
;*
;* TEST PATTERN: ADR 000 OCR ADR
;* WHERE ADR IS THE ADDRESS BEING TESTED AND OCA IS THE ONE'S
;* COMPLEMENT OF THAT ADDRESS.
;*
;*****

```

```

;
; BGNSTST
;
; T5::
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
; CLR R4 ;CLEAR TEST ADDR INDEX (0,125,252,176,177)
;
; OLOOP: BGNSUB
;
; T5.1:
; CLR R2 ;CLEAR TX ADDRESS INDEX (0 => 20.)
; MOVB ADPAT(R4),NWSAR ;INSTALL NEW S/AR VALUE IN "INNER LOOP"
;*****
; INNER LOOP: TEST ONE "TEST ADDRESS" (0,125,252,176, OR 177)
;*****
; BGNSEG
;
; ILOOP: JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; NWSAR: SECADR:NOCHK!000 ;SET BOP MODE,SAM=1,###S/AR IS VARIABLE###
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
;
; ESCAPE SEG ;SKIP TO END OF TEST
;
; TRAP C#BSUB
; TRAP C#BSEG
; TRAP C#ERROR
; TRAP C#ESCAPE
; .WORD 10000$-

```

-----  
; SETUP TX/RX STRINGS (ADR 000 OCA ADR) -- ADR TAKEN FROM PATX1  
-----

```

; MOVB PATX1(R2),R3 ;ADR => R3
; MOVB R3,1$ ;ADDRESS(ADR) => 1$,3$,4$,6$
; MOVB R3,3$
; MOVB R3,4$
; MOVB R3,6$
; MOVB R3,2$ ;ADDRESS_NOT(OCA) => 2$,5$
; COMB 2$
; MOVB 2$,5$

```

```

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5591
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5593
5594
5595
5596
5597
5598 027472
5599 027472 004737 005344
5600 027476 005004
5601
5602 027500
5603 027500
5604 027500 104402
5605 027502 005002
5606 027504 116437 030176 027520
5607
5608
5609
5610 027512
5611 027512 104404
5612 027514 004537 007324
5613 027520 013400
5614 027522 000000
5615 027524 103003
5616 027526
5617 027526 104460
5618 027530
5619 027530 104410
5620 027532 000422
5621
5622
5623
5624 027534 116203 002651
5625 027540 110337 027622
5626 027544 110337 027702
5627 027550 110337 027762
5628 027554 110337 030100
5629 027560 110337 027662
5630 027564 105137 027662
5631 027570 113737 027662 030046
5632

```

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TEST 5 -- BOP RX SECONDARY STATION ADDRESSING

```

5633
5634
5635
5636 027576 004537 007734
5637 027602 000001
5638 027604 000007
5639 027606 004537 007734
5640 027612 000000
5641 027614 000000
5642 027616 004537 007622
5643 027622 000000
5644 027624 000010
5645 027626 103003
5646 027630
5647 027630 104460
5648 027632
5649 027632 104410
5650 027634 000320
5651 027636 004537 007622
5652 027642 000000
5653 027644 100011
5654 027646 103003
5655 027650
5656 027650 104460
5657 027652
5658 027652 104410
5659 027654 000300
5660 027656 004537 007622
5661 027662 000000
5662 027664 100010
5663 027666 103003
5664 027670
5665 027670 104460
5666 027672
5667 027672 104410
5668 027674 000260
5669 027676 004537 007622
5670 027702 000000
5671 027704 000000
5672 027706 103003
5673 027710
5674 027710 104460
5675 027712
5676 027712 104410
5677 027714 000240
5678 027716 004537 011540
5679 027722 000003
5680
5681 027724 004537 006122
5682 027730 000001
5683 027732 103471
5684
5685
5686
5687 027734 123703 027520
5688 027740 001406

```

```

-----
; NOW TRANSMIT TEST PATTERN
-----
      JSR      R5,TXCTRL      ;LOAD 2ND FLAG, TX 1ST FLAG
      TSOM
      7.
      JSR      R5,TXCTRL      ;CLEAR TSOM
      000
      0
      JSR      R5,TXCHAR      ;LOAD ADDRESS, TX 2ND FLAG
11:   000      ;** HOLE FOR SECONDARY STATION ADDRESS
      8.
      BCC     .+8.           ;BR IF NO ERROR
      ERROR           ;REPORT STACKED ERROR
                                TRAP      C#ERROR
      ESCAPE  SEG           ;SKIP TO END OF TEST
                                TRAP      C#ESCAPE
                                .WORD    10000+-.
      JSR      R5,TXCHAR      ;LOAD 000, TX ADDRESS
      000
      NCTBMT*256.!9.        ;DON'T CHECK TBMT
      BCC     .+8.           ;BR IF NO ERROR
      ERROR           ;REPORT STACKED ERROR
                                TRAP      C#ERROR
      ESCAPE  SEG           ;SKIP TO END OF TEST
                                TRAP      C#ESCAPE
                                .WORD    10000+-.
      JSR      R5,TXCHAR      ;LOAD ADDR NOT, TX 000
21:   000      ;** HOLE FOR COMPLEMENTED ADDRESS
      NCTBMT*256.!8.        ;DON'T CHECK TBMT
      BCC     .+8.           ;BR IF NO ERROR
      ERROR           ;REPORT STACKED ERROR
                                TRAP      C#ERROR
      ESCAPE  SEG           ;SKIP TO END OF TEST
                                TRAP      C#ESCAPE
                                .WORD    10000+-.
      JSR      R5,TXCHAR      ;LOAD ADDRESS AGAIN
31:   000      ;** HOLE FOR ADDRESS (AGAIN)
      0
      BCC     .+8.           ;BR IF NO ERROR
      ERROR           ;REPORT STACKED ERROR
                                TRAP      C#ERROR
      ESCAPE  SEG           ;SKIP TO END OF TEST
                                TRAP      C#ESCAPE
                                .WORD    10000+-.
      JSR      R5,STEPLU      ;CLOCK/RCV ADDRESS FIELD
      3
      JSR      R5,CKRDA      ;DID USYRT RESPOND TO ADDRESS ??
      1
      BCS     10+           ;BR IF RDA=0
-----
; USYRT RESPONDED TO MESSAGE (RDA=1): SHOULD IT HAVE?
-----
      CMPB   NWSAR,R3        ;IS ADDRESS = S/AR ?
      BEQ    40+           ;BR IF YES

```

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 TEST 5 -- BOP RX SECONDARY STATION ADDRESSING

```

5689
5690
5691
5692 027742
5693
5694 027742 104455
5695 027744 000053
5696 027746 016466
5697 027750 022204
5698 027752
5699 027752 104410
5700 027754 000200
5701
5702
5703
5704 027756 004537 010034
5705 027762 000400
5706 027764 000000
5707 027766 100010
5708 027770 103003
5709 027772
5710 027772 104460
5711 027774
5712 027774 104410
5713 027776 000156
5714 030000 004537 007734
5715 030004 000002
5716 030006 000000
5717 030010 004537 010034
5718 030014 000000
5719 030016 000000
5720 030020 100010
5721 030022 103003
5722 030024
5723 030024 104460
5724 030026
5725 030026 104410
5726 030030 000124
5727 030032 004537 007734
5728 030036 000002
5729 030040 000000
5730 030042 004537 010034
5731 030046 000000
5732 030050 000000
5733 030052 120010
5734 030054 103003
5735 030056
5736 030056 104460
5737 030060
5738 030060 104410
5739 030062 000072
5740 030064 004537 007734
5741 030070 000001
5742 030072 000000
5743 030074 004537 010034
5744 030100 001000
    
```

```

-----
; ...NO, REPORT ERROR : "USYRT RESPONDED TO WRONG ADDRESS"
-----
          GEDF      EM102,ERR21
;          "DEVICE FATAL" ERROR # 43
          TRAP      C$ERDF
          .WORD     43
          .WORD     EM102
          .WORD     ERR21
          ESCAPE   SEG
          TRAP      C$ESCAPE
          .WORD     100001-.
-----
; ...YES, READ AND VERIFY RECEIVED MESSAGE
-----
40:      JSR      RS,RXCHAR      ;READ & CHK ADDRESS, RCV 000
41:      RXSOM!000              ; & CHECK RSUM=1
          0
          NCRDA!8.              ;NO INITIAL CHECK OF RDA=0
          BCC     .+8.           ;BR IF NO ERROR
          ERROR                  ;REPORT STACKED ERROR
          TRAP      C$ERROR
          ESCAPE   SEG          ;SKIP TO END OF TEST
          TRAP      C$ESCAPE
          .WORD     100001-.
          JSR      RS, TXCTRL    ;SET TEOM
          TEOM
          0
          JSR      RS,RXCHAR    ;READ/CHECK 000
          000
          0
          NCRDA!8.              ;NO INITIAL CHECK OF RDA=0
          BCC     .+8.           ;BR IF NO ERROR
          ERROR                  ;REPORT STACKED ERROR
          TRAP      C$ERROR
          ESCAPE   SEG          ;SKIP TO END OF TEST
          TRAP      C$ESCAPE
          .WORD     100001-.
          JSR      RS, TXCTRL    ;SET TEOM
          TEOM
          0
          JSR      RS,RXCHAR    ;READ/CHECK COMPLEMENTED ADDRESS
          000                    ;** HOLE FOR ADDRESS_NOT
          0                      ;NO INITIAL CHECK OF RDA=0
          NCRDA!NCRCT!8.        ;DON'T CHECK FINAL RXACT=1
          BCC     .+8.           ;BR IF NO ERROR
          ERROR                  ;REPORT STACKED ERROR
          TRAP      C$ERROR
          ESCAPE   SEG          ;SKIP TO END OF TEST
          TRAP      C$ESCAPE
          .WORD     100001-.
          JSR      RS, TXCTRL    ;SET TSOM
          TSOM
          0
          JSR      RS,RXCHAR    ;READ/CHECK ADDRESS (AGAIN)
          61:      RXEOM!000      ;** HOLE FOR FINAL ADDRESS
    
```

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TEST 5 -- BOP RX SECONDARY STATION ADDRESSING

```

5745 030102 000000          0
5746 030104 060000          NRCRDA!NCRACT          ;DON'T CHECK FOR FINAL RDA=RXACT=1
5747 030106 103014          BCC      504          ;BR IF NO ERROR (TO CONTINUE TEST)
5748 030110          ERROR          ;REPORT STACKED ERROR
5749 030110 104460          ESCAPE SEG          ;SKIP TO END OF TEST          TRAP: C#ERROR
5750 030112          TRAP          C#ESCAPE
5751 030112 104410          .WORD          100004-.
5752 030114 000040
5753
5754          ;-----
5755          ; USYRT DIDN'T RESPOND TO MESSAGE (RDA=0): SHOULD IT HAVE ?
5756 030116 123703 027520 104:  CMPB      NMSAR,R3          ;WAS NON-RESPONDING ADDR=S/AR ?
5757 030122 001006          BNE      504          ;BR IF NO
5758
5759          ;-----
5760          ; ...NO. REPORT ERROR : "USYRT DIDN'T RESPOND TO SECONDARY STATION ADDR"
5761 030124          GEDF      EM103,ERR20          ;
5762          ; "DEVICE FATAL" ERROR # 44
5763 030124 104455          TRAP          C#ERDF
5764 030126 000054          .WORD          44
5765 030130 016530          .WORD          EM103
5766 030132 022146          .WORD          ERR20
5767 030134          ESCAPE SEG
5768 030134 104410          TRAP          C#ESCAPE
5769 030136 000016          .WORD          100004-.
5770
5771          ;-----
5772          ;...YES. UPDATE ADDRESS AND CONTINUE TESTING
5773 030140 005202          504:  INC      R2          ;INCREMENT TESTING ADDRESS INDEX
5774 030142 022702 000025          CMP      #21.,R2
5775 030146 001402          BEQ      .+6
5776 030150 000137 027514          JMP      ILOOP          ;IF INDEX .LE. 20 THEN CHECK IT
5777 030154          ENDSEG          ;OTHERWISE END INNER LOOP...
5778 030154          100004:
5779 030154 104405          TRAP          C#ESEG
5780
5781          ;-----
5782          ;*****
5783          ; INC      R4          ;INCREMENT ACTUAL TEST ADDRESS INDEX
5784          ; CMP      R4,#5          ;ALL 5 TEST ADDRESSES CHECKED?
5785          ; BEQ      .+6          ; BR IF DONE
5786          ; JMP      OLOOP          ; NOT DONE: DO NEXT ADDRESS
5787          ;
5788          ; L10033:
5789          ; TRAP          C#ESUB
5790          ;
5791          ; L10032:
5792          ; TRAP          C#ETST
5793
5794          ;-----
5795          ; ADPAT: .BYTE 000
5796          ; .BYTE 125
5797          ; .BYTE 252
5798          ; .BYTE 176
5799          ; .BYTE 177
5800          ; .EVEN

```

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TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST

.SBTTL TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST

5799  
5800  
5801  
5802  
5803  
5804  
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030204  
030204 004737 005344  
030210 005003  
  
030212  
030212  
030212 104402  
030214 004537 007324  
030220 113523  
030222 000000  
030224 103003  
030226 104460  
030230  
030230 104410  
030232 000444  
  
  
  
030234 110337 030316  
030240 110337 030376  
030244 110337 030464  
030250 110337 030602  
030254 110337 030356  
030260 105137 030356  
030264 113737 030356 030550  
  
  
  
030272 004537 007734  
030276 000001  
030300 000007  
030302 004537 007734  
030306 000000  
030310 000000  
030312 004537 007622  
030316 000000

```
*****  
;*  
;* TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST  
;*  
;* INITIALIZE THE USYRT FOR BOP MODE WITH TTL LEVEL LOOPBACK  
;* SAM = 1, S/AR = 123(OCT.), APA = 1, AND ECM = 7.  
;* A SERIES OF 256 DIFFERENT SHORT MESSAGES ARE SENT TO VERIFY THAT  
;* THE USYRT WILL ONLY RESPOND TO THE SPECIFIED VALUE AND ALSO 377 (FF  
;* HEX.).  
;*  
;* TEST PATTERN: ADR 000 OCA ADR  
;* WHERE ADR IS THE ADDRESS BEING TESTED AND OCA IS THE ONE'S  
;* COMPLEMENT OF THAT ADDRESS.  
;*  
;-----  
;*  
;* BGNTST  
;*  
;* JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T6::  
;* CLR R3 ;CLEAR ADDRESS  
;  
LOOP: BGNSUB  
;*  
;* T6.1: TRAP C#BSUB  
;* JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE  
;* APAD!SECADR!NOCHK!123 ;SET BOP MODE,APA=1,SAM=1,ECM=7,S/AR=123  
;* 0 ;USE 8 BIT CHARS  
;* BCC .+8. ;BR IF NO ERROR  
;* ERROR ;REPORT STACKED ERROR  
;* TRAP C#ERROR  
;* ESCAPE SUB ;SKIP TO END OF TEST  
;* TRAP C#ESCAPE  
;* .WORD L10035-  
;-----  
;* SETUP TX/RX STRINGS (ADR 000 OCA ADR)  
;-----  
;* MOVB R3,1# ;ADDRESS(ADR) => 1#,3#,4#,6#  
;* MOVB R3,3#  
;* MOVB R3,4#  
;* MOVB R3,6#  
;* MOVB R3,2# ;ADDRESS_NOT(OCA) => 2#,5#  
;* COMB 2#  
;* MOVB 2#,5#  
;-----  
;* NOW TRANSMIT TEST PATTERN  
;-----  
;* JSR R5,TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG  
;* TSOM  
;* 7.  
;* JSR R5,TXCTRL ;CLEAR TSOM  
;* 000  
;* 0  
;* JSR R5,TXCHAR ;LOAD ADDRESS, TX 2ND FLAG  
;* 000 ;** HOLE FOR SECONDARY STATION ADDRESS
```

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TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST

5855	030320	000010		8.					
5856	030322	103003		BCC	.*8.		;BR IF NO ERROR		
5857	030324			ERROR			;REPORT STACKED ERROR		
5858	030324	104460						TRAP	C#ERROR
5859	030326			ESCAPE	SUB		;SKIP TO END OF TEST		
5860	030326	104410						TRAP	C#ESCAPE
5861	030330	000346						.WORD	L10035-.
5862	030332	004537	007622	JSR	R5, TXCHAR		;LOAD 000, TX ADDRESS		
5863	030336	000000		000					
5864	030340	100011		NCTBMT*256.!9.					
5865	030342	103003		BCC	.*8.		;BR IF NO ERROR		
5866	030344			ERROR			;REPORT STACKED ERROR		
5867	030344	104460						TRAP	C#ERROR
5868	030346			ESCAPE	SUB		;SKIP TO END OF TEST		
5869	030346	104410						TRAP	C#ESCAPE
5870	030350	000326						.WORD	L10035-.
5871	030352	004537	007622	JSR	R5, TXCHAR		;LOAD ADDR NOT, TX JOO		
5872	030356	000000		000			;** HOLE FOR COMPLEMENTED ADDRESS		
5873	030360	100010	2#:	NCTBMT*256.!8.					
5874	030362	103003		BCC	.*8.		;BR IF NO ERROR		
5875	030364			ERROR			;REPORT STACKED ERROR		
5876	030364	104460						TRAP	C#ERROR
5877	030366			ESCAPE	SUB		;SKIP TO END OF TEST		
5878	030366	104410						TRAP	C#ESCAPE
5879	030370	000306						.WORD	L10035-.
5880	030372	004537	007622	JSR	R5, TXCHAR		;LOAD ADDRESS AGAIN		
5881	030376	000000		000			;** HOLE FOR ADDRESS (AGAIN)		
5882	030400	000000		0					
5883	030402	103003	3#:	BCC	.*8.		;BR IF NO ERROR		
5884	030404			ERROR			;REPORT STACKED ERROR		
5885	030404	104460						TRAP	C#ERROR
5886	030406			ESCAPE	SUB		;SKIP TO END OF TEST		
5887	030406	104410						TRAP	C#ESCAPE
5888	030410	000266						.WORD	L10035-.
5889	030412	004537	011540	JSR	R5, STEPLU		;CLOCK/RCV ADDRESS FIELD		
5890	030416	000002		2					
5891									
5892	030420	004537	006122	JSR	R5, CKRDA		;DID USYRT RESPOND TO ADDRESS ??		
5893	030424	000001		1					
5894	030426	103475		BCS	10#		;BR IF RDA=0		
5895									
5896									
5897									
5898	030430	022703	000123						
5899	030434	001411		CMP	#123,R3		;ADDRESS = 123 ?		
5900	030436	022703	000377	BEQ	40#		;BR IF YES		
5901	030442	001406		CMP	#377,R3		;ADDRESS = 377 ?		
5902				BEQ	40#				
5903									
5904									
5905	030444								
5906				GEDF	EM102,ERR21				
5907	030444	104455						TRAP	C#ERDF
5908	030446	000055						.WORD	45
5909	030450	016466						.WORD	EM102
5910	030452	022204						.WORD	ERR21



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TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST

```

5911 030454          ESCAPE SUB
5912 030454 104410
5913 030456 000220
5914
5915 ;-----
5916 ; ...YES, READ AND VERIFY RECEIVED MESSAGE
5917 030460 004537 010034 40: JSR   R5,RXCHAR      ;READ & CHK ADDRESS, RCV 000
5918 030464 000400          4:  RXSOM!000      ; & CHECK RSOM=1
5919 030466 000000          0
5920 030470 100010          NOCRDA!8.      ;NO INITIAL CHECK OF RDA=0
5921 030472 103003          BCC   .+8.      ;BR IF NO ERROR
5922 030474          ERROR      ;REPORT STACKED ERROR
5923 030474 104460          ESCAPE SUB      ;SKIP TO END OF TEST
5924 030476          TRAP      C$ERROR
5925 030476 104410          TRAP      C$ESCAPE
5926 030500 000176          .WORD     L10035-.
5927 030502 004537 007734 JSR   R5,TXCTRL   ;SET TEOM
5928 030506 000002          TEOM
5929 030510 000000          0
5930 030512 004537 010034 JSR   R5,RXCHAR   ;READ/CHECK 000
5931 030516 000000          000
5932 030520 000000          0
5933 030522 100010          NOCRDA!8.      ;NO INITIAL CHECK OF RDA=0
5934 030524 103003          BCC   .+8.      ;BR IF NO ERROR
5935 030526          ERROR      ;REPORT STACKED ERROR
5936 030526 104460          ESCAPE SUB      ;SKIP TO END OF TEST
5937 030530          TRAP      C$ERROR
5938 030530 104410          TRAP      C$ESCAPE
5939 030532 000144          .WORD     L10035-.
5940 030534 004537 007734 JSR   R5,TXCTRL   ;SET TEOM
5941 030540 000002          TEOM
5942 030542 000000          0
5943 030544 004537 010034 JSR   R5,RXCHAR   ;READ/CHECK COMPLEMENTED ADDRESS
5944 030550 000000          5:  000      ;** HOLE FOR ADDRESS_NOT
5945 030552 000000          0      ;NO INITIAL CHECK OF RDA=0
5946 030554 120010          NOCRDA!NCRACT!8. ;DON'T CHECK FINAL RXACT=1
5947 030556 103003          BCC   .+8.      ;BR IF NO ERROR
5948 030560          ERROR      ;REPORT STACKED ERROR
5949 030560 104460          ESCAPE SUB      ;SKIP TO END OF TEST
5950 030562          TRAP      C$ERROR
5951 030562 104410          TRAP      C$ESCAPE
5952 030564 000112          .WORD     L10035-.
5953 030566 004537 007734 JSR   R5,TXCTRL   ;SET TSOM
5954 030572 000001          TSOM
5955 030574 000000          0
5956 030576 004537 010034 JSR   R5,RXCHAR   ;READ/CHECK ADDRESS (AGAIN)
5957 030602 001000          6:  RXEOM!000    ;** HOLE FOR FINAL ADDRESS
5958 030604 000000          0
5959 030606 060000          NFCRDA!NCRACT   ;DON'T CHECK FOR FINAL RDA=RXACT=1
5960 030610 103003          BCC   .+8.      ;BR IF NO ERROR
5961 030612          ERROR      ;REPORT STACKED ERROR
5962 030612 104460          ESCAPE SUB      ;SKIP TO END OF TEST
5963 030614          TRAP      C$ERROR
5964 030614 104410          TRAP      C$ESCAPE
5965 030616 000060          .WORD     L10035-.
5966 030620 000422          BR     20:      ;BR TO CONTINUE TEST

```

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 TEST 6 -- BOP RX ALL PARTIES ADDRESS TEST

```

5967
5968
5969
5970 030622 022703 000123
5971 030626 001006
5972
5973
5974
5975 030630
5976
5977 030630 104455
5978 030632 000056
5979 030634 016530
5980 030636 022146
5981 030640
5982 030640 104410
5983 030642 000034
5984
5985 030644 022703 000377
5986 030650 001006
5987
5988
5989
5990 030652
5991
5992 030652 104455
5993 030654 000057
5994 030656 016607
5995 030660 022146
5996 030662
5997 030662 104410
5998 030664 000012
5999
6000
6001
6002 030666 105203
6003 030670 001402
6004 030672 000137 030212
6005 030676
6006 030676
6007 030676 104403
6008 030700
6009 030700
6010 030700 104401
    
```

```

;-----
; USYRT DIDN'T RESPOND TO MESSAGE (RDA=0): SHOULD IT HAVE ?
;-----
100:  CMP    #123,R3      ;WAS NON-RESPONDING ADDR=S/AR ?
      BNE    500         ;BR IF NO
;-----
; ...NO, REPORT ERROR : "USYRT DIDN'T RESPOND TO SECONDARY STATION ADDR"
;-----
      GEDF   EM103,ERR20
;
; "DEVICE FATAL" ERROR # 46
;
; TRAP    C#ERDF
; .WORD   46
; .WORD   EM103
; .WORD   ERR20
      ESCAPE SUB
;
; TRAP    C#ESCAPE
; .WORD   L10035-.
500:  CMP    #377,R3     ;WAS NON-RESPONDING ADDR=APA(377) ?
      BNE    200         ;BR IF NO
;-----
; ...NO, REPORT ERROR : "USYRT DIDN'T RESPOND TO ALL PARTIES ADDRESS(377)"
;-----
      GEDF   EM104,ERR20
;
; "DEVICE FATAL" ERROR # 47
;
; TRAP    C#ERDF
; .WORD   47
; .WORD   EM104
; .WORD   ERR20
      ESCAPE SUB
;
; TRAP    C#ESCAPE
; .WORD   L10035-.
;-----
; ...YES, UPDATE ADDRESS AND CONTINUE TESTING
;-----
200:  INCB   R3           ;INCREMENT TESTING ADDRESS
      BEQ   NOLP        ;IF ADDRESS .LE. 377 THEN CHECK IT
      JMP   LOOP
NOLP: ENDSUB           ;OTHERWISE END TEST....
;
; TRAP    C#ESUB
; .WORD   L10035:
;
; TRAP    C#ETST
; .WORD   L10034:
;
      ENDTST
    
```

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TEST 7 -- BOP RX BIT STUFFING TEST

.SBTTL TEST 7 -- BOP RX BIT STUFFING TEST

```

:*****
:*
:* TEST 7 -- BOP RX BIT STUFFING TEST
:*
:* THE USYRT IS INITIALIZED AND THE FOLLOWING TEXT IS TRANSMITTED
:* (DELIMITED BY THE APPROPRIATE CONTROL CHARACTERS -- OF COURSE):
:*
:* 000, 017, 036, 074, 170, 360, 037, 076, 174, 370, 077, 176, 374,
:* 177, 376, 377.
:*
:* NOTE THAT THIS PATTERN CONSISTS OF CHARACTERS WHICH REQUIRE BIT
:* STUFFING BOTH INDIVIDUALLY AND IN COMBINATION WITH ADJACENT
:* CHARACTERS. THERE ARE ALSO CHARACTERS WHICH REQUIRE NO BIT STUFFING
:* AT ALL. ALL 16 CHARACTERS ARE READ BY THE RECEIVER AND COMPARED AS
:* THEY ARE MADE AVAILABLE AT RXDB.
:*
:-----*****

```

```

:
: BGNTST
:
: JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T7::
:
: JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
: NOCHK!SYNCH ;SET BOP MODE, SYNCH REG=226
: 0 ;USE 8 BIT CHARS
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
: .WORD L10036-.
:
: JSR R5, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
: TSOM
: 7.
: JSR R5, TXCTRL ;CLEAR TSOM
: 000
: 0
:
: JSR R5, TXCHAR ;LOAD 000(DATA1), TX 2ND FLAG
: 000
: 8.
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR TRAP C#ERROR
:
: ESCAPE TST ;SKIP TO END OF TEST TRAP C#ESCAPE
: .WORD L10036-.
:
: JSR R5, TXCHAR ;LOAD 017(DATA2), TX 000(DATA1)
: 017
: 8.
: BCC .+8. ;BR IF NO ERROR
: ERROR ;REPORT STACKED ERROR

```

```

6011
6012
6013
6014
6015
6016
6017
6018
6019
6020
6021
6022
6023
6024
6025
6026
6027
6028
6029
6030
6031
6032 030702
6033 030702 004737 005344
6034
6035 030706 004537 007324
6036 030712 003626
6037 030714 000000
6038 030716 103003
6039 030720
6040 030720 104460
6041 030722
6042 030722 104410
6043 030724 001120
6044
6045 030726 004537 007734
6046 030732 000001
6047 030734 000007
6048 030736 004537 007734
6049 030742 000000
6050 030744 000000
6051
6052 030746 004537 007622
6053 030752 000000
6054 030754 000010
6055 030756 103003
6056 030760
6057 030760 104460
6058 030762
6059 030762 104410
6060 030764 001060
6061
6062 030766 004537 007622
6063 030772 000017
6064 030774 000010
6065 030776 103003
6066 031000

```

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TEST 7 -- BOP RX BIT STUFFING TEST

6067	031000	104460				TRAP	C#ERROR
6068	031002			ESCAPE	TST		
6069	031002	104410					
6070	031004	001040				TRAP	C#ESCAPE
6071						.WORD	L10036-.
6072	031006	004537	007622	JSR	R5, TXCHAR		
6073	031012	000036					
6074	031014	000010					
6075	031016	103003					
6076	031020						
6077	031020	104460					
6078	031022						
6079	031022	104410					
6080	031024	001020				TRAP	C#ERROR
6081						.WORD	L10036-.
6082	031026	004537	007622	JSR	R5, TXCHAR		
6083	031032	000074					
6084	031034	000000					
6085	031036	103003					
6086	031040						
6087	031040	104460					
6088	031042						
6089	031042	104410					
6090	031044	001000				TRAP	C#ERROR
6091						.WORD	L10036-.
6092	031046	004537	011310	JSR	R5, RCV1ST		
6093	031052	000000					
6094	031054	103003					
6095	031056						
6096	031056	104460					
6097	031060						
6098	031060	104410					
6099	031062	000762					
6100							
6101	031064	004537	010034	JSR	R5, RXCHAR		
6102	031070	000400					
6103	031072	000000					
6104	031074	000010					
6105	031076	103003					
6106	031100						
6107	031100	104460					
6108	031102						
6109	031102	104410					
6110	031104	000740				TRAP	C#ERROR
6111						.WORD	L10036-.
6112	031106	004537	007622	JSR	R5, TXCHAR		
6113	031112	000170					
6114	031114	000000					
6115	031116	103003					
6116	031120						
6117	031120	104460					
6118	031122						
6119	031122	104410					
6120	031124	000720				TRAP	C#ERROR
6121						.WORD	L10036-.
6122	031126	004537	010034	JSR	R5, RXCHAR		

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TEST 7 -- BOP RX BIT STUFFING TEST

6123	031132	000017		017				
6124	031134	000000		0				
6125	031136	000010		8.				
6126	031140	103003		BCC	.*8.		;BR IF NO ERROR	
6127	031142			ERROR			;REPORT STACKED ERROR	
6128	031142	104460						TRAP C#ERROR
6129	031144			ESCAPE	TST		;SKIP TO END OF TEST	
6130	031144	104410						TRAP C#ESCAPE
6131	031146	000676						.WORD L10036--
6132								
6133	031150	004537	007622	JSR	R5, TXCHAR		;LOAD 360(DATA6)	
6134	031154	000360		360				
6135	031156	000000		0				
6136	031160	103003		BCC	.*8.		;BR IF NO ERROR	
6137	031162			ERROR			;REPORT STACKED ERROR	
6138	031162	104460						TRAP C#ERROR
6139	031164			ESCAPE	TST		;SKIP TO END OF TEST	
6140	031164	104410						TRAP C#ESCAPE
6141	031166	000656						.WORD L10036--
6142								
6143	031170	004537	010034	JSR	R5, RXCHAR		;READ/CHECK 036(DATA3),RCV 074(DATA4)	
6144	031174	000036		036				
6145	031176	000000		0				
6146	031200	000010		8.				
6147	031202	103003		BCC	.*8.		;BR IF NO ERROR	
6148	031204			ERROR			;REPORT STACKED ERROR	
6149	031204	104460						TRAP C#ERROR
6150	031206			ESCAPE	TST		;SKIP TO END OF TEST	
6151	031206	104410						TRAP C#ESCAPE
6152	031210	000634						.WORD L10036--
6153								
6154	031212	004537	007622	JSR	R5, TXCHAR		;LOAD 037(DATA7)	
6155	031216	000037		037				
6156	031220	000000		0				
6157	031222	103003		BCC	.*8.		;BR IF NO ERROR	
6158	031224			ERROR			;REPORT STACKED ERROR	
6159	031224	104460						TRAP C#ERROR
6160	031226			ESCAPE	TST		;SKIP TO END OF TEST	
6161	031226	104410						TRAP C#ESCAPE
6162	031230	000614						.WORD L10036--
6163								
6164	031232	004537	010034	JSR	R5, RXCHAR		;READ/CHECK 074(DATA4),RCV 170(DATA5)	
6165	031236	000074		074				
6166	031240	000000		0				
6167	031242	000010		8.				
6168	031244	103003		BCC	.*8.		;BR IF NO ERROR	
6169	031246			ERROR			;REPORT STACKED ERROR	
6170	031246	104460						TRAP C#ERROR
6171	031250			ESCAPE	TST		;SKIP TO END OF TEST	
6172	031250	104410						TRAP C#ESCAPE
6173	031252	000572						.WORD L10036--
6174								
6175	031254	004537	007622	JSR	R5, TXCHAR		;LOAD 076(DATA8)	
6176	031260	000076		076				
6177	031262	000000		0				
6178	031264	103003		BCC	.*8.		;BR IF NO ERROR	

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TEST 7 -- BOP RX BIT STUFFING TEST

6179	031266			ERROR		;REPORT STACKED ERROR		
6180	031266	104460					TRAP	C#ERROR
6181	031270			ESCAPE TST		;SKIP TO END OF TEST		
6182	031270	104410					TRAP	C#ESCAPE
6183	031272	000552					.WORD	L10036-.
6184								
6185	031274	004537	010034	JSR R5,RXCHAR		;READ/CHECK 170(DATA5),RCV 360(DATA6)		
6186	031300	000170		170				
6187	031302	000000		0				
6188	031304	000010		8.				
6189	031306	103003		BCC .+8.		;BR IF NO ERROR		
6190	031310			ERROR		;REPORT STACKED ERROR		
6191	031310	104460					TRAP	C#ERROR
6192	031312			ESCAPE TST		;SKIP TO END OF TEST		
6193	031312	104410					TRAP	C#ESCAPE
6194	031314	000530					.WORD	L10036-.
6195								
6196	031316	004537	007622	JSR R5,TXCHAR		;LOAD 174(DATA9)		
6197	031322	000174		174				
6198	031324	000000		0				
6199	031326	103003		BCC .+8.		;BR IF NO ERROR		
6200	031330			ERROR		;REPORT STACKED ERROR		
6201	031330	104460					TRAP	C#ERROR
6202	031332			ESCAPE TST		;SKIP TO END OF TEST		
6203	031332	104410					TRAP	C#ESCAPE
6204	031334	000510					.WORD	L10036-.
6205								
6206	031336	004537	010034	JSR R5,RXCHAR		;READ/CHECK 360(DATA6),RCV 037(DATA7)		
6207	031342	000360		360				
6208	031344	000000		0				
6209	031346	000010		8.				
6210	031350	103003		BCC .+8.		;BR IF NO ERROR		
6211	031352			ERROR		;REPORT STACKED ERROR		
6212	031352	104460					TRAP	C#ERROR
6213	031354			ESCAPE TST		;SKIP TO END OF TEST		
6214	031354	104410					TRAP	C#ESCAPE
6215	031356	000466					.WORD	L10036-.
6216								
6217	031360	004537	007622	JSR R5,TXCHAR		;LOAD 370(DATA10)		
6218	031364	000370		370				
6219	031366	000000		0				
6220	031370	103003		BCC .+8.		;BR IF NO ERROR		
6221	031372			ERROR		;REPORT STACKED ERROR		
6222	031372	104460					TRAP	C#ERROR
6223	031374			ESCAPE TST		;SKIP TO END OF TEST		
6224	031374	104410					TRAP	C#ESCAPE
6225	031376	000446					.WORD	L10036-.
6226								
6227	031400	004537	010034	JSR R5,RXCHAR		;READ/CHECK 037(DATA7),RCV 076(DATA8)		
6228	031404	000037		037				
6229	031406	000000		0				
6230	031410	000014		12.		; (EXTRA 4 TICKS FOR BIT-STUFF & FIFO)		
6231	031412	103003		BCC .+8.		;BR IF NO ERROR		
6232	031414			ERROR		;REPORT STACKED ERROR		
6233	031414	104460					TRAP	C#ERROR
6234	031416			ESCAPE TST		;SKIP TO END OF TEST		

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TEST 7 -- BOP RX BIT STUFFING TEST

6235	031416	104410					TRAP	C#ESCAPE
6236	031420	000424					.WORD	L10036--
6237								
6238	031422	004537	007622	JSR	R5, TXCHAR	;LOAD 077(DATA11)		
6239	031426	000077		077				
6240	031430	000000		0				
6241	031432	103003		BCC	.+8.	;BR IF NO ERROR		
6242	031434			ERROR		;REPORT STACKED ERROR		
6243	031434	104460					TRAP	C#ERROR
6244	031436			ESCAPE	TST	;SKIP TO END OF TEST		
6245	031436	104410					TRAP	C#ESCAPE
6246	031440	000404					.WORD	L10036--
6247								
6248	031442	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 076(DATA8),RCV 174(DATA9)		
6249	031446	000076		076				
6250	031450	000000		0				
6251	031452	000010		8.				
6252	031454	103003		BCC	.+8.	;BR IF NO ERROR		
6253	031456			ERROR		;REPORT STACKED ERROR		
6254	031456	104460					TRAP	C#ERROR
6255	031460			ESCAPE	TST	;SKIP TO END OF TEST		
6256	031460	104410					TRAP	C#ESCAPE
6257	031462	000362					.WORD	L10036--
6258								
6259	031464	004537	007622	JSR	R5, TXCHAR	;LOAD 176(DATA12)		
6260	031470	000176		176				
6261	031472	000000		0				
6262	031474	103003		BCC	.+8.	;BR IF NO ERROR		
6263	031476			ERROR		;REPORT STACKED ERROR		
6264	031476	104460					TRAP	C#ERROR
6265	031500			ESCAPE	TST	;SKIP TO END OF TEST		
6266	031500	104410					TRAP	C#ESCAPE
6267	031502	000342					.WORD	L10036--
6268								
6269	031504	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 174(DATA9),RCV 370(DATA10)		
6270	031510	000174		174				
6271	031512	000000		0				
6272	031514	000010		8.				
6273	031516	103003		BCC	.+8.	;BR IF NO ERROR		
6274	031520			ERROR		;REPORT STACKED ERROR		
6275	031520	104460					TRAP	C#ERROR
6276	031522			ESCAPE	TST	;SKIP TO END OF TEST		
6277	031522	104410					TRAP	C#ESCAPE
6278	031524	000320					.WORD	L10036--
6279								
6280	031526	004537	007622	JSR	R5, TXCHAR	;LOAD 374(DATA13)		
6281	031532	000374		374				
6282	031534	000000		0				
6283	031536	103003		BCC	.+8.	;BR IF NO ERROR		
6284	031540			ERROR		;REPORT STACKED ERROR		
6285	031540	104460					TRAP	C#ERROR
6286	031542			ESCAPE	TST	;SKIP TO END OF TEST		
6287	031542	104410					TRAP	C#ESCAPE
6288	031544	000300					.WORD	L10036--
6289								
6290	031546	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 370(DATA10),RCV 077(DATA11)		

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TEST 7 -- BOP RX BIT STUFFING TEST

6291	031552	000370		370					
6292	031554	000000		0					
6293	031556	000010		8.					
6294	031560	103003		BCC	+.8.	;BR IF NO ERROR			
6295	031562			ERROR		;REPORT STACKED ERROR			
6296	031562	104460					TRAP	C#ERROR	
6297	031564			ESCAPE	TST	;SKIP TO END OF TEST			
6298	031564	104410					TRAP	C#ESCAPE	
6299	031566	000256					.WORD	L10036-	
6300									
6301	031570	004537	007622	JSR	R5, TXCHAR	;LOAD 177(DATA14)			
6302	031574	000177		177					
6303	031576	000000		0					
6304	031600	103003		BCC	+.8.	;BR IF NO ERROR			
6305	031602			ERROR		;REPORT STACKED ERROR			
6306	031602	104460					TRAP	C#ERROR	
6307	031604			ESCAPE	TST	;SKIP TO END OF TEST			
6308	031604	104410					TRAP	C#ESCAPE	
6309	031606	000236					.WORD	L10036-	
6310									
6311	031610	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 077(DATA11),RCV 176(DATA12)			
6312	031614	000077		077					
6313	031616	000000		0					
6314	031620	000014		12.		;(EXTRA 4 TICKS FOR BIT-STUFF & FIFO)			
6315	031622	103003		BCC	+.8.	;BR IF NO ERROR			
6316	031624			ERROR		;REPORT STACKED ERROR			
6317	031624	104460					TRAP	C#ERROR	
6318	031626			ESCAPE	TST	;SKIP TO END OF TEST			
6319	031626	104410					TRAP	C#ESCAPE	
6320	031630	000214					.WORD	L10036-	
6321									
6322	031632	004537	007622	JSR	R5, TXCHAR	;LOAD 376(DATA15)			
6323	031636	000376		376					
6324	031640	000000		0					
6325	031642	103003		BCC	+.8.	;BR IF NO ERROR			
6326	031644			ERROR		;REPORT STACKED ERROR			
6327	031644	104460					TRAP	C#ERROR	
6328	031646			ESCAPE	TST	;SKIP TO END OF TEST			
6329	031646	104410					TRAP	C#ESCAPE	
6330	031650	000174					.WORD	L10036-	
6331									
6332	031652	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 176(DATA12),RCV 374(DATA13)			
6333	031656	000176		176					
6334	031660	000000		0					
6335	031662	000010		8.					
6336	031664	103003		BCC	+.8.	;BR IF NO ERROR			
6337	031666			ERROR		;REPORT STACKED ERROR			
6338	031666	104460					TRAP	C#ERROR	
6339	031670			ESCAPE	TST	;SKIP TO END OF TEST			
6340	031670	104410					TRAP	C#ESCAPE	
6341	031672	000152					.WORD	L10036-	
6342									
6343	031674	004537	007622	JSR	R5, TXCHAR	;LOAD 377(DATA16)			
6344	031700	000377		377					
6345	031702	000000		0					
6346	031704	103003		BCC	+.8.	;BR IF NO ERROR			



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TEST 7 -- BOP RX BIT STUFFING TEST

6347	031706			ERROR		;REPORT STACKED ERROR		
6348	031706	104460					TRAP	C#ERROR
6349	031710			ESCAPE	TST	;SKIP TO END OF TEST		
6350	031710	104410					TRAP	C#ESCAPE
6351	031712	000132					.WORD	L10036 .
6352								
6353	031714	004537	010034	JSR	RS,RXCHAR	;READ/CHECK 374(DATA13),RCV 177(DATA14)		
6354	031720	000374						
6355	031722	000000						
6356	031724	000010						
6357	031726	103003		BCC	.+8.	;BR IF NO ERROR		
6358	031730			ERROR		;REPORT STACKED ERROR		
6359	031730	104460					TRAP	C#ERROR
6360	031732			ESCAPE	TST	;SKIP TO END OF TEST		
6361	031732	104410					TRAP	C#ESCAPE
6362	031734	000110					.WORD	L10036-.
6363								
6364	031736	004537	007734	JSR	RS, TXCTRL	;LOAD 1ST TEOM		
6365	031742	000002		TEOM				
6366	031744	000000						
6367	031746	103003		BCC	.+8.	;BR IF NO ERROR		
6368	031750			ERROR		;REPORT STACKED ERROR		
6369	031750	104460					TRAP	C#ERROR
6370	031752			ESCAPE	TST	;SKIP TO END OF TEST		
6371	031752	104410					TRAP	C#ESCAPE
6372	031754	000070					.WORD	L10036-.
6373								
6374	031756	004537	010034	JSR	RS,RXCHAR	;READ/CHECK 177(DATA14),RCV 316(DATA15)		
6375	031762	000177						
6376	031764	000000						
6377	031766	000010						
6378	031770	103003		BCC	.+8.	;BR IF NO ERROR		
6379	031772			ERROR		;REPORT STACKED ERROR		
6380	031772	104460					TRAP	C#ERROR
6381	031774			ESCAPE	TST	;SKIP TO END OF TEST		
6382	031774	104410					TRAP	C#ESCAPE
6383	031776	000046					.WORD	L10036-.
6384								
6385	032000	004537	010034	JSR	RS,RXCHAR	;READ/CHECK 376(DATA15),RCV 377(DATA16)		
6386	032004	000376						
6387	032006	000000						
6388	032010	020014						
6389	032012	103003		BCC	.+8.	;BR IF NO ERROR		
6390	032014			ERROR		;REPORT STACKED ERROR		
6391	032014	104460					TRAP	C#ERROR
6392	032016			ESCAPE	TST	;SKIP TO END OF TEST		
6393	032016	104410					TRAP	C#ESCAPE
6394	032020	000024					.WORD	L10036-.
6395								
6396	032022	004537	010034	JSR	RS,RXCHAR	;READ/CHECK 377(DATA16)		
6397	032026	001377		RXEOM!	377	; & CHECK REOM		
6398	032030	000000						
6399	032032	060000						
6400	032034	103003		MFCRDA!	MCRACT	;DON'T CHECK FOR FINAL RDA=RXACT-1		
6401	032036			BCC	.+8.	;BR IF NO ERROR		
6402	032036	104460		ERROR		;REPORT STACKED ERROR		
							TRAP	C#ERROR

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TEST 7 -- BOP RX BIT STUFFING TEST

6403 032040  
6404 032040 104410  
6405 032042 000002  
6406 032044  
6407 032044  
6408 032044 104401

ESCAPE TST ;SKIP TO END OF TEST  
ENDTST

TRAP CIESCAPE  
.WORD L10036-  
L10036: TRAP C1ETST

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TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS

.SBTTL TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS

