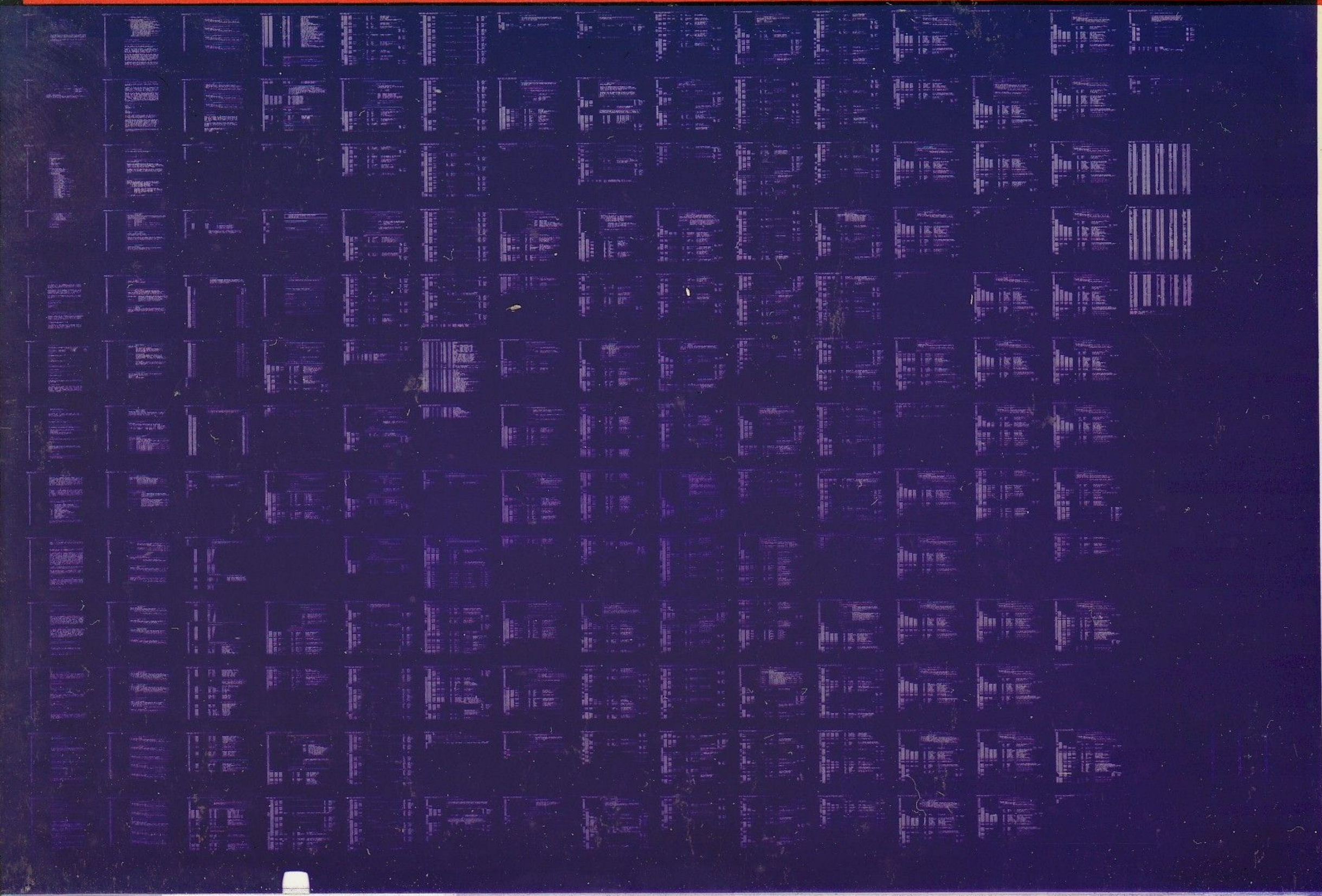
DPV11

DPV11 FUNC DIAG
CNDPVA0

AH-T428A-MC
FICHE 1 OF 1

MAY 1983
COPYRIGHT© 82-83
MADE IN USA



```
.NLIST  TOC
.REM @
```

IDENTIFICATION

PRODUCT CODE: AC-T427A-MC

PRODUCT NAME: CNDPVA0 DPV11 FUNC DIAG

PRODUCT DATE: DECEMBER, 1982

MAINTAINER: DIAGNOSTIC SERVICES/ISS

AUTHOR: MIKE O'CONNOR

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT CORPORATION. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS THAT MAY APPEAR IN THIS DOCUMENT.