```

;.....
;*
;* TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS
;*
;* THE USYRT IS INITIALIZED AND A MESSAGE IS STARTED. THEN, A
;* TRANSMITTER UNDERRUN IS FORCED WITH IDLE = 0 -- CAUSING ABORT
;* CHARACTER(S). VERIFY THAT RAB/GA BIT=1.
;* REPEAT THE ABOVE WITH IDLE=1.
;*
;.....

```

```

;
; BGNTST
;
;..... SUBTEST # 1 .....
; BGNSUB
;
; T8.:
;
; T8.1:
; TRAP C#BSUB
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; NOCHK!SYNCH ;SET BOP MODE,SYNCH REG=226
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE SUB ;SKIP TO END OF TEST
; TRAP C#ESCAPE
; .WORD L10040-.
;
; JSR R5, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
; TSOM
; 7.
; JSR R5, TXCTRL ;CLEAR TSOM
; 000
; 0
;
; JSR R5, TXCHAR ;LOAD 123(DATA1), TX 2ND FLAG
; 123
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE S#B ;SKIP TO END OF TEST
; TRAP C#ESCAPE
; .WORD L10040-.
;
; JSR R5, TXCHAR ;LOAD 321(DATA2), TX 123(DATA1)
; 321
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
; ESCAPE SUB ;SKIP TO END OF TEST

```

```

6409
6410
6411
6412
6413
6414
6415
6416
6417
6418
6419
6420
6421
6422
6423
6424 032046
6425
6426 032046
6427 032046
6428 032046 104402
6429 032050 004737 005344
6430
6431 032054 004537 007324
6432 032060 003626
6433 032062 000000
6434 032064 103003
6435 032066
6436 032066 104460
6437 032070
6438 032070 104410
6439 032072 000300
6440
6441 032074 004537 007734
6442 032100 000001
6443 032102 000007
6444 032104 004537 007734
6445 032110 000000
6446 032112 000000
6447
6448 032114 004537 007622
6449 032120 000123
6450 032122 000010
6451 032124 103003
6452 032126
6453 032126 104460
6454 032130
6455 032130 104410
6456 032132 000240
6457
6458 032134 004537 007622
6459 032140 000321
6460 032142 000010
6461 032144 103003
6462 032146
6463 032146 104460
6464 032150

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TEST 8 -- BOP 9X UNDERRUN IDLE ABORTS/FLAGS

6465	032150	104410				TRAP	C#ESCAPE
6466	032152	000220				.WORD	L10040-.
6467							
6468	032154	004537	007622	JSR	R5, TXCHAR		;LOAD 000(DATA3), TX 321(DATA2)
6469	032160	000000			000		
6470	032162	000010			8.		
6471	032164	103003		BCC	.+8.		;BR IF NO ERROR
6472	032166			ERROR			;REPORT STACKED ERROR
6473	032166	104460				TRAP	C#ERROR
6474	032170			ESCAPE	SUB		;SKIP TO END OF TEST
6475	032170	104410				TRAP	C#ESCAPE
6476	032172	000200				.WORD	L10040-.
6477							
6478	032174	004537	011310	JSR	R5, RCV1ST		;CLOCK AND RCV 123(DATA1)
6479	032200	000000			0		
6480	032202	103003		BCC	.+8.		;BR IF NO ERROR
6481	032204			ERROR			;REPORT STACKED ERROR
6482	032204	104460				TRAP	C#ERROR
6483	032206			ESCAPE	SUB		;SKIP TO END OF TEST
6484	032206	104410				TRAP	C#ESCAPE
6485	032210	000162				.WORD	L10040-.
6486							
6487	032212	004537	010034	JSR	R5, RXCHAR		;READ & CH 123(DATA1), RCV 321(DATA2)
6488	032216	000523			RXSOM:123		; & CHEC. RSOM=1
6489	032220	000000			0		
6490	032222	000010			8.		; 8 TICKS OF THE CLOCK
6491	032224	103003		BCC	.+8.		;BR IF NO ERROR
6492	032226			ERROR			;REPORT STACKED ERROR
6493	032226	104460				TRAP	C#ERROR
6494	032230			ESCAPE	SUB		;SKIP TO END OF TEST
6495	032230	104410				TRAP	C#ESCAPE
6496	032232	000140				.WORD	L10040-.
6497							
6498	032234	004537	005356	JSR	R5, CKUSTS		;... CHECK FOR TXU=1 (& S/F=0) ...
6499	032240	000356			RDA!TBMT!RXACT!TXU!TSO!TXACT		
6500	032242	103003		BCC	.+8.		;BR IF NO ERROR
6501	032244			ERROR			;REPORT STACKED ERROR
6502	032244	104460				TRAP	C#ERROR
6503	032246			ESCAPE	SUB		;SKIP TO END OF TEST
6504	032246	104410				TRAP	C#ESCAPE
6505	032250	000122				.WORD	L10040-.
6506							
6507	032252	004537	010034	JSR	R5, RXCHAR		;READ/CHECK 321(DATA2), DATA3 LOST....
6508	032256	000321			321		
6509	032260	000000			0		
6510	032262	060010			NFCRDA!NCRACT!8.		;NO CHECKING OF RDA
6511	032264	103003		BCC	.+8.		;BR IF NO ERROR
6512	032266			ERROR			;REPORT STACKED ERROR
6513	032266	104460				TRAP	C#ERROR
6514	032270			ESCAPE	SUB		;SKIP TO END OF TEST
6515	032270	104410				TRAP	C#ESCAPE
6516	032272	000100				.WORD	L10040-.
6517							
6518	032274	004537	003534	JSR	R5, READI		;READ RECEIVER STATUS REGISTER
6519	032300	120401			RDSRH		
6520	032302	000000			000		; * RESULTS GO HERE

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CVDHDCO DMV11 LINE UNIT DIAG2 MACY11 30A(1052) 12-JUL-84 09:28 PAGE 149  
 CVDHDC.P11 12-JUL-84 09:26 TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS

```

6521 032304 132737 000004 032302 BITB #RABGA,1# ;*** CHECK IF RAB/GA BIT = 1 ***
6522 032312 001006 BNE 10# ;BR IF BIT SET (IE: IF OK)
6523 032314 GEDF EM40,ERR12 ;** REPORT RAB/GA BIT NOT SET!!!
6524 ; "DEVICE FATAL" ERROR # 48
6525 032314 104455 TRAP C#ERDF
6526 032316 000060 .WORD 48
6527 032320 014734 .WORD EM40
6528 032322 021714 .WORD ERR12
6529 032324 ESCAPE SUB ;** AND EXIT TEST
6530 032324 104410 TRAP C#ESCAPE
6531 032326 000044 .WORD L10040-.
6532 032330 132737 000002 032302 10# BITB #REOM,1# ;*** CHECK FOR RXEOM BIT = 1 ***
6533 032336 001006 BNE 15# ;BR IF BIT SET (IE: IF OK)
6534 032340 GEDF EM31,ERR12 ;** REPORT REOM BIT NOT SET!!!
6535 ; "DEVICE FATAL" ERROR # 49
6536 032340 104455 TRAP C#ERDF
6537 032342 000061 .WORD 49
6538 032344 014537 .WORD EM31
6539 032346 021714 .WORD ERR12
6540 032350 ESCAPE S' 3 ;** AND EXIT TEST
6541 032350 104410 TRAP C#ESCAPE
6542 032352 000020 .WORD L10040-.
6543
6544 032354 004537 005356 15# JSR R5,CKUSTS ;** CHECK USYRT STATUS **
6545 032360 000116 TBMT!TSO!TXACT!TXU
6546 032362 103003 BCC .+8. ;BR IF NO ERROR
6547 032364 ERROR ;REPORT STACKED ERROR
6548 032364 104460 TRAP C#ERROR
6549 032366 ESCAPE SUB ;SKIP TO END OF TEST
6550 032366 104410 TRAP C#ESCAPE
6551 032370 000002 .WORD L10040-.
6552 032372 ENDSUB
6553 032372
6554 032372 104403 L10040: TRAP C#ESUB
6555 ;***** SUBTEST # 2 *****
6556 032374 BGNSUB
6557 032374 T8.2:
6558 032374 104402 TRAP C#BSUB
6559 032376 004737 005344 JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
6560
6561 032402 004537 007324 JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
6562 032406 007626 IDLES!NOC!K!SYNCH ;SET BOP MODE, IDLE=1, SYNCH REG=226
6563 032410 000000 0 ;USE 8 BIT CHARS
6564 032412 103003 BCC .+8. ;BR IF NO ERROR
6565 032414 ERROR ;REPORT STACKED ERROR
6566 032414 104460 TRAP C#ERROR
6567 032416 ESCAPE SUB ;SKIP TO END OF TEST
6568 032416 104410 TRAP C#ESCAPE
6569 032420 000242 .WORD L10041-.
6570
6571 032422 004537 007734 JSR R5, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
6572 032426 000001 TSOM
6573 032430 000007 7.
6574 032432 004537 007734 JSR R5, TXCTRL ;CLEAR TSOM
6575 032436 000000 000
6576 032440 000000 0
    
```

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TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS

6577								
6578	032442	004537	007622	JSR	R5, TXCHAR	;LOAD 123(DATA1), TX 2ND FLAG		
6579	032446	000123			123			
6580	032450	000010			8.			
6581	032452	103003		BCC	.+8.	;BR IF NO ERROR		
6582	032454			ERROR		;REPORT STACKED ERROR		
6583	032454	104460					TRAP	C#ERROR
6584	032456			ESCAPE	SUB	;SKIP TO END OF TEST		
6585	032456	104410					TRAP	C#ESCAPE
6586	032460	000202					.WORD	L10041-.
6587								
6588	032462	004537	007622	JSR	R5, TXCHAR	;LOAD 321(DATA2), TX 123(DATA1)		
6589	032466	000321			321			
6590	032470	000010			8.			
6591	032472	103003		BCC	.+8.	;BR IF NO ERROR		
6592	032474			ERROR		;REPORT STACKED ERROR		
6593	032474	104460					TRAP	C#ERROR
6594	032476			ESCAPE	SUB	;SKIP TO END OF TEST		
6595	032476	104410					TRAP	C#ESCAPE
6596	032500	000162					.WORD	L10041-.
6597								
6598	032502	004537	007622	JSR	R5, TXCHAR	;LOAD 000(DATA3), TX 321(DATA2)		
6599	032506	000000			000			
6600	032510	000010			8.			
6601	032512	103003		BCC	.+8.	;BR IF NO ERROR		
6602	032514			ERROR		;REPORT STACKED ERROR		
6603	032514	104460					TRAP	C#ERROR
6604	032516			ESCAPE	SUB	;SKIP TO END OF TEST		
6605	032516	104410					TRAP	C#ESCAPE
6606	032520	000142					.WORD	L10041-.
6607								
6608	032522	004537	011310	JSR	R5, RCV1ST	;CLOCK AND RCV 123(DATA1)		
6609	032526	000000			0			
6610	032530	103003		BCC	.+8.	;BR IF NO ERROR		
6611	032532			ERROR		;REPORT STACKED ERROR		
6612	032532	104460					TRAP	C#ERROR
6613	032534			ESCAPE	SUB	;SKIP TO END OF TEST		
6614	032534	104410					TRAP	C#ESCAPE
6615	032536	000124					.WORD	L10041-.
6616								
6617	032540	004537	010734	JSR	R5, RXCHAR	;READ & CHK 123(DATA1), RCV 321(DATA2)		
6618	032544	000523			RXSON!123	; & CHECK RSOM=1		
6619	032546	000000			0			
6620	032550	000010			8.	; 8 TICKS OF THE CLOCK		
6621	032552	103003		BCC	.+8.	;BR IF NO ERROR		
6622	032554			ERROR		;REPORT STALKED ERROR		
6623	032554	104460					TRAP	C#ERROR
6624	032556			ESCAPE	SUB	;SKIP TO END OF TEST		
6625	032556	104410					TRAP	C#ESCAPE
6626	032560	000102					.WORD	L10041-.
6627								
6628	032562	004537	010034	JSR	R5, RXCHAR	;READ/CHECK 321(DATA2), RC ' 000(DATA3)		
6629	032566	000321			321			
6630	032570	000000			0			
6631	032572	020010		NCRACK!	8.	;DON'T CHECK FOR FINAL RXACT=1		
6632	032574	103003		BCC	.+8.	;BR IF NO ERROR		

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TEST 8 -- BOP RX UNDERRUN IDLE ABORTS/FLAGS

6633	032576			ERROR	;REPORT STACKED ERROR		
6634	032576	104460				TRAP	C#ERROR
6635	032600			ESCAPE SUB	;SKIP TO END OF TEST		
6636	032600	104410				TRAP	C#ESCAPE
6637	032602	000060				.WORD	L10041-.
6638							
6639	032604	004537	005356	JSR R5,CKUSTS	;... CHECK FOR TXU=1 ...		
6640	032610	000336		RDA!TBMT!RSA!TSO!TXACT!TXU			
6641	032612	103003		BCC .+8.	;BR IF NO ERROR		
6642	032614			ERROR	;REPORT STACKED ERROR		
6643	032614	104460				TRAP	C#ERROR
6644	032616			ESCAPE SUB	;SKIP TO END OF TEST		
6645	032616	104410				TRAP	C#ESCAPE
6646	032620	000042				.WORD	L10041-.
6647							
6648	032622	004537	010034	JSR R5,RXCHAR	;READ/CHECK 000(DATA3)		
6649	032626	001000		RXEOM!000	; & CHECK REOM		
6650	032630	000000		0			
6651	032632	060010		NFCRDA!NCRACT!8.	;DON'T CHECK FOR FINAL RDA=RXACT=1		
6652	032634	103003		BCC .+8.	;BR IF NO ERROR		
6653	032636			ERROR	;REPORT STACKED ERROR		
6654	032636	104460				TRAP	C#ERROR
6655	032640			ESCAPE SUB	;SKIP TO END OF TEST		
6656	032640	104410				TRAP	C#ESCAPE
6657	032642	000020				.WORD	L10041-.
6658							
6659	032644	004537	005356	JSR R5,CKUSTS	;... CHECK USYRT STATUS ...		
6660	032650	000116		TBMT!TSO!TXACT!TXU			
6661	032652	103003		BCC .+8.	;BR IF NO ERROR		
6662	032654			ERROR	;REPORT STACKED ERROR		
6663	032654	104460				TRAP	C#ERROR
6664	032656			ESCAPE SUB	;SKIP TO END OF TEST		
6665	032656	104410				TRAP	C#ESCAPE
6666	032660	000002				.WORD	L10041-.
6667	032662			ENDSUB			
6668	032662					L10041:	
6669	032662	104403				TRAP	C#ESUB
6670	032664			ENDTST			
6671	032664					L10037:	
6672	032664	104401				TRAP	C#ETST

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TEST 9 -- BOP RX LOST RXE TEST

.SBTTL TEST 9 -- BOP RX LOST RXE TEST

```
*****
;*
;* TEST 9 -- BOP RX LOST RXE TEST
;*
;* THE USYRT IS INITIALIZED AND A MESSAGE IS STARTED. WHILE IN THE
;* MIDDLE OF TEXT, RXE IS DROPPED AND THE REACTION OF THE RECEIVER IS
;* MONITORED.
;*
;-----*****
;
; BGNTST
```

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032666  
032666 004737 005344  
032672 004537 007324  
032676 007626  
032700 000000  
032702 103003  
032704 104460  
032706 104410  
032710 000216  
032712 004537 007734  
032716 000001  
032720 000007  
032722 004537 007734  
032726 000000  
032730 000000  
032732 004537 007622  
032736 000123  
032740 000010  
032742 103003  
032744 104460  
032746 104410  
032750 000156  
032752 004537 007622  
032756 000321  
032760 000010  
032762 103003  
032764 104460  
032766 104410  
032770 000136  
032772 004537 007622  
032776 000000

```
T9::
JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
IDLES!NOCHK!SYNCH ;SET BOP MODE, IDLE=1, SYNCH REG-226
0 ;USE 8 BIT CHARS
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR
ESCAPE TST ;SKIP TO END OF TEST
TRAP C$ERROR
WORD L10042-.

JSR R5, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
TSOM
7.
JSR R5, TXCTRL ;CLEAR TSOM
000
0

JSR R5, TXCHAR ;LOAD 123(DATA1), TX 2ND FLAG
123
8.
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR
ESCAPE TST ;SKIP TO END OF TEST
TRAP C$ERROR
WORD L10042-.

JSR R5, TXCHAR ;LOAD 321(DATA2), TX 123(DATA1)
321
8.
BCC .+8. ;BR IF NO ERROR
ERROR ;REPORT STACKED ERROR
ESCAPE TST ;SKIP TO END OF TEST
TRAP C$ERROR
WORD L10042-.

JSR R5, TXCHAR ;LOAD 000(DATA3), TX 321(DATA2)
000
```



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TEST 9 -- BOP RX LOST RXE TEST

6729	033000	000010		B.				
6730	033002	103003		BCC	.*8.		;BR IF NO ERROR	
6731	033004			ERROR			;REPORT STACKED ERROR	
6732	033004	104460						TRAP C#ERROR
6733	033006			ESCAPE	TST		;SKIP TO END OF TEST	
6734	033006	104410						TRAP C#ESCAPE
6735	033010	000116						.WORD L10042--
6736								
6737	033012	004537	011310	JSR	R5,RCV1ST		;CLOCK AND RCV 123(DATA1)	
6738	033016	000000		0				
6739	033020	103003		BCC	.*8.		;BR IF NO ERROR	
6740	033022			ERROR			;REPORT STACKED ERROR	
6741	033022	104460						TRAP C#ERROR
6742	033024			ESCAPE	TST		;SKIP TO END OF TEST	
6743	033024	104410						TRAP C#ESCAPE
6744	033026	000100						.WORD L10042--
6745								
6746	033030	004537	010034	JSR	R5,RXCHAR		;READ & CHK 123(DATA1), RCV 321(DATA2)	
6747	033034	000523		RXSOM:123			; & CHECK RSOM=1	
6748	033036	000000		0				
6749	033040	000010		B.			; 8 TICKS OF THE CLOCK	
6750	033042	103003		BCC	.*8.		;BR IF NO ERROR	
6751	033044			ERROR			;REPORT STACKED ERROR	
6752	033044	104460						TRAP C#ERROR
6753	033046			ESCAPE	TST		;SKIP TO END OF TEST	
6754	033046	104410						TRAP C#ESCAPE
6755	033050	000056						.WORD L10042--
6756								
6757	033052	004537	003660	JSR	R5,WRITEI		;DROP RECEIVER ENABLE (RXEN)	
6758	033056	120000		VIAORB				
6759	033060	000072		TXEN:DTR:RTSND:TTLOOP				
6760								
6761	033062	004537	005356	JSR	R5,CKUSTS		;+++ CHECK USYRT STATUS REGISTER +++	
6762	033066	000116		TBMT:TSO:TXACT:TXU				
6763	033070	103003		BCC	.*8.		;BR IF NO ERROR	
6764	033072			ERROR			;REPORT STACKED ERROR	
6765	033072	104460						TRAP C#ERROR
6766	033074			ESCAPE	TST		;SKIP TO END OF TEST	
6767	033074	104410						TRAP C#ESCAPE
6768	033076	000030						.WORD L10042--
6769								
6770	033100	004537	007734	JSR	R5,TXCTRL		;LOAD 2ND FLAG, TX 1ST FLAG	
6771	033104	000001		TSOM				
6772	033106	000010		B.				
6773								
6774	033110	004537	005356	JSR	R5,CKUSTS		;+++ CHECK USYRT STATUS REGISTER +++	
6775	033114	000104		TBMT:TXACT				
6776	033116	103003		BCC	.*8.		;BR IF NO ERROR	
6777	033120			ERROR			;REPORT STACKED ERROR	
6778	033120	104460						TRAP C#ERROR
6779	033122			ESCAPE	TST		;SKIP TO END OF TEST	
6780	033122	104410						TRAP C#ESCAPE
6781	033124	000002						.WORD L10042--
6782	033126			ENDTST				
6783	033126							L10042:
6784	033126	104401						TRAP C#ETST

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TEST 10 -- BOP RX GA (GO-AHEAD) RECOGNITION

.SBTTL TEST 10 -- BOP RX GA (GO-AHEAD) RECOGNITION

```
*****
;*
;* TEST 10 -- BOP RX GA (GO-AHEAD) RECOGNITION
;*
;* A SHORT MESSAGE IS TRANSMITTED FOLLOWED BY A GA CHARACTER (INSTEAD
;* OF A FLAG CHARACTER). THE RECEIVER IS OBSERVED FOR PROPER HANDLING
;* OF BOTH THE MESSAGE AND THE GA CHARACTER. THE RAB/GA STATUS BIT
;* SHOULD BE SET BY THE RECEIVER UPON RECOGNITION OF THE GA CHARACTER.
;*
;-----*****
```

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6799 033130  
6800 033130 004737 005344  
6801  
6802 033134 004537 007324  
6803 033140 023400  
6804 033142 000000  
6805 033144 103003  
6806 033146  
6807 033146 104460  
6808 033150  
6809 033150 104410  
6810 033152 000216  
6811  
6812 033154 004537 007734  
6813 033160 000001  
6814 033162 000007  
6815 033164 004537 007734  
6816 033170 000000  
6817 033172 000000  
6818  
6819 033174 004537 007622  
6820 033200 000123  
6821 033202 000010  
6822 033204 103003  
6823 033206  
6824 033206 104460  
6825 033210  
6826 033210 104410  
6827 033212 000156  
6828  
6829 033214 004537 007622  
6830 033220 000321  
6831 033222 000010  
6832 033224 103003  
6833 033226  
6834 033226 104460  
6835 033230  
6836 033230 104410  
6837 033232 000136  
6838  
6839 033234 004537 007622  
6840 033240 000000

```

; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP T10::
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; STRIPS!NOCHK ;SET BOP MODE,NO ERROR CHECKING,SS/GA=1
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; ESCAPE TST ;SKIP TO END OF TEST TRAP C$ERROR
; .WORD L10043-.
;
; JSR R5,TXCTRL ;LOAD 2ND FLAG,TX 1ST FLAG
; TSOM
; 7.
; JSR R5,TXCTRL ;CLEAR TSOM
; 000
; 0
;
; JSR R5,TXCHAR ;LOAD 123(DATA1), TX 2ND FLAG
; 123
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; ESCAPE TST ;SKIP TO END OF TEST TRAP C$ERROR
; .WORD L10043-.
;
; JSR R5,TXCHAR ;LOAD 321(DATA2), TX 123(DATA1)
; 321
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; ESCAPE TST ;SKIP TO END OF TEST TRAP C$ERROR
; .WORD L10043-.
;
; JSR R5,TXCHAR ;LOAD 000(DATA3), TX 321(DATA2)
; 000
```

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TEST 10 -- BOP RX GA (GO-AHEAD) RECOGNITION

6841	033242	000010		8.				
6842	033244	103003		BCC	.*8.		;BR IF NO ERROR	
6843	033246			ERROR			;REPORT STACKED ERROR	
6844	033246	104460						TRAP C#ERROR
6845	033250			ESCAPE	TST		;SKIP TO END OF TEST	
6846	033250	104410						TRAP C#ESCAPE
6847	033252	000116						.WORD L10043-.
6848								
6849	033254	004537	011310	JSR	R5,RCV1ST		;CLOCK AND RCV 123(DATA1)	
6850	033260	000000		0				
6851	033262	103003		BCC	.*8.		;BR IF NO ERROR	
6852	033264			ERROR			;REPORT STACKED ERROR	
6853	033264	104460						TRAP C#ERROR
6854	033266			ESCAPE	TST		;SKIP TO END OF TEST	
6855	033266	104410						TRAP C#ESCAPE
6856	033270	000100						.WORD L10043-.
6857								
6858	033272	004537	010034	JSR	R5,RXCHAR		;READ & CHK 123(DATA1), RCV 321(DATA2)	
6859	033276	000523		RXSOM!123			; & CHECK RSOM=1	
6860	033300	000000		0				
6861	033302	000010		8.			; 8 TICKS OF THE CLOCK	
6862	033304	103003		BCC	.*8.		;BR IF NO ERROR	
6863	033306			ERROR			;REPORT STACKED ERROR	
6864	033306	104460						TRAP C#ERROR
6865	033310			ESCAPE	TST		;SKIP TO END OF TEST	
6866	033310	104410						TRAP C#ESCAPE
6867	033312	000056						.WORD L10043-.
6868								
6869	033314	004537	007734	JSR	R5,TXCTRL		;SET TEOM AND TGA	
6870	033320	000012		TEOM!TGA				
6871	033322	000000		0				
6872								
6873	033324	004537	010034	JSR	R5,RXCHAR		;READ/CHECK 321(DATA2),RCV 000(DATA3)	
6874	033330	000321		321				
6875	033332	000000		0				
6876	033334	020010		NCRCT!8.			;DON'T CHECK FOR FINAL RXACT=1	
6877	033336	103003		BCC	.*8.		;BR IF NO ERROR	
6878	033340			ERROR			;REPORT STACKED ERROR	
6879	033340	104460						TRAP C#ERROR
6880	033342			ESCAPE	TST		;SKIP TO END OF TEST	
6881	033342	104410						TRAP C#ESCAPE
6882	033344	000024						.WORD L10043-.
6883								
6884	033346	004537	010034	JSR	R5,RXCHAR		;READ/CHECK 000(DATA3)	
6885	033352	003000		RXABGA!RXEOM!000			;VERIFY REOM & RABGA = 1	
6886	033354	000000		0				
6887	033356	060000		NFCRDA!NCRCT			;DON'T CHECK FOR FINAL RDA=RXACT=1	
6888	033360	103003		BCC	.*8.		;BR IF NO ERROR	
6889	033362			ERROR			;REPORT STACKED ERROR	
6890	033362	104460						TRAP C#ERROR
6891	033364			ESCAPE	TST		;SKIP TO END OF TEST	
6892	033364	104410						TRAP C#ESCAPE
6893	033366	000002						.WORD L10043-.
6894	033370							
6895	033370			ENDTST				L10043:
6896	033370	104401						TRAP C#ETST

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TEST 11 -- BOP RX "ABC" TEST

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033372  
033372 004737 005344  
033376 012704 000001  
  
033402  
033402  
033402 104402  
033404 116437 034030 033772  
033412 116437 034040 033546  
  
033420 004537 007324  
033424 003626  
033426 000000  
033430 103003  
033432  
033432 104460  
033434  
033434 104410  
033436 000352  
  
033440 004537 007734  
033444 000001  
033446 000007  
033450 004537 007734  
033454 000000  
033456 000000  
  
033460 004537 007622  
033464 000123  
033466 000010  
033470 103003  
033472  
033472 104460  
033474

```
.SBTTL TEST 11 -- BOP RX "ABC" TEST
;*****
;*
;* TEST 11 -- BOP RX "ABC" TEST
;*
;* THIS TEST IS COMPOSED OF 7 SUBTESTS -- EACH ONE CHECKING A DIFFERENT
;* EXPECTED VALUE IN ABC (THE 3 BIT "ASSEMBLED BIT COUNT" FIELD WITHIN
;* RDSR). IN EACH SUBTEST THE USYRT IS INITIALIZED AND A SMALL MESSAGE
;* IS STARTED. THE LAST CHARACTER IS SENT WITH ITS LENGTH BEING
;* SPECIFIED FIRST AS 1 BIT, THEN AS 2 BITS, THEN AS 3 BITS, ETC. IN THE
;* TRANSMITTER SIDE OF THE USYRT. IN ALL CASES THE RECEIVER IS LEFT SET
;* TO 8 BITS IN LENGTH AND WHEN THE FLAG CHARACTER IS DETECTED, ABC IS
;* CHECKED AND SHOULD MATCH TXCL. ERROR LOOPING WILL BE ON THE FAILING
;* SUBTEST.
;*****
;
; BGNTST
;
; JSR PC,INIDMV ;INIT DMV-11, ENTER M-LOOP
; MOV #1,R4 ;INIT GENERAL PURPOSE INDEX
;-----
; MAIN PROGRAM LOOP
;-----
T9.LP: BGNSUB
;
; T11.1:
; TRAP C#BSUB
;
; MOVB TABLR(R4),30# ;SET UP EXPECTED FINAL VALUE
; MOVB LNTBL(R4),5# ;SET UP FINAL TX CHAR LENGTH (1 => 8 BITS)
;
; JSR R5,INITRN ;LOAD 1 SOM, CLK TX UNTIL ACTIVE
; NOCHK!SYNCH ;SET BOP MODE, SYNCH REG=226
; 0 ;USE 8 BIT CHARS
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
;
; ESCAPE SUB ;SKIP TO END OF TEST
; TRAP C#ESCAPE
; .WORD L10045-.
;
; JSR R5, TXCTRL ;LOAD 2ND FLAG, TX 1ST FLAG
; TSOM
; 7.
; JSR R5, TXCTRL ;CLEAR TSOM
; 000
; 0
;
; JSR R5, TXCHAR ;LOAD 123(DATA1), TX 2ND FLAG
; 123
; 8.
; BCC .+8. ;BR IF NO ERROR
; ERROR ;REPORT STACKED ERROR
; TRAP C#ERROR
;
; ESCAPE SUB ;SKIP TO END OF TEST
```

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TEST 11 -- BOP RX "ABC" TEST

6953	033474	104410				TRAP	C#ESCAPE
6954	033476	000312				.WORD	L10045-
6955							
6956	033500	004537	007622	JSR	R5, TXCHAR		;LOAD 321(DATA2), TX 123(DATA1)
6957	033504	000321			321		
6958	033506	000010			8.		
6959	033510	103003		BCC	.+8.		;BR IF NO ERROR
6960	033512			ERROR			;REPORT STACKED ERROR
6961	033512	104460				TRAP	C#ERROR
6962	033514			ESCAPE	SUB		;SKIP TO END OF TEST
6963	033514	104410				TRAP	C#ESCAPE
6964	033516	000272				.WORD	L10045-
6965							
6966	033520	004537	007622	JSR	R5, TXCHAR		;LOAD 000(DATA3), TX 321(DATA2)
6967	033524	000000			000		
6968	033526	000010			8.		
6969	033530	103003		BCC	.+8.		;BR IF NO ERROR
6970	033532			ERROR			;REPORT STACKED ERROR
6971	033532	104460				TRAP	C#ERROR
6972	033534			ESCAPE	SUB		;SKIP TO END OF TEST
6973	033534	104410				TRAP	C#ESCAPE
6974	033536	000252				.WORD	L10045-
6975							
6976	033540	004537	003660	JSR	R5, WRITEI		;CHANGE BIT LENGTH OF FINAL CHAR
6977	033544	120407		PCR			
6978	033546	000000			000		;** HOLE FOR RX/TX CHAR LENGTH **
6979							
6980	033550	004537	007622	JSR	R5, TXCHAR		;LOAD 377(DATA4); TX 000(DATA3)
6981	033554	000377			377		
6982	033556	000010			8.		
6983	033560	103003		BCC	.+8.		;BR IF NO ERROR
6984	033562			ERROR			;REPORT STACKED ERROR
6985	033562	104460				TRAP	C#ERROR
6986	033564			ESCAPE	SUB		;SKIP TO END OF TEST
6987	033564	104410				TRAP	C#ESCAPE
6988	033566	000222				.WORD	L10045-
6989							
6990	033570	004537	007734	JSR	R5, TXCTRL		;TX DATA4 (ONLY # OF BITS SPECIFIED IN
6991	033574	000002		TEOM			; R4 WILL GET TRANSMITTED) + SOME OF THE
6992	033576	000020			16.		; CRC CHARACTER
6993	033600	004537	011540	JSR	R5, STEPLU		;TX REMAINING CRC CHAR + PUT SOME EXTRA BITS
6994	033604	000040			32.		;ON THE FIFO
6995							
6996	033606	004537	010034	JSR	R5, RXCHAR		;READ & CHK 123(DATA1), RCV 321(DATA2)
6997	033612	000523		RXSOM!	123		; & CHECK RSOM=1
6998	033614	000000			0		
6999	033616	100000		NOCRDA			
7000	033620	103003		BCC	.+8.		;BR IF NO ERROR
7001	033622			ERROR			;REPORT STACKED ERROR
7002	033622	104460				TRAP	C#ERROR
7003	033624			ESCAPE	SUB		;SKIP TO END OF TEST
7004	033624	104410				TRAP	C#ESCAPE
7005	033626	000162				.WORD	L10045-
7006							
7007	033630	004537	010034	JSR	R5, RXCHAR		;READ/CHECK 321(DATA2), RCV 000(DATA3)
7008	033634	000321			321		