NO RESPONSIBILITY IS ASSUMED FOR THE USE OR RELIABILITY OF SOFTWARE ON EQUIPMENT THAT IS NOT SUPPLIED BY DIGITAL OR ITS AFFILIATED COMPANIES.

COPYRIGHT (C)1982,1983 BY DIGITAL EQUIPMENT CORPORATION

THE FOLLOWING ARE TRADEMARKS OF DIGITAL EQUIPMENT CORPORATION:

DIGITAL	PDP	UNIBUS	MASSBUS
DEC	DECUS	DECTAPE	

```
REVISION HISTORY:

REV     DATE            AUTHOR          REASON
---     ----            ------          ------

A       JUNE 80         MIKE OCONNOR    ORIGINAL RELEASE
B       OCT. 80         MIKE OCONNOR    1. CHANGE CHARACTER LENGTH
                                           IN TEST 37
                                        2. CHANGE TIMEOUT IN TEST 29
                                        3. ENHANCEMENTS

-----------------------------------------------------------------------------
DEC,1982   SING LAKSHMANAN
CVDPVB0 WAS MODIFIED TO RUN ON 11/21 PROCESSOR BY LOWERING PRIORITY 7 TO 6
AND DEFAULT CSR AND VECTOR ADDRESSES WERE ALSO CHANGED. THE PROGRAM WAS
RENAMED TO CNDPVA0 AND RUNS UNDER DIAGNOSTIC SUPERVISOR.
-----------------------------------------------------------------------------
```

CONTENTS

1.0 INTRODUCTION

2.0 HARDWARE REQUIREMENTS

3.0 PRELIMINARY PROGRAM REQUIREMENTS

4.0 GENERAL PROGRAM CONSIDERATIONS
- 4.1 DIAGNOSTIC SUPERVISOR
- 4.2 EXECUTION TIME
- 4.3 XXDP+
- 4.4 ACT/SLIDE
- 4.5 APT
- 4.6 MEMORY MANAGEMENT
- 4.7 MEMORY PARITY OPTION
- 4.8 ERROR LOGGING

5.0 PROGRAM LOAD MEDIA

6.0 OPERATING INSTRUCTIONS
- 6.1 LOADING AND STARTING PROCEDURES
  - 6.1.1 LOADING PROCEDURES
  - 6.1.2 STARTING PROCEDURES
  - 6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION
- 6.2 INITIAL DIALOGUE
- 6.3 PROGRAM OPTIONS
  - 6.3.1 START COMMAND
    - 6.3.1.1 TESTS SWITCH
    - 6.3.1.2 PASS SWITCH
    - 6.3.1.3 FLAGS SWITCH
    - 6.3.1.4 END OF PASS SWITCH
    - 6.3.1.5 EFFECT OF START COMMAND
  - 6.3.2 RESTART COMMAND
    - 6.3.2.1 TESTS, PASS, AND FLAG SWITCHES
    - 6.3.2.2 UNITS SWITCH
    - 6.3.2.3 EFFECT OF RESTART COMMAND
  - 6.3.3 CONTINUE COMMAND
    - 6.3.3.1 PASS SWITCH
    - 6.3.3.2 FLAGS SWITCH
    - 6.3.3.3 EFFECT OF CONTINUE COMMAND
  - 6.3.4 PROCEED COMMAND
    - 6.3.4.1 FLAGS SWITCH
    - 6.3.4.2 EFFECT OF PROCEED COMMAND
  - 6.3.5 ADD COMMAND
    - 6.3.5.1 UNITS SWITCH
    - 6.3.5.2 EFFECT OF ADD COMMAND
  - 6.3.6 DROP COMMAND
    - 6.3.6.1 UNITS SWITCH
    - 6.3.6.2 EFFECT OF DROP COMMAND
  - 6.3.7 PRINT COMMAND
    - 6.3.7.1 EFFECT OF PRINT COMMAND
  - 6.3.8 DISPLAY COMMAND
    - 6.3.8.1 UNITS SWITCH