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TEST 11 -- BOP RX "ABC" TEST

```

7009 033636 000000          0
7010 033640 120000          NCRDA:NCRACT
7011 033642 103003          BCC      .+8.      ;BR IF NO ERROR
7012 033644          ERROR          ;REPORT STACKED ERROR
7013 033644 104460          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ERROR
7014 033646          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ESCAPE
7015 033646 104410          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7016 033650 000140          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7017
7018 033652 004537 010034      JSR      R5,RXCHAR      ;READ/CHECK 000(DATA3),RCV DATA4
7019 033656 000000          000
7020 033660 000000          0
7021 033662 120000          NCRDA:NCRACT
7022 033664 103003          BCC      .+8.      ;BR IF NO ERROR
7023 033666          ERROR          ;REPORT STACKED ERROR
7024 033666 104460          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ERROR
7025 033670          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ESCAPE
7026 033670 104410          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7027 033672 000116          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7028
7029 033674 004537 003534      JSR      R5,READI      ;GET READ STATUS REGISTER
7030 033700 120401          RDSRH
7031 033702 000000          000          ;** HOLE FOR RDSRH VALUE **
7032 033704 042737 177617 033702 200:      BIC      #177617,200      ;MASK "ABC" VALUE
7033 033712 006237 033702          ASR      200          ; AND RIGHT JUSTIFY IT
7034 033716 006237 033702          ASR      200
7035 033722 006237 033702          ASR      200
7036 033726 006237 033702          ASR      200
7037 ^33732 020437 033702          CMP      R4,200          ;IS ASSEMBLED BIT COUNT CORRECT ?
7038 033736 001413          BEQ      310
7039
7040          ;-----
7041          ; ERROR REPORTING GOES HERE
7042          ;-----
7042 033740 010437 002330          MOV      R4,GDATA      ;EXPECTED BIT COUNT
7043 033744 013737 033702 002332      MOV      200,BDATA      ;ACTUAL (ERRONEOUS) BIT COUNT
7044 033752          GEDF      EM105,ERR22
7045          ; "DEVICE FATAL" ERROR # 50
7046 033752 104455          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ERDF
7047 033754 000062          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    50
7048 033756 016665          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    EM105
7049 033760 022264          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    ERR22
7050 033762          ESCAPE SUB          ;SKIP TO END OF TEST
7051 033762 104410          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ESCAPE
7052 033764 000024          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7053
7054 033766 004537 010034      310:      JSR      R5,RXCHAR      ;READ/CHECK DATA4 (SHORT CHARACTER)
7055 033772 000001          300:      001          ;** HOLE FOR DATA4 VALUE **
7056 033774 000000          0
7057 033776 060000          NCRACT:NCRDA
7058 034000 103003          BCC      .+8.      ;DON'T CHECK RECEIVER ACTIVE/FINAL RDA.
7059 034002          ERROR          ;BR IF NO ERROR
7060 034002 104460          ERROR          ;REPORT STACKED ERROR          TRAP      C#ERROR
7061 034004          ESCAPE SUB          ;SKIP TO END OF TEST          TRAP      C#ESCAPE
7062 034004 104410          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7063 034006 000002          ESCAPE SUB          ;SKIP TO END OF TEST          .WORD    L10045-.
7064 034010          ENDSUB

```

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TEST 11 -- BOP RX "ABC" TEST

7065	034010		
7066	034010	104403	
7067	034012	005204	
7068	034014	020427	000010
7069	034020	001402	
7070	034022	000137	033402
7071	034026		
7072	034026		
7073	034026	104401	
7074			
7075	034030	377	
7076	034031	001	
7077	034032	003	
7078	034033	007	
7079	034034	017	
7080	034035	037	
7081	034036	077	
7082	034037	177	
7083			
7084	034040	000	
7085	034041	040	
7086	034042	100	
7087	034043	140	
7088	034044	200	
7089	034045	240	
7090	034046	300	
7091	034047	340	
7092			

```

INC      R4
CMP      R4,#8.
BEQ      .+6
JMP      19.LP
ENDTST

```

```

;BUMP GENERAL PURPOSE INDEX
;ARE WE DONE WITH THIS TEST ?
;EXIT IF YES
;OTHERWISE DO THE NEXT COUNT

```

```

L10045: TRAP C0ESUB
L10044: TRAP C0ETST

```

```

;-----
TABLR:  .BYTE 377
        .BYTE 001
        .BYTE 003
        .BYTE 007
        .BYTE 017
        .BYTE 037
        .BYTE 077
        .BYTE 177
;-----
LNTBL:  .BYTE 000
        .BYTE 040
        .BYTE 100
        .BYTE 140
        .BYTE 200
        .BYTE 240
        .BYTE 300
        .BYTE 340
;-----

```

.SBTTL HARDWARE PARAMETER CODING SECTION

7093  
7094  
7095  
7096  
7097  
7098  
7099  
7100  
7101  
7102  
7103  
7104  
7105  
7106  
7107  
7108  
7109  
7110  
7111  
7112  
7113  
7114  
7115  
7116  
7117  
7118  
7119  
7120  
7121  
7122  
7123  
7124  
7125  
7126  
7127  
7128  
7129  
7130  
7131

034050  
034050 000015  
034052  
034052  
034052 000031  
034054 034104  
034056 160020  
034060 177776  
034062  
034062 001031  
034064 034132  
034066 000000  
034070 000674  
034072  
034072 002032  
034074 034163  
034076 007000  
034100 000004  
034102 000007  
034104  
034104  
034104 042504 044526 042503  
034132 042504 044526 042503  
034163 104 053105 041511

```

;
; ////////////////////////////////////////////////////////////////////////////////////////////////////////////////////
; / THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
; / THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
; / MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE
; / INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE
; / MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS
; / WITH THE OPERATOR.
; ////////////////////////////////////////////////////////////////////////////////////////////////////////////////////

```

BGNHRD

.WORD L10046-L#HARD/2  
L#HARD::

GPRMA ADDRES,0,0,160020,177776,YES

.WORD T#CODE  
.WORD ADDRES  
.WORD T#LOLIM  
.WORD T#HILIM

GPRMA VECTOR,2,0,0,674,YES

.WORD T#CODE  
.WORD VECTOR  
.WORD T#LOLIM  
.WORD T#HILIM

GPRMD PRIRTY,4,0,7000,4,7,YES

.WORD T#CODE  
.WORD PRIRTY  
.WORD 7000  
.WORD T#LOLIM  
.WORD T#HILIM

ENDHRD

.EVEN  
L10046:

```

.NLIST BEX
ADDRS: .ASCIZ /DEVICE CSR ADDRESS : /
VECTOR: .ASCIZ /DEVICE VECTOR ADDRESS : /
PRIRTY: .ASCIZ /DEVICE PRIORITY LEVEL : /
.LIST BEX
.EVEN

```

7132



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SOFTWARE PARAMETER CODING SECTION

.SBTTL SOFTWARE PARAMETER CODING SECTION

7133  
7134  
7135  
7136  
7137  
7138  
7139  
7140  
7141  
7142  
7143  
7144  
7145  
7146  
7147  
7148  
7149  
7150  
7151

034214  
034214 000000  
034216  
034216  
034216  
034216

;;;  
;/ THE SOFTWARE PARAMETER CODING SECTION CONTAINS MACROS  
;/ THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE  
;/ MACROS ARE NOT EXECUTED AS MACHINE INSTRUCTIONS BUT ARE  
;/ INTERPRETED BY THE SUPERVISOR AS DATA STRUCTURES. THE  
;/ MACROS ALLOW THE SUPERVISOR TO ESTABLISH COMMUNICATIONS  
;/ WITH THE OPERATOR.  
;;;

BGNSFT

.WORD L10047-L#SOFT/2  
L#SOFT::

ENDSFT

.EVEN  
L10047:

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\*\*\*\*\* PATCH AREA FOR DEBUG \*\*\*\*\*

7152  
7153  
7154 034216  
7155 034316 034316  
7156 034316 000240  
7157 034320 000240  
7158 034322 000240  
7159  
7160  
7161  
7162  
7163 034324  
7164  
7165  
7166 034324  
7167  
7168 034324 000000  
7169 034326 000000  
7170 034330  
7171  
7172 000001

.SBTTL \*\*\*\*\* PATCH AREA FOR DEBUG \*\*\*\*\*

PATCH:

. = +100  
NOP  
NOP  
NOP

;\*\*\*\*\*

.SBTTL "ENDMOD" STATEMENT

ENDMOD

.SBTTL "LASTAD" STATEMENT & END OF PROGRAM  
LASTAD

.EVEN  
.WORD 0  
.WORD 0

L\$LAST::

.END

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CROSS REFERENCE TABLE -- USER SYMBOLS

ABC	=	000160	1264#																	
ADDRES		034104	7112	7131#																
ADPAT		030176	5606	5792#																
ADR	=	000020	G	1196#																
AD.HIT		024304	4388	4423#																
AD.OK		024300	4412	4417#																
APA	=	000200	1320#																	
APAD	=	100000	1329#	5826																
ASSEMB	=	000010	952																	
BADAT		002372	1715#																	
BADATA		002332	1698#	2317*	2320	2323	2597*	2700*	2701*	3131*	3391*	3392*	3409*	3410*	3784					
			3833	3903	3971	3996	7043*													
BDRATE		002500	1762#	4356*																
BIT0	=	000001	G	1169#	1214	1226	1268	1277	1296	1325	1351	1367	1385	1401	1543	1557				
			1579	1632	2731	2776	2821	2866	2911	2954	3001	3068	4322							
BIT00	=	000001	G	1158#	1169															
BIT01	=	000002	G	1157#	1168															
BIT02	=	000004	G	1156#	1167															
BIT03	=	000010	G	1155#	1166															
BIT04	=	000020	G	1154#	1165															
BIT05	=	000040	G	1153#	1164															
BIT06	=	000100	G	1152#	1163															
BIT07	=	000200	G	1151#	1162															
BIT08	=	000400	G	1150#	1161															
BIT09	=	001000	G	1149#	1160															
BIT1	=	000002	G	1168#	1267	1295	1325	1351	1366	1384	1400	1542	1556	1578	1631	3025				
BIT10	=	002000	G	1148#	1273	1301	1336	1337	1338											
BIT11	=	004000	G	1147#	1272	1300	1333													
BIT12	=	010000	G	1146#	1332															
BIT13	=	020000	G	1145#	1331	1641														
BIT14	=	040000	G	1144#	1330	1634	1640													
BIT15	=	100000	G	1143#	1271	1299	1329	1628	1639											
BIT2	=	000004	G	1167#	1266	1294	1325	1351	1365	1383	1399	1531	1556	1577						
BIT3	=	000010	G	1166#	1265	1293	1324	1350	1364	1382	1398	1531	1556	1576						
BIT4	=	000020	G	1165#	1213	1264	1323	1349	1363	1381	1397	1531	1555	1575						
BIT5	=	000040	G	1164#	1264	1322	1348	1362	1380	1396	1526	1554	1574	3533						
BIT6	=	000100	G	1163#	1225	1264	1321	1348	1361	1379	1395	1516	1554	1573	3553					
BIT7	=	000200	G	1162#	1224	1232	1263	1292	1320	1348	1360	1378	1394	1516	1554	1567				
			1589	1637	3370	3371	3542													
BIT8	=	000400	G	1161#	1275	1303	1334	1335	1336	1337										
BIT9	=	001000	G	1160#	1274	1302	1335	1336	1635											
BOE	=	000400	G	1200#																
BRDTYP		002474	1760#	4354*																
BSEL0		002422	1729#	2259	4395	4401														
BSEL1		002424	1732#	2055*	2260															
BSEL10		002442	1742#	2267																
BSEL11		002444	1744#	2268																
BSEL12		002446	1745#	2269																
BSEL13		002450	1747#	2270																
BSEL14		002452	1748#	2271																
BSEL15		002454	1750#	2272																
BSEL16		002456	1751#	2273																
BSEL17		002460	1753#	2274	4344															
BSEL2		002426	1733#	2062	2098*	2105	2145*	2152	2217*	2224	2261									
BSEL3		002430	1735#	2262																
BSEL4		002432	1736#	2263																

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BSL5	002434	1738#	2264																
BSL6	002436	1739#	2120	2265															
BSL7	002440	1741#	2266																
BSR0	002206	1665#	2259#	4018															
BSR1	002210	1667#	2260#	4017															
BSR10	002226	1680#	2267#	4052															
BSR11	002230	1681#	2268#	4051															
BSR12	002232	1682#	2269#	4050															
BSR13	002234	1683#	2270#	4049															
BSR14	002236	1684#	2271#	4069															
BSR15	002240	1685#	2272#	4068															
BSR16	002242	1686#	2273#	4067															
BSR17	002244	1687#	2274#	4066															
BSR2	002212	1669#	2261#	4016															
BSR3	002214	1671#	2262#	4015															
BSR4	002216	1673#	2263#	4035															
BSR5	002220	1675#	2264#	4034															
BSR6	002222	1677#	2265#	4033															
BSR7	002224	1679#	2266#	4032															
CARRIER-	000100	1395#																	
CA1CTL-	000001	1557#																	
CA2CTL-	000016	1556#																	
CB1CTL-	000020	1555#																	
CB2CTL-	000340	1554#																	
CHKTS0	007042	3063#	3120	4530	4577	4613	4663	4710	4752										
CHPTYP	002404	1720#	4271#																
CKRACT	005622	2771#	3535	3589	3616	3645	3656												
CKRDA	006122	2861#	3544	3555	3592	3608	3613	5681	5892										
CKROR	006422	2949#	5566																
CKRSA	006262	2906#																	
CKSEOM	006562	2996#	3595																
CKTACT	005462	2726#	3231	3267	3319	3642	3653												
CKTBMT	005762	2816#	3214	3228	3276	3283	3324	3331											
CKUSTS	005356	2691#	3197	6498	6544	6639	6659	6761	6774										
CRCOS -	000400	1334#																	
CRC16 -	001400	1335#	5071	5188															
CTS -	000010	1398#																	
C#AU -	000052	952#	4467																
C#AUTO-	000061	952#	4421																
C#BRK -	000022	952#																	
C#BSEG-	000004	952#	5611																
C#BSUB-	000002	952#	4503	4637	4807	4927	5068	5185	5604	5824	6428	6558	6925						
C#CEFG-	000045	952#																	
C#CLOCK-	000062	952#																	
C#CLEA-	000012	952#	4439																
C#CLOS-	000035	952#																	
C#CLP1-	000006	952#																	
C#CVEC-	000036	952#	4410																
C#DCLN-	000044	952#																	
C#DODU-	000051	952#	4415																
C#DRPT-	000024	952#																	
C#DU -	000053	952#	4454																
C#EDIT-	000003	952#	1024																
C#ERDF-	000055	952#	4582	4618	4715	4757	5694	5763	5907	5977	5992	6525	6536	7046					
C#ERHR-	000056	952#																	
C#ERRO-	000060	952#	4511	4525	4534	4544	4559	4569	4605	4645	4658	4667	4677	4692					



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C#REVI=	000003	9520	1023						
C#FLA=	000021	9520							
C#RPT =	000025	9520							
C#SEFG=	000046	9520							
C#SPRI=	000041	9520							
C#SVEC=	000037	9520	4391						
C#TPRI=	000013	9520							
DDCMP =	040000	13300	4507	4641	4810	4930	5071	5188	
DEVMAP	002410	17220	4318*	4336*					
DEVPTR	002412	17230	4322*	4334*	4336	4337*			
DFPTBL	002154 G	11020							
DIAGMC=	000000	952							
DOTBMT=	000007	12420							
DTR =	000020	13810	2579	2582	2655	3170	3173	6759	
DTRL =	000000	13860							
D.BUG =	000000	16430							
EF.COM=	000036 G	11760	4308						
EF.NEW=	000035 G	11770	4301						
EF.PWR=	000034 G	11780							
EF.RES=	000037 G	11750	4294						
EF.STA=	000040 G	11740	4287						
EIAV35=	000002	16310							
EM1	014007	36970							
EM100	016422	3077	36970						
EM101	016442	3089	36970						
EM102	016466	36970	5696	5909					
EM103	016530	36970	5765	5979					
EM104	016607	36970	5994						
EM105	016665	36970	7048						
EM106	016735	3137	36970						
EM13	014236	36970							
EM14	014265	3457	36970						
EM15	014301	36970							
EM16	014327	3447	36970						
EM2	014046	2603	36970						
EM25	014347	2331	36970						
EM26	014375	36970							
EM27	014427	36970							
EM28	014460	3021	3516	36970					
EM29	014501	3010	3526	36970					
EM3	014115	2070	36970						
EM30	014516	3045	3493	36970					
EM31	014537	3034	3503	36970	6538				
EM32	014554	36970							
EM33	014603	36970							
EM34	014626	3398	36970						
EM35	014654	3424	36970						
EM36	014675	3434	36970						
EM39	014712	3470	36970						
EM4	014141	2114	2161	2232	36970				
EM40	014734	3480	36970	6527					
EM41	014752	36970							
EM42	014773	36970							
EM43	015010	36970							
EM44	015035	36970							
EM45	015062	36970							







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FMT32	013533	36970																	
FMT39	013565	36970																	
FMT4	011715	36970	4009	4085															
FMT4A	011753	36970	4019	4053															
FMT4B	012006	36970	4026	4043	4060	4102													
FMT4C	012013	36970	4036	4070															
FMT40	013616	36970	3895																
FMT5	012046	36970	3739																
FMT5A	012111	36970	3755																
FMT50	013662	36970	3947																
FMT51	013725	36970	3973																
FMT7	012176	36970																	
FRSTIM	002374	17160	4274	4283															
F1AU =	000015	9520	4464	4466															
F1AUT0=	000020	9520	4384	4420															
F1BGN =	000040	9520	955	3731	3770	3805	3849	3884	3913	3936	3961	4254	4267	4384					
		4434	4448	4464	4497	4502	4513	4527	4536	4546	4561	4571	4587	4607					
		4623	4629	4636	4647	4660	4669	4679	4694	4704	4720	4736	4746	4762					
		4768	4771	4801	4806	4816	4835	4845	4855	4865	4875	4886	4897	4908					
		4917	4920	4926	4936	4955	4965	4975	4985	4995	5006	5017	5028	5037					
		5040	5043	5062	5067	5077	5099	5122	5133	5144	5155	5166	5175	5178					
		5184	5194	5217	5234	5245	5256	5267	5278	5287	5290	5293	5330	5340					
		5357	5367	5377	5387	5396	5407	5417	5428	5443	5458	5473	5487	5497					
		5507	5517	5528	5538	5549	5560	5572	5575	5598	5603	5611	5619	5649					
		5658	5667	5676	5699	5712	5725	5738	5751	5768	5786	5789	5818	5823					
		5832	5860	5869	5878	5887	5912	5925	5938	5951	5964	5982	5997	6006					
		6009	6032	6042	6059	6069	6079	6089	6098	6109	6119	6130	6140	6151					
		6161	6172	6182	6193	6203	6214	6224	6235	6245	6256	6266	6277	6287					
		6298	6308	6319	6329	6340	6350	6361	6371	6382	6393	6404	6407	6424					
		6427	6438	6455	6465	6475	6484	6495	6504	6515	6530	6541	6550	6553					
		6557	6568	6585	6595	6605	6614	6625	6636	6645	6656	6665	6668	6671					
		6686	6697	6714	6724	6734	6743	6754	6767	6780	6783	6799	6809	6826					
		6836	6846	6855	6866	6881	6892	6895	6917	6924	6936	6953	6963	6973					
		6987	7004	7015	7026	7051	7062	7065	7072	7107	7146	7164							
		9520	4434	4438															
F1CLEA=	000007	9520	4448	4453															
F1DU =	000016	9520	955	3766	3800	3844	3878	3913	3931	3956	3982	4367	4422	4440					
F1END =	000041	9520	4455	4468	4497	4502	4513	4527	4536	4546	4561	4571	4587	4607					
		4629	4631	4636	4647	4660	4669	4679	4694	4704	4720	4736	4746	4762					
		4768	4770	4771	4773	4801	4806	4816	4835	4845	4855	4865	4875	4886					
		4897	4908	4917	4920	4922	4926	4936	4955	4965	4975	4985	4995	5006					
		5017	5028	5037	5040	5042	5043	5045	5062	5067	5077	5099	5122	5133					
		5144	5155	5166	5175	5178	5180	5184	5194	5217	5234	5245	5256	5267					
		5278	5287	5290	5292	5293	5295	5330	5340	5357	5367	5377	5387	5396					
		5407	5417	5428	5443	5458	5473	5487	5497	5507	5517	5528	5538	5549					
		5560	5572	5575	5577	5598	5603	5619	5649	5658	5667	5676	5699	5712					
		5725	5738	5751	5768	5780	5788	5788	5789	5791	5818	5823	5832	5860					
		5869	5878	5887	5912	5925	5938	5951	5964	5982	5997	6006	6008	6009					
		6011	6032	6042	6059	6069	6079	6089	6098	6109	6119	6130	6140	6151					
		6161	6172	6182	6193	6203	6214	6224	6235	6245	6256	6266	6277	6287					
		6298	6308	6319	6329	6340	6350	6361	6371	6382	6393	6404	6407	6409					
		6424	6427	6438	6455	6465	6475	6484	6495	6504	6515	6530	6541	6550					
		6553	6555	6557	6568	6585	6595	6605	6614	6625	6636	6645	6656	6665					
		6668	6670	6671	6673	6686	6697	6714	6724	6734	6743	6754	6767	6780					
		6783	6785	6799	6809	6826	6836	6846	6855	6866	6881	6892	6895	6897					
		6917	6924	6936	6953	6963	6973	6987	7004	7015	7026	7051	7062	7065					



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ILOOP	027514	56120	5776											
INIDMV	005344	26770	4504	4638	4808	4928	5069	5186	5331	5599	5819	6033	6429	6559
		6688	6800	6918										
INITRM	007324	31660	4506	4640	4809	4929	5070	5187	5333	5612	5825	6035	6431	6561
		6690	6802	6929										
INITT1	004502	24240												
INITT2	004702	25110												
INTFLG	002352	17060												
INTGRL	= 000001	16320												
INTSC	= 000200	15890												
ISR	= 000100 G	11980												
IXE	= 004000 G	12030												
I#AU	= 000041	9520	44640	44680										
I#AUTO	= 000041	9520	43840	44220										
I#CLN	= 000041	9520	44340	44400										
I#DU	= 000041	9520	44480	44550										
I#HRD	= 000041	71070	71300											
I#INIT	= 000041	9520	42670	43670										
I#MOD	= 000041	9520	9550	71640										
I#MSG	= 000041	9520	37310	37660	37700	38000	38050	38440	38490	38780	38840	39130	39180	39310
		39360	39560	39610	39820									
I#PROT	= 000040	9520	42540											
I#PTAB	= 000041	9520												
I#PWR	= 000041	9520												
I#RPT	= 000041	9520												
I#SEG	= 000041	9520	4497	4502	4636	4801	4806	4926	5062	5067	5184	5330	5598	5603
		56110	5619	5649	5658	5667	5676	5699	5712	5725	5738	5751	5768	57800
		5818	5823	6032	6424	6427	6557	6686	6799	6917	6924			
I#SETU	= 000041	9520												
I#SFT	= 000041	71460	71520											
I#SRV	= 000041	9520												
I#SUB	= 000041	9520	4497	45020	4513	4527	4536	4546	4561	4571	4587	4607	4623	46290
		46310	46360	4647	4660	4669	4679	4694	4704	4720	4736	4746	4762	47680
		47700	4801	48060	4816	4835	4845	4855	4865	4875	4886	4897	4908	4917
		49200	49220	49260	4936	4955	4965	4975	4985	4995	5006	5017	5028	5037
		50400	50420	5062	50670	51780	51800	51840	52900	52920	5330	5598	56030	57860
		57880	5818	58230	5832	5860	5869	5878	5887	5912	5925	5938	5951	5964
		5982	5997	60060	60080	6032	6424	64270	6438	6455	6465	6475	6484	6495
		6504	6515	6530	6541	6550	65530	65550	65570	6568	6585	6595	6605	6614
		6625	6636	6645	6656	6665	66680	66700	6686	6799	6917	69240	6936	6953
		6963	6973	6987	7004	7015	7026	7051	7062	70650	70670			
I#TST	= 000041	9520	44970	4502	4636	47710	47730	48010	4806	4926	50430	50450	50620	5067
		5077	5099	5122	5133	5144	5155	5166	5175	5184	5194	5217	5234	5245
		5256	5267	5278	5287	52930	52950	53300	5340	5357	5367	5377	5387	5396
		5407	5417	5428	5443	5458	5473	5487	5497	5507	5517	5528	5538	5549
		5560	5572	55750	55770	55980	5603	57890	57910	58180	5823	60090	60110	60320
		6042	6059	6069	6079	6089	6098	6109	6119	6130	6140	6151	6161	6172
		6182	6193	6203	6214	6224	6235	6245	6256	6266	6277	6287	6298	6308
		6319	6329	6340	6350	6361	6371	6382	6393	6404	64070	64090	64240	6427
		6557	66710	66730	66860	6697	6714	6724	6734	6743	6754	6767	6780	67830
		67850	67990	6809	6826	6836	6846	6855	6866	6881	6892	68950	68970	69170
		6924	70720	70740										
J#JMP	= 000167	9520												
LNTBL	034040	6927	70840											
LOADAT	002366	17130												
LOE	= 040000 G	12060												

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L#DEV	002340	17010	4320*	4327*	4329	4414
LOOP	030212	58220	6004			
L#T	000010 G	11950				
L#SM11	002470	17580	4352*			
L#SM12	002472	17590	4353*			
L#MOD	002000 G	9550				
L#ACP	002110 G	10540				
L#APT	002036 G	10120				
L#AU	024320 G	1039	44640			
L#AUT	002070 G	10380				
L#AUTO	024166 G	1055	43840			
L#CCP	002106 G	10570				
L#CLEA	024312 G	1053	44340			
L#CO	002032 G	10080				
L#DEPO	002011 G	9900				
L#DESC	003252 G	1045	20220			
L#DESP	002076 G	10440				
L#DEVP	002060 G	10300				
L#DISP	002124 G	1015	10780			
L#DLY	002116 G	10600				
L#DTP	002040 G	10140				
L#DTYP	002034 G	10100				
L#DU	024314 G	1041	44480			
L#DUT	002072 G	10400				
L#DVTY	003232 G	1031	20100			
L#EF	002052 G	10250				
L#ENVI	002044 G	10180				
L#ERRT	002176 G	1049	16550			
L#ETP	002102 G	10480				
L#EXP1	002046 G	10200				
L#EXP4	002064 G	10340				
L#EXP5	002066 G	10360				
L#HARD	034052 G	997	7107	71080		
L#HIDE	002120 G	10620				
L#HPCP	002016 G	9960				
L#HPTP	002022 G	10000				
L#HM	002154 G	1001	1100	11010		
L#ICP	002104 G	10500				
L#INIT	023644 G	1051	42670			
L#LADP	002026 G	10040				
L#LAST	034330 G	1005	71700			
L#LOAD	002100 G	10460				
L#LUN	002074 G	10420				
L#PREV	002050 G	10220				
L#NAME	002000 G	9790				
L#PRIO	002042 G	10160				
L#PROT	023636 G	1057	42540			
L#PRT	002112 G	10560				
L#REPP	002062 G	10320				
L#REV	002010 G	9880				
L#SOFT	034216 G	7146	71470			
L#SPC	002056 G	10280				
L#SPCP	002020 G	9980				
L#SPTP	002024 G	10020				
L#STA	002030 G	10060				
L#SW	002176 G	1125	11260			







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SELO	002422	1730#	2280											
SEL10	002442	1743#	2284											
SEL12	002446	1746#	2285											
SEL14	002452	1749#	2286											
SEL16	002456	1752#	2287											
SEL2	002426	1734#	2281											
SEL4	002432	1737#	2097*	2144*	2190*	2215*	2282							
SEL6	002436	1740#	2167	2191*	2216*	2283								
SERIAL	007202	3108#	4539	4564	4600	4672	4697	4739						
SETVIA	005252	2643#	2678											
SFPTBL	002176	G 1127#												
SFR =	000001	1367#												
SPEED =	000020	1397#												
SRMODE =	000034	1531#												
STALL	004324	2342#												
STARES	002416	1725#	4315*	4321*										
STARST	024000	4290	4297	4314#										
STEPLU	011540	3117	3218	3279	3327	3548	3598	3651	3674#	4574	4610	4707	4749	5111
		5223	5678	5889	6993									
STRIP =	000040	1322#												
STRIPS =	020000	1331#	5071	5188	6803									
STRML =	000301	1227#												
STUREG	004216	2309#												
SUBRPC	002350	1705#	4270*											
SVCGBL =	000000	952#	955	962#	979	988	990	992	994	996	998	1000	1002	1004
		1006	1008	1010	1012	1014	1016	1018	1020	1022	1025	1028	1030	1032
		1034	1036	1038	1040	1042	1044	1046	1048	1050	1052	1054	1056	1058
		1060	1062	1078	1101	1102	1126	1127	1655	2010	2022	3731	3770	3805
		3849	3884	3918	3936	3961	4254	4267	4384	4434	4448	4464	7108	7147
		7170#	7171											
SVCINS =	000001	952#	959#	980	981	982	983	984	985	986	987	989	991	993
		995	997	999	1001	1003	1005	1007	1009	1011	1013	1015	1017	1019
		1021	1023	1024	1026	1027	1029	1031	1033	1035	1037	1039	1041	1043
		1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1077	1079	1080
		1081	1082	1083	1084	1085	1086	1087	1088	1089	1100	1125	2011	2014
		2023	2030	2068	2069	2070	2071	2112	2113	2114	2115	2159	2160	2161
		2162	2230	2231	2232	2233	2329	2330	2331	2332	2601	2602	2603	2604
		2705	2706	2707	2708	2738	2739	2740	2741	2749	2750	2751	2752	2783
		2784	2785	2786	2794	2795	2796	2797	2828	2829	2830	2831	2839	2840
		2841	2842	2873	2874	2875	2876	2884	2885	2886	2887	2918	2919	2920
		2921	2929	2930	2931	2932	2961	2962	2963	2964	2972	2973	2974	2975
		3008	3009	3010	3011	3019	3020	3021	3022	3032	3033	3034	3035	3043
		3044	3045	3046	3075	3076	3077	3078	3087	3088	3089	3090	3135	3136
		3137	3138	3383	3384	3385	3386	3396	3397	3398	3399	3422	3423	3424
		3425	3432	3433	3434	3435	3445	3446	3447	3448	3455	3456	3457	3458
		3468	3469	3470	3471	3478	3479	3480	3481	3491	3492	3493	3494	3501
		3502	3503	3504	3514	3515	3516	3517	3524	3525	3526	3527	3738	3739
		3740	3741	3742	3743	3753	3754	3755	3756	3757	3758	3759	3765	3774
		3775	3776	3777	3778	3779	3780	3783	3784	3785	3786	3787	3788	3789
		3790	3792	3793	3794	3795	3796	3799	3807	3808	3809	3810	3811	3812
		3813	3815	3816	3817	3818	3819	3823	3824	3825	3826	3827	3828	3829
		3832	3833	3834	3835	3836	3837	3838	3839	3843	3851	3852	3853	3854
		3855	3856	3857	3859	3860	3861	3862	3863	3867	3868	3869	3870	3871
		3872	3873	3877	3886	3887	3888	3889	3890	3891	3892	389#	3895	3896
		3897	3898	3899	3902	3903	3904	3905	3906	3907	3908	3909	3912	3920
		3921	3922	3923	3924	3925	3926	3930	3938	3939	3940	3941	3942	3943



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3944	3946	3947	3948	3949	3950	3951	3955	3963	3964	3965	3966	3967
3968	3969	3971	3972	3973	3974	3975	3976	3977	3981	4007	4008	4009
4010	4011	4012	4013	4015	4016	4017	4018	4019	4020	4021	4022	4023
4025	4026	4027	4028	4029	4030	4032	4033	4034	4035	4036	4037	4038
4039	4040	4042	4043	4044	4045	4046	4047	4049	4050	4051	4052	4053
4054	4055	4056	4057	4059	4060	4061	4062	4063	4064	4066	4067	4068
4069	4070	4071	4072	4073	4074	4083	4084	4085	4086	4087	4088	4089
4091	4092	4093	4094	4095	4096	4097	4098	4099	4101	4102	4103	4104
4105	4106	4108	4109	4110	4111	4112	4113	4114	4115	4116	4118	4119
4120	4121	4122	4132	4133	4134	4135	4136	4137	4138	4140	4141	4142
4143	4144	4145	4146	4147	4148	4150	4151	4152	4153	4154	4155	4157
4158	4159	4160	4161	4162	4163	4164	4165	4167	4168	4169	4170	4171
4172	4174	4175	4176	4177	4178	4179	4180	4181	4182	4184	4185	4186
4187	4188	4189	4191	4192	4193	4194	4195	4196	4197	4198	4199	4209
4210	4211	4212	4213	4214	4215	4217	4218	4219	4220	4221	4222	4223
4224	4225	4227	4228	4229	4230	4231	4232	4234	4235	4236	4237	4238
4239	4240	4241	4242	4287	4288	4290	4294	4295	4297	4301	4302	4304
4308	4309	4311	4329	4330	4331	4333	4359	4366	4387	4388	4389	4390
4391	4392	4409	4410	4414	4415	4421	4439	4451	4454	4467	4503	4511
4513	4514	4525	4527	4528	4534	4536	4537	4544	4546	4547	4559	4561
4562	4569	4571	4572	4582	4583	4584	4585	4587	4588	4605	4607	4608
4618	4619	4620	4621	4623	4624	4630	4637	4645	4647	4648	4658	4660
4661	4667	4669	4670	4677	4679	4680	4692	4694	4695	4702	4704	4705
4715	4716	4717	4718	4720	4721	4734	4736	4737	4744	4746	4747	4757
4758	4759	4760	4762	4763	4769	4772	4807	4814	4816	4817	4833	4835
4836	4843	4845	4846	4853	4855	4856	4863	4865	4866	4873	4875	4876
4884	4886	4887	4895	4897	4898	4906	4908	4909	4915	4917	4918	4921
4927	4934	4936	4937	4953	4955	4956	4963	4965	4966	4973	4975	4976
4983	4985	4986	4993	4995	4996	5004	5006	5007	5015	5017	5018	5026
5028	5029	5035	5037	5038	5041	5044	5068	5075	5077	5078	5097	5099
5100	5120	5122	5123	5131	5133	5134	5142	5144	5145	5153	5155	5156
5164	5166	5167	5173	5175	5176	5179	5185	5192	5194	5195	5215	5217
5218	5232	5234	5235	5243	5245	5246	5254	5256	5257	5265	5267	5268
5276	5278	5279	5285	5287	5288	5291	5294	5338	5340	5341	5355	5357
5358	5365	5367	5368	5375	5377	5378	5385	5387	5388	5394	5396	5397
5405	5407	5408	5415	5417	5418	5426	5428	5429	5441	5443	5444	5456
5458	5459	5471	5473	5474	5485	5487	5488	5495	5497	5498	5505	5507
5508	5515	5517	5518	5526	5528	5529	5536	5538	5539	5547	5549	5550
5558	5560	5561	5570	5572	5573	5576	5604	5611	5617	5619	5620	5647
5649	5650	5656	5658	5659	5665	5667	5668	5674	5676	5677	5694	5695
5696	5697	5699	5700	5710	5712	5713	5723	5725	5726	5736	5738	5739
5749	5751	5752	5763	5764	5765	5766	5768	5769	5779	5787	5790	5824
5830	5832	5833	5858	5860	5861	5867	5869	5870	5876	5878	5879	5885
5887	5888	5907	5908	5909	5910	5912	5913	5923	5925	5926	5936	5938
5939	5949	5951	5952	5962	5964	5965	5977	5978	5979	5980	5982	5983
5992	5993	5994	5995	5997	5998	6007	6010	6040	6042	6043	6057	6059
6060	6067	6069	6070	6077	6079	6080	6087	6089	6090	6096	6098	6099
6107	6109	6110	6117	6119	6120	6128	6130	6131	6138	6140	6141	6149
6151	6152	6159	6161	6162	6170	6172	6173	6180	6182	6183	6191	6193
6194	6201	6203	6204	6212	6214	6215	6222	6224	6225	6233	6235	6236
6243	6245	6246	6254	6256	6257	6264	6266	6267	6275	6277	6278	6285
6287	6288	6296	6298	6299	6306	6308	6309	6317	6319	6320	6327	6329
6330	6338	6340	6341	6348	6350	6351	6359	6361	6362	6369	6371	6372
6380	6382	6383	6391	6393	6394	6402	6404	6405	6408	6428	6436	6438
6439	6453	6455	6456	6463	6465	6466	6473	6475	6476	6482	6484	6485
6493	6495	6496	6502	6504	6505	6513	6515	6516	6525	6526	6527	6528