6.3.8.2 EFFECT OF DISPLAY COMMAND
6.3.9 FLAGS COMMAND
6.3.9.1 EFFECT OF FLAGS COMMAND
6.3.10 ZFLAGS COMMAND
6.3.10.1 EFFECT OF ZFLAGS COMMAND
6.3.11 CONTROL CHARACTERS
6.3.12 HARDWARE PARAMETERS
6.3.13 SOFTWARE PARAMETERS
6.3.14 EXTENDED DISCUSSION OF P-TABLE DIALOGUE

7.0 DEVICE INFORMATION TABLES

8.0 TEST DESCRIPTIONS
8.1 DATA PATTERNS USED

9.0 ERROR INFORMATION
9.1 ERROR REPORTING

1.0 INTRODUCTION

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

THROUGH DIALOGUE WITH THE OPERATOR, THE PROGRAM WILL ALLOW 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 DPV11 FUNCTIONAL DIAGNOSTIC TESTS:

PDP11/21 PROCESSOR
16K MEMORY
CONSOLE TERMINAL
DPV11

3.0 PRELIMINARY PROGRAM REQUIREMENTS

IT IS ASSUMED THAT THE PROCESSOR IS IN PROPER WORKING CONDITION.

THE DEVICE ADDRESS AND THE INTERRUPT VECTOR MUST BE KNOWN BEFORE ANSWERING THE USER DIALOGUE. THE USER SHOULD ALSO KNOW WHETHER THE CPU IS A LSI11 (M7264), A LSI11/2 (M7270), OR A LSI11/23 (M8186). FINALLY THE USER MUST DECIDE THE TYPE OF TURNAROUND IN ORDER TO DETERMINE THE CONNECTOR (IF ANY) IS NECESSARY.

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

EXECUTION TIME IS DEPENDENT ON THE PROCESSOR SPEED AND THE TYPE OF LOOPBACK
THE FOLLOWING ARE THE TIMES TO COMPLETE THE 1ST PASS:

		RS423 (OR INTERNAL)	RS422
LSI11 (KD11-F	M7264 MODULE):	10 SECONDS	30 SEC.
LSI11/2 (KD11-HA	M7270 MODULE):	10 SECONDS	30 SEC.
LSI11/23(KDF11-AA	M8186 MODULE):	7 SECONDS	5 SEC.

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

THERE IS NO MEMORY MANAGEMENT USE IN THIS DIAGNOSTIC.

4.7 MEMORY PARITY OPTION

IF PARITY MEMORY IS INSTALLED, MEMORY PARITY TRAPS ARE DISABLED BY THE PROGRAM.

4.8 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 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

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

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
ISR	INHIBIT STATISTICAL REPORTS
IDU	INHIBIT DROPPING OF UNITS BY DIAGNOST..
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 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>/UNITS:<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 DIAGLOGUE.  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>
*************************************************************


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.

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.

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 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 4 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.

1. ADDRESS : (O) 174700?

THIS IS THE ADDRESS AT WHICH THE DPV CSR REGISTERS RESIDE ON THE LSI-BUS. THE ALLOWABLE RANGE IS 174000-177776 (OCTAL), AND THE DEFAULT VALUE IS 174700.