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	6530	6531	6536	6537	6538	6539	6541	6542	6548	6550	6551	6554	6558
	6566	6568	6569	6583	6585	6586	6593	6595	6596	6603	6605	6606	6612
	6614	6615	6623	6625	6626	6634	6636	6637	6643	6645	6646	6654	6656
	6657	6663	6665	6666	6669	6672	6695	6697	6698	6712	6714	6715	6722
	6724	6725	6732	6734	6735	6741	6743	6744	6752	6754	6755	6765	6767
	6768	6778	6780	6781	6784	6807	6809	6810	6824	6826	6827	6834	6836
	6837	6844	6846	6847	6853	6855	6856	6864	6866	6867	6879	6881	6882
	6890	6892	6893	6896	6925	6934	6936	6937	6951	6953	6954	6961	6963
	6964	6971	6973	6974	6985	6987	6988	7002	7004	7005	7013	7015	7016
	7024	7026	7027	7046	7047	7048	7049	7051	7052	7060	7062	7063	7066
	7073	7107	7111	7112	7113	7114	7116	7117	7118	7119	7121	7122	7123
	7124	7125	7128	7146	7150	7167	7168	7169					
SVCSUB= 000001	9520	9610	4502	4636	4806	4926	5067	5184	5603	5823	6427	6557	6924
SVCTAG= 000001	9520	9630	1070	1074	1116	1130	3764	3798	3842	3876	3911	3929	3954
	3980	4365	4420	4438	4453	4466	4629	4768	4771	4920	5040	5043	5178
	5290	5293	5575	5778	5786	5789	6006	6009	6407	6553	6668	6671	6783
	6895	7065	7072	7129	7151								
SVCTST= 000001	9520	9600	4497	4801	5062	5330	5598	5818	6032	6424	6686	6799	6917
SMPBOT= 121000	16230												
SMPDDC= 121400	16240												
SYNCH = 000226	13100	3213	5071	5188	5334	6036	6432	6562	6691	6930			
S&LSYM= 010000	9520	11170	11310	37650	37990	38430	38770	39120	39300	39550	39810	43660	44210
	44390	44540	44670	46300	47690	47720	49210	50410	50440	51790	52910	52940	55760
	56110	57870	57900	60070	60100	64080	65540	66690	66720	67840	68960	70660	70730
	71300	71520											
TAB = 000004	12940												
TABLR 034030	6926	70750											
TBMT = 000100	13610	2823	2834	3223	6499	6545	6640	6660	6762	6775			
TCCHEK= 100000	16280												
TDATA 002326	16960	2314											
TDSRH = 120403	12890	3209	3314										
TDSRL = 120402	12830	3212	3261	4521	4555	4597	4654	4688	4730				
TDSRNR 002601	18080												
TEOM = 000002	12950	5106	5109	5432	5447	5462	5715	5728	5928	5941	6365	6870	6991
TERR = 000200	12920												
TGA = 000010	12030	6870											
TIMFLG 002356	17090												
TM = 000004	13990												
TMP0 002552	17890	43930	4411	44230									
TMP1 002554	17900												
TMP2 002556	17910												
TMP3 002560	17920												
TMP4 002562	17930												
TMP5 002564	17940												
TMP6 002566	17950												
TMP7 002570	17960												
TSO = 000010	13640	3070	3082	6499	6545	6640	6660	6762					
TSOM = 000001	12960	3210	4820	4823	4940	4943	5081	5198	5344	5637	5741	5848	5954
	6046	6442	6572	6701	6771	6813	6940						
TSTCON 002476	17610	43550											
TSTNUM 002420	17260												
TTLOOP= 000002	13840	3206	3236	3650	6759								
TXAB = 002000	13010												
TXACT = 000004	13650	2733	2744	6499	6545	6640	6660	6762	6775				
TXCHAR 007622	32560	4828	4848	4853	4868	4948	4968	4978	4988	5092	5210	5350	5360
	5370	5380	5410	5480	5490	5500	5510	5531	5553	5642	5651	5660	5669



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TXTVR4	020616	3697#	3711											
TXTVR5	020623	3697#	3711											
TXTVR6	020630	3697#	3711											
TXTVR7	020635	3697#	3711											
TXTVR8	020642	3697#	3714											
TXTVR9	020647	3697#	3714											
TXT1	017005	3697#	4007											
TXT10	017605	3697#												
TXT11	017625	3697#												
TXT11A	017677	3697#												
TXT11B	017735	3697#												
TXT12	020005	3697#	3808	3852	3887	3921	3939	3964						
TXT13	020033	3697#	4210											
TXT14	020050	3697#	4209											
TXT15	020106	3697#	4227											
TXT16	020150	3697#	4133											
TXT17	020163	3697#	4132											
TXT18	020220	3697#	4150											
TXT19	020261	3697#	4167											
TXT2	017043	3697#	4025											
TXT2A	017105	3697#	4042											
TXT2B	017144	3697#	4059											
TXT20	020315	3697#	4184											
TXT3	017207	3697#	4008											
TXT4	017237	3697#	4083											
TXT4A	017277	3697#	4101											
TXT5	017340	3697#												
TXT6	017342	3697#	4084											
TXT7	017365	3697#												
TXT7A	017455	3697#												
TXT8	017545	3697#												
TXT9	017565	3697#												
TXU =	000002	1366#	3377	6499	6545	6640	6660	6762						
T\$ARGC=	000005	980#	981#	982#	983#	984#	985#	3738#	3743	3753#	3759	3774#	3780	3783#
		3790	3792#	3796	3807#	3813	3815#	3819	3823#	3829	3832#	3839	3851#	3857
		3859#	3863	3867#	3873	3886#	3892	3894#	3899	3902#	3909	3920#	3926	3938#
		3944	3946#	3951	3963#	3969	3971#	3977	4007#	4013	4015#	4023	4025#	4030
		4032#	4040	4042#	4047	4049#	4057	4059#	4064	4066#	4074	4083#	4089	4091#
		4099	4101#	4106	4108#	4116	4118#	4122	4132#	4138	4140#	4148	4150#	4155
		4157#	4165	4167#	4172	4174#	4182	4184#	4189	4191#	4199	4209#	4215	4217#
		4225	4227#	4232	4234#	4242								
		7111#	7116#	7121#										
T\$CODE=	002032	952#	4583#	4619#	4716#	4758#	5695#	5764#	5908#	5978#	5993#	6526#	6537#	7047#
T\$ERRN=	000062	7111#	7115	7116#	7120	7121#	7126							
T\$EXCP=	000000	4513#	4527#	4536#	4546#	4561#	4571#	4587#	4607#	4623#	4647#	4660#	4669#	4679#
T\$FLAG=	000040	4694#	4704#	4720#	4736#	4746#	4762#	4816#	4835#	4845#	4855#	4865#	4875#	4886#
		4897#	4908#	4917#	4936#	4955#	4965#	4975#	4995#	4995#	5006#	5017#	5028#	5037#
		5077#	5099#	5122#	5133#	5144#	5155#	5166#	5175#	5194#	5217#	5234#	5245#	5256#
		5267#	5278#	5287#	5340#	5357#	5367#	5377#	5387#	5396#	5407#	5417#	5428#	5443#
		5458#	5473#	5487#	5497#	5507#	5517#	5528#	5538#	5549#	5560#	5572#	5619#	5649#
		5658#	5667#	5676#	5699#	5712#	5725#	5738#	5751#	5768#	5832#	5860#	5869#	5878#
		5887#	5912#	5925#	5938#	5951#	5964#	5982#	5997#	6042#	6059#	6069#	6079#	6089#
		6098#	6109#	6119#	6130#	6140#	6151#	6161#	6172#	6182#	6193#	6203#	6214#	6224#
		6235#	6245#	6256#	6266#	6277#	6287#	6298#	6308#	6319#	6329#	6340#	6350#	6361#
		6371#	6382#	6393#	6404#	6438#	6455#	6465#	6475#	6484#	6495#	6504#	6515#	6530#
		6541#	6550#	6568#	6585#	6595#	6605#	6614#	6625#	6636#	6645#	6656#	6665#	6697#

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	6714#	6724#	6734#	6743#	6754#	6767#	6780#	6809#	6826#	6836#	6846#	6855#	6866#
	6881#	6892#	6936#	6953#	6963#	6973#	6987#	7004#	7015#	7026#	7051#	7062#	
T\$GMAN= 000000	952#												
T\$HILI= 000007	7111#	7114	7116#	7119	7121#	7125							
T\$LAST= 000001	952#	7168#											
T\$LQLI= 000004	7111#	7113	7116#	7118	7121#	7124							
T\$LSYM= 010000	952#	1117	1131	3765	3799	3843	3877	3912	3930	3955	3981	4366	4421
	4439	4454	4467	4630	4769	4772	4921	5041	5044	5179	5291	5294	5576
	5787	5790	6007	6010	6408	6554	6669	6672	6784	6896	7066	7073	7130
	7152												
T\$LTNO= 000013	7171#												
T\$NEST= 177777	952#	955#	1100#	1116#	1125#	1130#	3731#	3764#	3770#	3798#	3805#	3842#	3849#
	3876#	3884#	3911#	3918#	3929#	3936#	3954#	3961#	3980#	4254#	4259#	4267#	4365#
	4384#	4420#	4434#	4438#	4448#	4453#	4464#	4466#	4498#	4503#	4629#	4637#	4768#
	4771#	4802#	4807#	4920#	4927#	5040#	5043#	5063#	5068#	5178#	5185#	5290#	5293#
	5331#	5575#	5599#	5604#	5611#	5778#	5786#	5789#	5819#	5824#	6006#	6009#	6033#
	6407#	6425#	6428#	6553#	6558#	6668#	6671#	6687#	6783#	6800#	6895#	6918#	6925#
	7065#	7072#	7107#	7128#	7146#	7150#	7164#						
T\$NSO = 000000	955#	7164											
T\$NS1 = 000005	1100#	1116	1125#	1130	3731#	3764	3770#	3798	3805#	3842	3849#	3876	3884#
	3911	3918#	3929	3936#	3954	3961#	3980	4254#	4259	4267#	4365	4384#	4420
	4434#	4438	4448#	4453	4464#	4466	4498#	4771	4802#	5043	5063#	5293	5331#
	5575	5599#	5789	5819#	6009	6033#	6407	6425#	6671	6687#	6783	6800#	6895
	6918#	7072	7107#	7128	7146#	7150							
T\$NS2 = 000002	4503#	4629	4637#	4768	4807#	4920	4927#	5040	5068#	5178	5185#	5290	5604#
	5786	5824#	6006	6428#	6553	6558#	6668	6925#	7065				
T\$NS3 = 000003	5611#	5778											
T\$PTNU= 000000	952#												
T\$SAVL= 177777	952#												
T\$SEGL= 177777	952#	5611#	5620	5650	5659	5668	5677	5700	5713	5726	5739	5752	5769
	5778#	5780											
T\$SEKO= 010000	5611#	5620	5650	5659	5668	5677	5700	5713	5726	5739	5752	5769	5778
T\$SUBN= 000001	952#	4497#	4502#	4636#	4801#	4806#	4926#	5062#	5067#	5184#	5330#	5598#	5603#
	5818#	5823#	6032#	6424#	6427#	6557#	6686#	6799#	6917#	6924#			
T\$TAGL= 177777	952#												
T\$TAGN= 010050	952#	1100#	1125#	3731#	3770#	3805#	3849#	3884#	3918#	3936#	3961#	4254#	4267#
	4384#	4434#	4448#	4464#	4498#	4503#	4637#	4802#	4807#	4927#	5063#	5068#	5185#
	5331#	5599#	5604#	5819#	5824#	6033#	6425#	6428#	6558#	6687#	6800#	6918#	6925#
	7107#	7146#											
T\$TEMP= 000000	1070#	1074#	1079#	1080#	1081#	1082#	1083#	1084#	1085#	1086#	1087#	1088#	1089#
	1090#	1116#	1130#	3764#	3798#	3842#	3876#	3911#	3929#	3954#	3980#	4259#	4365#
	4420#	4438#	4453#	4466#	4513#	4514	4527#	4528	4536#	4537	4546#	4547	4561#
	4562	4571#	4572	4587#	4588	4607#	4608	4623#	4624	4629#	4647#	4648	4660#
	4661	4669#	4670	4679#	4680	4694#	4695	4704#	4705	4720#	4721	4736#	4737
	4746#	4747	4762#	4763	4768#	4771#	4816#	4817	4835#	4836	4845#	4846	4855#
	4856	4865#	4866	4875#	4876	4886#	4887	4897#	4898	4908#	4909	4917#	4918
	4920#	4936#	4937	4955#	4956	4965#	4966	4975#	4976	4985#	4986	4995#	4996
	5006#	5007	5017#	5018	5028#	5029	5037#	5038	5040#	5043#	5077#	5078	5099#
	5100	5122#	5123	5133#	5134	5144#	5145	5155#	5156	5166#	5167	5175#	5176
	5178#	5194#	5195	5217#	5218	5234#	5235	5245#	5246	5256#	5257	5267#	5268
	5278#	5279	5287#	5288	5290#	5293#	5340#	5341	5357#	5358	5367#	5368	5377#
	5378	5387#	5388	5396#	5397	5407#	5408	5417#	5418	5428#	5429	5443#	5444
	5458#	5459	5473#	5474	5487#	5488	5497#	5498	5507#	5508	5517#	5518	5528#
	5529	5538#	5539	5549#	5550	5560#	5561	5572#	5573	5575#	5619#	5620#	5649#
	5650#	5658#	5659#	5667#	5668#	5676#	5677#	5699#	5700#	5712#	5713#	5725#	5726#
	5738#	5739#	5751#	5752#	5768#	5769#	5778#	5786#	5789#	5832#	5833	5860#	5861

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5869#	5870	5878#	5879	5887#	5888	5912#	5913	5925#	5926	5938#	5939	5951#
5952	5964#	5965	5982#	5983	5997#	5998	6006#	6009#	6042#	6043	6059#	6060
6069#	6070	6079#	6080	6089#	6090	6098#	6099	6109#	6110	6119#	6120	6130#
6131	6140#	6141	6151#	6152	6161#	6162	6172#	6173	6182#	6183	6193#	6194
6203#	6204	6214#	6215	6224#	6225	6235#	6236	6245#	6246	6256#	6257	6266#
6267	6277#	6278	6287#	6288	6298#	6299	6308#	6309	6319#	6320	6329#	6330
6340#	6341	6350#	6351	6361#	6362	6371#	6372	6382#	6383	6393#	6394	6404#
6405	6407#	6438#	6439	6455#	6456	6465#	6466	6475#	6476	6484#	6485	6495#
6496	6504#	6505	6515#	6516	6530#	6531	6541#	6542	6550#	6551	6553#	6568#
6569	6585#	6586	6595#	6596	6605#	6606	6614#	6615	6625#	6626	6636#	6637
6645#	6646	6656#	6657	6665#	6666	6668#	6671#	6697#	6698	6714#	6715	6724#
6725	6734#	6735	6743#	6744	6754#	6755	6767#	6768	6780#	6781	6783#	6809#
6810	6826#	6827	6836#	6837	6846#	6847	6855#	6856	6866#	6867	6881#	6882
6892#	6893	6895#	6936#	6937	6953#	6954	6963#	6964	6973#	6974	6987#	6988
7004#	7005	7015#	7016	7026#	7027	7051#	7052	7062#	7063	7065#	7072#	7111#
7116#	7121#	7128#	7150#	7164#								
952#	4497#	4502	4636	4801#	4806	4926	5062#	5067	5184	5330#	5598#	5603
5818#	5823	6032#	6424#	6427	6557	6686#	6799#	6917#	6924	7171		
952#	3742	3758	3765	3779	3789	3795	3799	3812	3818	3828	3838	3843
3856	3862	3872	3877	3891	3898	3908	3912	3925	3930	3943	3950	3955
3968	3976	3981	4012	4022	4029	4039	4046	4056	4063	4073	4088	4098
4105	4115	4121	4137	4147	4154	4164	4171	4181	4188	4198	4214	4224
4231	4241	4288	4295	4302	4309	4330	4359	4366	4391	4410	4415	4421
4439	4451	4454	4467	4503	4511	4513	4525	4527	4534	4536	4544	4546
4559	4561	4569	4571	4582	4587	4605	4607	4618	4623	4630	4637	4645
4647	4658	4660	4667	4669	4677	4679	4692	4694	4702	4704	4715	4720
4734	4736	4744	4746	4757	4762	4769	4772	4807	4814	4816	4833	4835
4843	4845	4853	4855	4863	4865	4873	4875	4884	4886	4895	4897	4906
4908	4915	4917	4921	4927	4934	4936	4953	4955	4963	4965	4973	4975
4983	4985	4993	4995	5004	5006	5015	5017	5026	5028	5035	5037	5041
5044	5068	5075	5077	5097	5099	5120	5122	5131	5133	5142	5144	5153
5155	5164	5166	5173	5175	5179	5185	5192	5194	5215	5217	5232	5234
5243	5245	5254	5256	5265	5267	5276	5278	5285	5287	5291	5294	5338
5340	5355	5357	5365	5367	5375	5377	5385	5387	5394	5396	5405	5407
5415	5417	5426	5428	5441	5443	5456	5458	5471	5473	5485	5487	5495
5497	5505	5507	5515	5517	5526	5528	5536	5538	5547	5549	5558	5560
5570	5572	5576	5604	5611	5617	5619	5647	5649	5656	5658	5665	5667
5674	5676	5694	5699	5710	5712	5723	5725	5736	5738	5749	5751	5763
5768	5779	5787	5790	5824	5830	5832	5858	5860	5867	5869	5876	5878
5885	5887	5907	5912	5923	5925	5936	5938	5949	5951	5962	5964	5977
5982	5992	5997	6007	6010	6040	6042	6057	6059	6067	6069	6077	6079
6087	6089	6096	6098	6107	6109	6117	6119	6128	6130	6138	6140	6149
6151	6159	6161	6170	6172	6180	6182	6191	6193	6201	6203	6212	6214
6222	6224	6233	6235	6243	6245	6254	6256	6264	6266	6275	6277	6285
6287	6296	6298	6306	6308	6317	6319	6327	6329	6338	6340	6348	6350
6359	6361	6369	6371	6380	6382	6391	6393	6402	6404	6408	6428	6436
6438	6453	6455	6463	6465	6473	6475	6482	6484	6493	6495	6502	6504
6513	6515	6525	6530	6536	6541	6548	6550	6554	6558	6566	6568	6583
6585	6593	6595	6603	6605	6612	6614	6623	6625	6634	6636	6643	6645
6654	6656	6663	6665	6669	6672	6695	6697	6712	6714	6722	6724	6732
6734	6741	6743	6752	6754	6765	6767	6778	6780	6784	6807	6809	6824
6826	6834	6836	6844	6846	6853	6855	6864	6866	6879	6881	6890	6892
6896	6925	6934	6936	6951	6953	6961	6963	6971	6973	6985	6987	7002
7004	7013	7015	7024	7026	7046	7051	7060	7062	7066	7073		
952#	4498#	4802#	5063#	5331#	5599#	5819#	6033#	6425#	6687#	6800#	6918#	
4464#	4466											

T#TEST= 000013

T#TSTM= 177777

T#TSTS= 000001

T#TAU = 010017



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CROSS REFERENCE TABLE -- USER SYMBOLS