2. VECTOR : (O) 200 ?

THIS IS THE ADDRESS OF THE INPUT INTERRUPT VECTOR FOR THIS DEVICE. THE ALLOWABLE RANGE IS 000-374 (OCTAL), AND THE DEFAULT VALUE IS 200.

3. LOOPBACK -

```
                                        0 = INTERNAL, 1 = RS423, 2 = RS422
                                        3 = LOCAL MODEM LOOP, 4 = REMOTE MODEM LOOP (0)  1?

                                THIS IS THE USER SELECTED LOOPBACK. THE DEFAULT IS RS423.
                                THE FOLLOWING SHOULD BE CONSIDERED:
                                        A. INTERNAL LOOPBACK RUNS THE DIAGNOSTIC THROUGH THE
                                           USYNRT MAINTENANCE MODE LOOPBACK.  THE DRIVERS WILL
                                           NOT BE TESTED.  NO CONNECTOR IS REQUIRED.
                                        B. RS423 REQUIRES A H3260 ONBOARD CONNECTOR OR THE
                                           BC05C CABLE AND THE H3259 CONNECTOR.  THIS TURNAROUND
                                           WILL PROVIDE A 2K CLOCK FOR DIAGNOSTICS.  ALL TESTS
                                           SHOULD BE ABLE TO BE RUN ON ALL PROCESSORS.
                                        C. R2422 REQUIRES A MODIFIED H3260 ONBOARD CONNECTOR.
                                           THIS TURNAROUND WILL PROVIDE A 50K CLOCK FOR DIAGNOSTICS.
                                           THE TESTS RUN WILL DEPEND ON THE PROCESSOR.
                                           1. THE LSI11/23 SHOULD RUN ALL TESTS.
                                           2. THE LSI11/2  SHOULD RUN ALL TESTS EXCEPT TESTS 29-41.
                                           3. THE LSI11 WITHOUT PROCESSOR MEMORY REFRESH SHOULD
                                              RUN ALL TESTS EXCEPT TESTS 29-41.
                                           4. THE LSI11 WITH PROCESSOR MEMORY REFRESH SHOULD
                                              RUN ALL TESTS EXCEPT TESTS 29-43.
                                        D. LOOPBACK THROUGH THE MODEM SHOULD ONLY BE ATTEMPTED IF THE
                                           MODEM SUPPORTS THAT TYPE OF LOOBACK.


                                6.3.13 SOFTWARE PARAMETERS

                                NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY TIS DIAGNOSTIC


                                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 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 (D) ? 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 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).

7.0 DEVICE INFORMATION TABLES

SEE THE GLOBAL EQUATES SECTION FOR DEFINITIONS OF REGISTERS IN THE DPV AND BIT DEFINITIONS WITHIN THOSE REGISTERS.

8.0 TEST DESCRIPTIONS

```
;*****************************************************************
;*                TEST 1 - DPV-11
;* VERIFY THAT ADDRESSING THE 4 LSI-BUS CSRS DOES NOT CAUSE A NON-
;* EXISTENT MEMORY TRAP.
;*
;* THE DPV IS AN COMMUNICATION DEVICE RESIDING ON A LSI-BUS.
;* COMMUNICATION BETWEEN THE MAIN CPU AND THE DPV IS ACCOMPLISHED
;* THROUGH A SET OF FOUR 16-BIT LSI-BUS CONTROL AND STATUS REGISTERS
;* (CSRS).  THE FOUR REGISTERS ARE ASSIGNED ADDRESSES IN THE I/O PAGE
;* FLOATING ADDRESS SPACE: 76XXX0 - 76XXX6
;*
;* AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY
;* CONFIGURED, THAT THE ADDRESS IS WRONG OR THAT THE CRYSTAL CLOCK
;* ON THE DPV IS NOT WORKING.  THE SHIFT REGISTER CLOCK IS NEEDED
;* FOR THE LS164 (E15) IN ORDER TO PROVIDE THE BUS REPLY (BRPLY/L ON
;* PIN AF2).
;*****************************************************************



;*****************************************************************
;*                TEST 2 - DPV-11
;* DPV RESET
;* RESET THE DPV AND ENSURE THAT ALL REGISTERS ARE IN THEIR
;* PROPER INITIALIZATION STATE.  THE RESET IS ASYNCHRONOUS TO ALL
;* DATA SET TIMING AND ANY DATA PORT ACCESSES. THE FOLLOWING
;* WILL BE CHECKED BY THE $RESET SUBROUTINE:
;*      1. ALL BITS IN THE DATA PORT REGISTERS ARE CLEARED.
;*      2. ALL OUTPUT INDICATORS ARE CLEARED.
;*      3. TRANSMIT BUFFER EMPTY (TBE) IS SET
;*
;* SUBTEST 1 - AFTER RESET, CHECK THAT MAINTENANCE MODE AND
;*             TRANSMITTER CAN BE SET. ALSO CHECK THAT TRANSMITTER
;*             BUFFER EMPTY (TBE) IS CLEARED WHEN TDSR IS ACCESSED
;*             WITHOUT SETTING TRANSMITTER ENABLE.
;* SUBTEST 2 - ON THE FIRST PASS ONLY, CHECK THAT A BUS RESET, DOES
;*             A DPV11 RESET.
;*
;* NOTE: DATA MODE, CTS, RR (RECEIVER READY) AND IC (INCOMING CALL)
;*       ARE UNAFFECTED BY A RESET.
;*
;*****************************************************************
```

```
824                                 ;*********************************************************************
825                                 ;*                TEST 3 - DPV-11
826                                 ;* WRITE/READ DATA PATTERNS
827                                 ;* THIS TEST IS INTENDED TO TEST THE READ/WRITE BITS IN THE CSRS. THERE
828                                 ;* IS NO INTENTION TO CHECK THE USYNR/T; IT IS DESIRED TO ONLY CHECK THE
829                                 ;* READING AND WRITING OF THE CSRS.  IN ALL THE SUBTESTS THE BITS ARE
830                                 ;* CHECKED TOGETHER AND INDIVIDUALLY.
831                                 ;* SUBTEST 1 - RXCSR (LOW BYTE CSR0)
832                                 ;*             CHECK BITS 0-6
833                                 ;* SUBTEST 2 - PCR (HIGH BYTE CSR4)
834                                 ;*             CHECK BITS 0-7
835                                 ;* SUBTEST 3 - TDSR (LOW BYTE OF CSR6) - TRANSMIT DATA BUFFER
836                                 ;*             BITS 0-7
837                                 ;* SUBTEST 4 - TDSR (HIGH BYTE OF CSR6) - TRANSMIT STATUS REGISTER.
838                                 ;*             BITS 0-3
839                                 ;* SUBTEST 5 - TDSR  - CHECK BYTE OP SIGNAL FOR USYNRT
840                                 ;*
841                                 ;*********************************************************************
842
843
844
845                                 ;*********************************************************************
846                                 ;*                TEST 4 - DMR-11
847                                 ;* TRANSMIT ENABLE/ TRANSMIT ACTIVE
848                                 ;* AFTER A DEVICE RESET, SET TRANSMIT START OF MESSAGE (TSOM).  ENSURE
849                                 ;* THAT TRANSMIT ACTIVE (TXACT) IS SET.
850                                 ;*
851                                 ;* TXACT IS USED TO INDICATE THE CURRENT STATE OF THE TRANSMITTER
852                                 ;* DATA PATH.  THIS BIT WILL BE ASSERTED WHEN BOTH THE TRANSMITTER IS
853                                 ;* ENABLED AND TSOM ARE INTERNALLY SYNCHRONIZED.  TXACT WILL BE CLEARED
854                                 ;* UPON RESET OR WHEN THE TRANSMITTER ENTERS THE IDLE STATE.
855                                 ;*
856                                 ;*********************************************************************
857
858
859
860                                 ;*********************************************************************
861                                 ;*                TEST 5 - DPV-11
862                                 ;* TRANSMIT BUFFER EMPTY
863                                 ;* VERIFY THAT TBE (TRANSMIT BUFFER EMPTY) IS ASSERTED WHENEVER
864                                 ;* THE DEVICE IS RESET OR WHENEVER THE TDSR IS AVAILABLE FOR DATA.
865                                 ;* TBE IS CLEARED AFTER WRITING TO THE TDSR.
866                                 ;*
867                                 ;*********************************************************************
```