T8	032046 G	1086	64240															
T8.1	032046	64270																
T8.2	032374	65570																
T9	032666 G	1087	66860															
T9.LP	033402	69230	7070															
UAM	= 000200 G	11990																
UMAIN	- 000001	14010																
UNIT	002414	17240																
UPBITS	002572	17990																
UREGS	002246	16890	2355	23580	2361	4217	4218	4219	4220	4234	4235	4236	4237					
USTATR	- 122000	13560	2360	2693	2729	2774	2819	2864	2909	3066	3221	3375	3602					
USYREG	002502	17660	2586															
USYRT	= 120400	12480	2356	2369	2373													
VECTOR	034132	7117	71310															
VIA	= 120000	13700	2387	2394														
VIAACR	- 120013	15140	2447	2456	2534	2543	2657	3189										
VIADPA	- 120003	14200	2648															
VIADPB	- 120002	14080	2645															
VIAIER	- 120016	15870	2443	2530	2663													
VIAIFR	- 120015	15650																
VIAIS	= 120001	13920																
VIAORA	- 120017	16070	2651															
VIAORB	- 120000	13760	2578	2581	2654	3169	3172	3205	3649	6758								
VIAPCR	- 120014	15520	2660															
VIASR	= 120012	15040																
VIAT1A	- 120004	14340	2469															
VIAT1B	- 120005	14460	2474	3678														
VIAT1C	- 120006	14590	2460	3192														
VIAT1D	- 120007	14700	2465	3195														
VIAT2A	- 120010	14810	2547															
VIAT2B	- 120011	14930	2552															
VREGS	002266	16920	2386	4140	4141	4142	4143	4157	4158	4159	4160	4174	4175	4176				
		4177	4191	4192	4193	4194												
WAIT50	005236	26200																
WRIBYT	002364	17120																
WRILOC	- 000002	12380	2217	2227														
WRIPAG	- 000004	12400																
WRITE	003646	21900	2312															
WRITEI	003660	22140	2442	2455	2459	2464	2468	2473	2529	2542	2546	2551	2577	2580				
		2644	2647	2650	2653	2656	2659	2662	3168	3171	3175	3179	3185	3188				
		3191	3194	3204	3208	3211	3260	3313	3648	3677	4520	4554	4596	4653				
		4687	4729	4838	4958	6757	6976											
WSR0	002206	16640	22800	4094														
WSR10	002216	16720	22840	4111														
WSR12	002220	16740	22850	4110														
WSR14	002222	16760	22860	4109														
WSR16	002224	16780	22870	4108														
WSR2	002210	16660	22810	4093														
WSR4	002212	16680	22820	4092														
WSR6	002214	16700	22830	4091														
XDATA	002334	16990	3783	3832	3902	39960	39970											
XORGB	022352	3781	3830	3900	39940													
XYZ	= 000007	13250																
X#ALMA	- 000000	9520																
X#FALS	- 000040	9520																
X#OFFS	- 000400	9520																



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CROSS REFERENCE TABLE -- USER SYMBOLS

X\$TRUE= 000020  
\$E = 000062  
  
\$LSTIN= 000001  
\$LSTTA= 000001  
\$T = 000013  
 = 034330

9520														
16430	20670	21110	21580	22290	23280	26000	27040	27370	27480	27820	27930	28270		
28380	28720	28830	29170	29280	29600	29710	30070	30180	30310	30420	30740	30860		
31340	33820	33950	34210	34310	34440	34540	34670	34770	34900	35000	35130	35230		
45810	46170	47140	47560	56930	57620	59060	59760	59910	65240	65350	70450			
9570														
9580														
16430	44680	47730	50450	53050	55770	57990	60110	64090	66730	67850	68970			
9480	16890	16920	17760	19900	19930	20140	20300	3140	4509	4514	4523	4528		
4532	4537	4542	4547	4557	4562	4567	4572	4588	4603	4608	4624	4643		
4648	4656	4661	4665	4670	4675	4680	4690	4695	4700	4705	4721	4732		
4737	4742	4747	4763	4812	4817	4831	4836	4841	4846	4851	4856	4861		
4866	4871	4876	4882	4887	4893	4898	4904	4909	4913	4910	4932	4937		
4951	4956	4961	4966	4971	4976	4981	4986	4991	4996	5002	5007	5013		
5018	5024	5029	5033	5038	5073	5078	5095	5100	5118	5123	5129	5134		
5140	5145	5151	5156	5162	5167	5171	5176	5190	5195	5213	5218	5230		
5235	5241	5246	5252	5257	5263	5268	5274	5279	5283	5288	53030	5336		
5341	5353	5358	5363	5368	5373	5378	5383	5388	5392	5397	5403	5408		
5413	5418	5424	5429	5439	5444	5454	5459	5469	5474	5483	5488	5493		
5498	5503	5508	5513	5518	5524	5529	5534	5539	5545	5550	5556	5561		
5568	5573	5615	5620	5645	5650	5654	5659	5663	5668	5672	5677	5700		
5708	5713	5721	5726	5734	5739	5752	5769	5775	5783	57970	5828	5833		
5856	5861	5865	5870	5874	5879	5883	5888	5913	5921	5926	5934	5939		
5947	5952	5960	5965	5983	5998	6038	6043	6055	6060	6065	6070	6075		
6080	6085	6090	6094	6099	6105	6110	6115	6120	6126	6131	6136	6141		
6147	6152	6157	6162	6168	6173	6178	6183	6189	6194	6199	6204	6210		
6215	6220	6225	6231	6236	6241	6246	6252	6257	6262	6267	6273	6278		
6283	6288	6294	6299	6304	6309	6315	6320	6325	6330	6336	6341	6346		
6351	637	6362	6367	6372	6378	6383	6389	6394	6400	6405	6434	6439		
6451	6456	6461	6466	6471	6476	6480	6485	6491	6496	6500	6505	6511		
6516	6531	6542	6546	6551	6564	6569	6581	6586	6591	6596	6601	6606		
6610	6615	6621	6626	6632	6637	6641	6646	6652	6657	6661	6666	6693		
6698	6710	6715	6720	6725	6730	6735	6739	6744	6750	6755	6763	6768		
6776	6781	6805	6810	6822	6827	6832	6837	6842	6847	6851	6856	6862		
6867	6877	6882	6888	6893	6932	6937	6949	6954	6959	6964	6969	6974		
6983	6988	7000	7005	7011	7016	7022	7027	7052	7058	7063	7069	71550		

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CROSS REFERENCE TABLE -- MACRO NAMES

BAMPL	10	9520	4289	4296	4303	4310	4332						
BERROR	10	9520											
BGNAU	10	9520	4463										
BGNAUT	10	9520	4383										
BGNCLN	10	9520	4433										
BGNDU	10	9520	4447										
BGNHRD	10	9520	7106										
BGNHM	10	9520	1099										
BGNINI	10	9520	4266										
BGNMOD	10	9520	954										
BGNMSG	10	9520	3730	3769	3804	3848	3883	3917	3935	3960			
BGNPRO	10	9520	4253										
BGNPTA	10	9520											
BGNRPT	10	9520											
BGNSEG	10	9520	5610										
BGNSET	10	9520											
BGNSFT	10	9520	7145										
BGNSRV	10	9520											
BGNSUB	10	9520	4501	4635	4805	4925	5066	5183	5602	5822	6426	6556	6923
BGNSW	10	9520	1124										
BGNTST	10	9520	4497	4801	5062	5330	5598	5818	6032	6424	6686	6799	6917
BNCOMP	10	9520											
BNERRR	10	9520											
BREAK	10	9520											
BRESET	10	9520	4358	4450									
CKLOOP	10	9520											
CLOCK	10	9520											
CLOSE	10	9520											
CLRVEC	10	9520	4408										
COMMEN	10	9520											
DELAY	10	9520											
DESCRI	10	9520	2021										
DEVTYP	10	9520	2009										
DISPAT	10	9520	1076										
DISPLA	10	9520											
DOCLN	10	9520											
DODU	10	9520	4413										
DORPT	10	9520											
ENDAU	10	9520	4465										
ENDAUT	10	9520	4419										
ENDCLN	10	9520	4437										
ENDCOM	10	9520											
ENDDU	10	9520	4452										
ENDHRD	10	9520	7127										
ENDHM	10	9520	1115										
ENDINI	10	9520	4364										
ENDMOD	10	9520	7163										
ENDMSG	10	9520	3763	3797	3841	3875	3910	3928	3953	3979			
ENDPRO	10	9520	4258										
ENDPTA	10	9520											
ENDRPT	10	9520											
ENDSEG	10	9520	5777										
ENDSET	10	9520											
ENDSFT	10	9520	7149										
ENDSRV	10	9520											
ENDSUB	10	9520	4628	4767	4919	5039	5177	5289	5785	6005	6552	6667	7064



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CROSS REFERENCE TABLE -- MACRO NAMES

INLOOP	10	9520													
IOSETU	10	9520													
IOSTAR	10	9520													
KT11	10	9520													
LASTAD	10	9520	7166												
MANUAL	10	9520													
MEMORY	10	9520													
MSG	44680	4474	47730	4779	50450	5051	53050	5311	55770	5583	57990	5805	60110	6017	64090
	6415	66730	6679	67850	6791	68970	6903								
M#BYTE	10	9520	9790	985	986	987									
M#CHEC	10	9520													
M#CNT0	10	9520	71110	71160	71210										
M#COUN	10	9520	37380	37530	37740	37830	37920	38070	38150	38230	38320	38510	38590	38670	38860
	38940	39020	39200	39380	39460	39630	39710	40070	40150	40250	40320	40420	40490	40590	40660
	40830	40910	41010	41080	41180	41320	41400	41500	41570	41670	41740	41840	41910	42090	42170
	42270	42340													
M#DATA	10	9520	9790	988	990	992	994	996	998	1000	1002	1004	1006	1008	1010
	1012	1014	1016	10180	1020	1022	1025	1028	1030	1032	1034	1036	1038	1040	1042
	1044	1046	1048	1050	1052	1054	1056	1058	1060	1062	20100	20220			
M#DECR	10	9520	11160	11300	37640	37980	38420	38760	39110	39290	39540	39800	42590	43650	44200
	44380	44530	44660	46290	47680	47710	49200	50400	50430	51780	52900	52930	55750	57780	57860
	57890	60060	60090	64070	65530	66680	66710	67830	68950	70650	70720	71280	71500	71640	
M#DEFA	10	9520	71110	71160	71210										
M#ENDE	10	9520	11160	11300	37640	37980	38420	38760	39110	39290	39540	39800	43650	44200	44380
	44530	44660	46290	47680	47710	49200	50400	50430	51780	52900	52930	55750	57780	57860	57890
	60060	60090	64070	65530	66680	66710	67830	68950	70650	70720	71280	71500	71640		
M#ERRI	10	9520	45820	46180	47150	47570	56940	57630	59070	59770	59920	65250	65360	70460	
M#ESCA	10	9520	45130	4514	45270	4528	45360	4537	45460	4547	45610	4562	45710	4572	45870
	4588	46070	4608	46230	4624	46470	4648	46600	4661	46690	4670	46790	4680	46940	4695
	47040	4705	47200	4721	47360	4737	47460	4747	47620	4763	48160	4817	48350	4836	48450
	4846	48550	4856	48650	4866	48750	4876	48860	4887	48970	4898	49080	4909	49170	4918
	49360	4937	49550	4956	49650	4966	49750	4976	49850	4986	49950	4996	50060	5007	50170
	5018	50280	5029	50370	5038	50770	5078	50990	5100	51220	5123	51330	5134	51440	5145
	51550	5156	51660	5167	51750	5176	51940	5195	52170	5218	52340	5235	52450	5246	52560
	5257	52670	5268	52780	5279	52870	5288	53400	5341	53570	5358	53670	5368	53770	5378
	53870	5388	53960	5397	54070	5408	54170	5418	54280	5429	54430	5444	54580	5459	54730
	5474	54870	5488	54970	5498	55070	5508	55170	5518	55280	5529	55380	5539	55490	5550
	55600	5561	55720	5573	56190	56490	56580	56670	56760	56990	57120	57250	57380	57510	57680
	58320	5833	58600	5861	58690	5870	58730	5879	58870	5888	59120	5913	59250	5926	59380
	5939	59510	5952	59640	5965	59820	5983	59970	5998	60420	6043	60590	6060	60690	6070
	60790	6080	60890	6090	60980	6099	61090	6110	61190	6120	61300	6131	61400	6141	61510
	6152	61610	6162	61720	6173	61820	6183	61930	6194	62030	6204	62140	6215	62240	6225
	62350	6236	62450	6246	62560	6257	62660	6267	62770	6278	62870	6288	62980	6299	63080
	6309	63190	6320	63290	6330	63400	6341	63500	6351	63610	6362	63710	6372	63820	6383
	63930	6394	64040	6405	64380	6439	64550	6456	64650	6466	64750	6476	64840	6485	64950
	6496	65040	6505	65150	6516	65300	6531	65410	6542	65500	6551	65680	6569	65850	6586
	65950	6596	66050	6606	66140	6615	66250	6626	66360	6637	66450	6646	66560	6657	66650
	6666	66970	6698	67140	6715	67240	6725	67340	6735	67430	6744	67540	6755	67670	6768
	67800	6781	68090	6810	68260	6827	68360	6837	68460	6847	68550	6856	68660	6867	68810
	6882	68920	6893	69360	6937	69530	6954	69630	6964	69730	6974	69870	6988	70040	7005
	70150	7016	70260	7027	70510	7052	70620	7063							
M#ESCS	10	9520	45130	45270	45360	45460	45610	45710	45870	46070	46230	46470	46600	46690	46790
	46940	47040	47200	47360	47460	47620	48160	48350	48450	48550	48650	48750	48860	48970	49080
	49170	49360	49550	49650	49750	49850	49950	50060	50170	50280	50370	50770	50990	51220	51330
	51440	51550	51660	51750	51940	52170	52340	52450	52560	52670	52780	52870	53400	53570	53670
	53770	53870	53960	54070	54170	54280	54430	54580	54730	54870	54970	55070	55170	55280	55380

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	55490	55600	55720	56190	5620	56490	5650	56580	5659	56670	5668	56760	5677	56990	5700
	57120	5713	57250	5726	57380	5739	57510	5752	57680	5769	58320	58600	58690	58780	58870
	59120	59250	59380	59510	59640	59820	59970	60420	60590	60690	60790	60890	60980	61090	61190
	61300	61400	61510	61610	61720	61820	61930	62030	62140	62240	62350	62450	62560	62660	62770
	62870	62980	63080	63190	63290	63400	63500	63610	63710	63820	63930	64040	64380	64550	64650
	64750	64840	64950	65040	65150	65300	65410	65500	65680	65850	65950	66050	66140	66250	66360
	66450	66560	66650	66970	67140	67240	67340	67430	67540	67670	67800	68090	68260	68360	68460
	68550	68660	68810	68920	69360	69530	69630	69730	69870	70040	70150	70260	70510	70620	
M#EXCP	10	9520	71110	71160	71210										
M#EXIT	10	9520													
M#EXSE	10	9520													
M#EXTJ	10	9520													
M#GEN	10	9520	9550	9790	9880	9900	9920	9940	9960	9980	10000	10020	10040	10060	10080
	10100	10120	10140	10160	10180	10200	10220	10250	10280	10300	10320	10340	10360	10380	10400
	10420	10440	10460	10480	10500	10520	10540	10560	10580	10600	10620	10780	11010	11020	11160
	11260	11270	11300	16550	20100	20220	37310	37640	37700	37980	38050	38420	38490	38760	38840
	39110	39180	39290	39360	39540	39610	39800	42540	42670	43650	43840	44200	44340	44380	44480
	44530	44640	44660	44970	45020	46290	46360	47680	47710	48010	48060	49200	49260	50400	50430
	50620	50670	51780	51840	52900	52930	53300	55750	55980	56030	57780	57860	57890	58180	58230
	60060	60090	60320	64070	64240	64270	65530	65570	66680	66710	66860	67830	67990	68950	69170
	69240	70650	70720	71080	71290	71470	71510	71700							
M#GENB	10	9520													
M#GETS	10	9520	11160	11300	37640	37980	38420	38760	39110	39290	39540	39800	42590	43650	44200
	44380	44530	44660	46290	47680	47710	49200	50400	50430	51780	52900	52930	55750	56200	56500
	56590	56680	56770	57000	57130	57260	57390	57520	57690	57780	57860	57890	60060	60090	64070
	65530	66680	66710	67830	68950	70650	70720	71280	71500	71640					
M#GETT	10	9520	45130	45270	45360	45460	45610	45710	45870	46070	46230	46470	46600	46690	46790
	46940	47040	47200	47360	47460	47620	48160	48350	48450	48550	48650	48750	48860	48970	49080
	49170	49360	49550	49650	49750	49850	49950	50060	50170	50280	50370	50770	50990	51220	51330
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	4083#	4091#	4101#	4108#	4118#	4132#	4140#	4150#	4157#	4167#	4174#	4184#	4191#	4209#	4217#
	4227#	4234#	4387#												
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	3832#	3833	3834	3835	3836	3851#	3852	3853	3854	3859#	3860	3867#	3868	3869	3870
	3886#	3887	3888	3889	3894#	3895	3896	3902#	3903	3904	3905	3906	3906	3920#	3921
	3923	3938#	3939	3940	3941	3946#	3947	3948	3963#	3964	3965	3966	3971#	3972	3973
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	4094	4095	4096	4101#	4102	4103	4108#	4109	4110	4111	4112	4113	4118#	4119	4132#
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CROSS REFERENCE TABLE -- MACRO NAMES

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	4759	4760	5694#	5695	5696	5697	5763#	5764	5765	5766	5907#	5908	5909	5910	5977#
	5978	5979	5980	5992#	5993	5994	5995	6525#	6526	6527	6528	6536#	6537	6538	6539
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NTST	1643#	4468	4773	5045	5305	5577	5799	6011	6409	6673	6785	6897			
OPEN	1#	952#													
POINTE	1#	952#	975												
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PRINTS	1#	952#													
PRINTX	1#	952#	3737	3752	4006	4014	4024	4031	4041	4048	4058	4065	4082	4090	4100
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READEF	1#	952#	4286	4293	4300	4307									
RFLAGS	1#	952#													
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	2884	2918	2929	2961	2972	3008	3019	3032	3043	3075	3087	3135	3383	3396	3422

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 CROSS REFERENCE TABLE -- MACRO NAMES

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SETPRI	10	9520													
SETSF	16430														
SETSFT	16430														
SETVEC	10	9520	4386												
SLASH	10	9520	1069	1073											
STARS	10	9520													
SVC	10	9500	951												
T\$GEN	16430	2068	2112	2159	2230	2329	2601	2705	2738	2749	2783	2794	2828	2839	2873
	2884	2918	2929	2961	2972	3008	3019	3032	3043	3075	3087	3135	3383	3396	3422
	3432	3445	3455	3468	3478	3491	3501	3514	3524						
XFER	10	9520													
XFERF	10	9520													
XFERT	10	9520													
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	2883	2917	2928	2960	2971	3007	3018	3031	3042	3074	3086	3134	3382	3395	3421
	3431	3444	3454	3467	3477	3490	3500	3513	3523						
\$GTHRD	16430														
\$GTSF	16430														
\$GTSFT	16430														

. ABS. 034330 000

ERRORS DETECTED: 0

CVDMDC.CVDMDC/SOL/CRF=SVC34R.MLB.CVDMDC.P11  
 RUN-TIME: 34 41 4 SECONDS  
 RUN-TIME RATIO: 115/80=1.4  
 CORE USED: 21K (41 PAGES)