```
;*****************************************************************
;*                TEST 6 - DPV-11
;* TRANSMIT INTERRUPT
;* VERIFY THAT A TRANSMIT INTERRUPT IS RECEIVED WHEN TRANSMIT
;* BUFFER EMPTY (TBE) IS ASSERTED.
;*
;*****************************************************************



;*****************************************************************
;*                TEST 7 - DPV-11
;* RECEIVER ENABLE, RECEIVER ACTIVE AND RECEIVER DATA READY
;*                MODE: BCP, 8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK
;* ENABLE THE RECEIVER. AFTER TRANSMITTING A CHARACTER WAIT FOR
;* RECEIVER DATA AVAILABLE AND CHECK THAT THE RECEIVER IS ACTIVE.
;* AFTER CLEARING RECEIVER ENABLE, ENSURE THAT THE RECEIVER IS INACTIVE.
;*
;* RECEIVER ENABLE - CONTROLS THE OPERATION OF THE RECEIVER DATA PATH (RDP)
;* RECEIVER ACTIVE - THIS OUTPUT IS ASSERTED WHEN THE RDP PRESENTS THE 1ST
;*                   DATA CHARACTER OF A MESSAGE TO THE USYNRT.  IT REMAINS
;*                   ASSERTED UNTIL THE RDP ENTERS THE IDLE STATE..
;* RECEIVE DATA    - THIS OUTPUT IS SET WHEN THE RDP HAS ASSEMBLED A DATA
;*                   CHARACTER THAT IS READY TO BE PRESENTED.
;*****************************************************************


;*****************************************************************
;*                TEST 8 - DPV-11
;* RECEIVE DATA INTERRUPT
;*                MODE: BCP, 8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK
;* ENABLE THE RECEIVER AND SET RECEIVER INTERRUPT. TRANSMIT DATA.
;* CHECK THAT THE RECEIVE INTERUPT WAS GENERATED. AFTER THE INTERUPT
;* WAS GENERATED DISABLE THE RECEIVER. CHECK THAT THE RECEIVER BECOMES
;* INACTIVE.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 9 - DPV-11
;* THERE ARE 3 SUBTESTS IN THIS TEST WHICH ARE INTENDED TO CHECK
;* RECEIVER STATUS.
;* SUBTEST 1 -  REOM (RECEIVE END OF MESSAGE)
;*              THIS SUBTEST WILL TRANSMIT A DATA MESSAGE THAT IS
;*              ENDED WITH A TEOM (TRANSMIT END OF MESSAGE).  A
;*              CHECK WILL BE MADE THAT THE RECEIVER GETS THE DATA
;*              AND THAT THE REOM IS RECEIVED WHEN RECEIVE
;*              STATUS IS AVAILABLE.
;*
;* SUBTEST 2 -  RECEIVER OVERRUN
;*              THIS SUBTEST WILL TRANSMIT DATA CORRECTLY.  THE
;*              RECEIVER AFTER BECOMING ACTIVE WILL NOT SERVICE
;*              THE RECEIVE BUFFER CORRECTLY.  THIS SHOULD RESULT IN
;*              A RECEIVE OVERRUN.  THIS SUBTEST WILL ENSURE THAT
;*              WHEN RECEIVE STATUS IS AVAILABLE, THE RECEIVER OVERRUN
;*              IS SET.
;*
;* SUBTEST 3 -  RECEIVER ABORT
;*              THIS SUBTEST WILL TRANSMIT A DATA MESSAGE THAT IS ENDED
;*              WITH A TRANSMIT ABORT.  THE SUBTEST WILL ENSURE THAT
;*              RECEIVE STATUS AVAILABLE IS RECEIVED AND THAT THE
;*              ABORT IS RECEIVED.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 10 - DPV-11
;* THIS TEST WILL ENSURE THAT INTERRUPTS MAY BE GENERATED WHEN
;* RECEIVE STATUS IS AVAILABLE. EACH OF THE FOLLOWING SUBTESTS
;* WILL GENERATE THE STATUS AS FOLLOWS:
;* SUBTEST 1 -  REOM
;* SUBTEST 2 -  RECEIVER OVERRUN
;* SUBTEST 3 -  RECEIVER ABORT
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 11 - DPV-11
;* RECEIVE AND TRANSMIT INTERRUPT
;* TRANSMIT AND RECEIVE DATA USING INTERRUPT ROUTINES. THIS TEST
;* WILL TRANSMIT 4 DATA CHARACTERS. AFTER ENSURING THAT A TRANSMIT
;* INTERRUPT WAS COMPLETED, THE TEST WILL CHECK TO MAKE SURE THAT AT
;* LEAST 1 RECEIVE INTERRUPT WAS GENERATED.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 12 - DPV-11
;* MODEM STATUS
;* IF A PROPER TURNAROUND (H3259 OR H3260) IS ON, THIS TEST WILL
;* CHECK THAT THE FOLLOWING MODEM SIGNALS ARE TURNED AROUND
;* 1. RTS (REQUEST TO SEND)     TURNED AROUND TO CTS (CLEAR TO SEND)
;*                                            & RR  (RECEIVER READY)
;* 2. DTR (DATA TERMINAL READY) TURNED AROUND TO IC  (INCOMING CALL OR RING)
;* 3. SF  (SELECT FREQUENCY)    TURNED AROUND TO SQ  (SIGNAL QUALITY)
;* 4. LL  (LOCAL LOOPBACK)      TURNED AROUND TO DM  (DATA MODE)
;*
;*****************************************************************


;*****************************************************************
;*                TEST 13 - DPV-11
;* MODEM STATUS INTERRUPT
;* IF A PROPER TURNAROUND (H3259 OR H3260) IS ON, THIS TEST WILL CHECK
;* THAT THE FOLLOWING SUBTESTS WORK CORRECTLY.
;* SUBTEST 1 -  SET DTR (DATA TERMINAL READY), LOCAL LOOP (LL), RTS (REQUEST
;*              TO SEND) WITH ONLY RECEIVE INTERRUPT ENABLED. ENSURE THAT AN
;*              INTERRUPT IS NOT RECEIVED.
;* SUBTEST 2 -  SET DTR, LL AND RTS WITH ONLY DATA SET INTERRUPT ENABLED.
;*              ENSURE THAT AN INTERRUPT IS NOT RECEIVED.
;* SUBTEST 3 -  SET DTR, LL AND RTS WITHOUT ANY INTERRUPTS ENABLED.  ENSURE
;*              THAT AN INTERRUPT IS NOT RECEIVED.
;* SUBTEST 4 -  SET RTS WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
;*              THAT AN INTERRUPT IS RECEIVED.
;* SUBTEST 5 -  SET DTR WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
;*              THAT AN INTERRUPT IS RECEIVED.
;* SUBTEST 6 -  SET LL WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
;*              THAT AN INTERRUPT IS RECEIVED.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 14 - DPV-11
;* RECEIVE AND MODEM STATUS INTERRUPTS
;* CHANGE THE MODEM STATUS WHILE HANDLING A RECEIVE INTERRUPT.
;* ENSURE THAT THE MODEM STATUS INTERRUPT IS RECEIVED.
;* SUBTEST 1 -  CHANGE RTS DURING THE RECEIVE INTERRUPT.  ENSURE THAT
;*              THE DATA SET INTERRUPT WAS RECEIVED.
;* SUBTEST 2 -  CHANGE DTR DURING THE RECEIVE INTERRUPT.  ENSURE THAT
;*              THE DATA SET INTERRUPT WAS RECEIVED.
;* SUBTEST 3 -  CHANGE LL DURING THE RECEIVE INTERRUPT.  ENSURE THAT
;*              THE DATA SET INTERRUPT WAS RECEIVED.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 15 - DPV-11
;* SUBTEST 1 - SECONDARY ADDRESS
;*      SEGMENT 1 -     SELECT SECONDARY ADDRESS AND SEND THE CORRECT
;*                      ADDRESS.  CHECK THE DATA IS PROPERLY RECEIVED.
;*      SEGMENT 2 -     SELECT SECONDARY ADDRESS AND SEND A MESSAGE WITHOUT
;*                      SENDING USING THE SECONDARY ADDRESS.  CHECK THAT A
;*                      TIME OUT IS RECEIVED.
;*
;* SUBTEST 2 - ALL PARTIES ADDRESSING
;*      SEGMENT 1 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
;*                      MESSAGE USING THE ALL PARTIES ADDRESS.  ENSURE THAT
;*                      THE MESSAGE IS CORRECTLY RECEIVED.
;*      SEGMENT 2 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
;*                      MESSAGE WITHOUT ALL PARTIES OR SECONDARY ADDRESS.
;*                      CHECK THAT A TIME OUT IS RECEIVED.
;*      SEGMENT 3 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
;*                      MESSAGE WITH A SECONDARY ADDRESS.  CHECK THAT A
;*                      TIME OUT IS RECEIVED.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 16 - DPV-11
;* ABORT TEST
;* SUBTEST 1 -  ABORT WITH IDLE CLEAR. ABORT CHARACTERS TRANSMITTED WHEN
;*              THE ABORT BIT IS ASSERTED.
;*              SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;* SUBTEST 2 -  ABORT WITH IDLE SET. FLAGS TRANSMITTED WHEN THE ABORT BIT
;*              IS ASSERTED.
;*              SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, IDLE SET,
;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 17 - DPV-11
;* EXTENDED CONTROL AND ADDRESSING TEST
;* CHECK THAT THE RECEIVER CAN RECOGNIZE EXTENDED ADDRESSING AND CONTROL
;* CHARACTERS.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
;*                        3 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK,
;*                        EXTENDED CONTROL AND ADDRESSING SELECTED
;*
;*****************************************************************


;*****************************************************************
;*                TEST 18 - DPV-11
;* TRANSMIT GO AHEAD
;* TERMINATE A MESSAGE USING TRANSMIT GO AHEAD.  CHECK THAT THE RECEIVE
;* ABORT BIT IS SET WHEN THE END OF MESSAGE IS RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1, LOOP SET,
;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 19 - DPV-11
;* ASSEMBLED BIT COUNT
;* TRANSMIT VARIOUS BIT LENGTHS WHILE RECEIVING AN 8 BIT CHARACTER.
;* ENSURE THAT THE ASSEMBLED BIT COUNT (ABC) IS CORRECT UPON THE END
;* OF MESSAGE.
;*      SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, VARIOUS BIT
;*                        LENGTH CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 20 - DPV-11
;* SPECIAL SPACE SEQUENCE
;* START A MESSAGE USING A SPECIAL SPACE SEQUENCE.  CHECK THAT THE
;* MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
;*
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 21 - DPV-11
;* SYNCH CHARACTER
;* CHECK THAT A SYNCH CHARACTER OF 271 CAN BE USED TO COMMENCE A MESSAGE.
;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
;*                        7 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 22 - DPV-11
;* SYNCH FROM TRANSMIT DATA PATH
;* TRANSMIT A MESSAGE USING THE SYNCH FROM THE TRANSMIT DATA PATH.
;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE SET
;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 23 - DPV-11
;* STRIP SYNCHS
;* SEND MORE THAN 2 SYNCHS WITH THE STRIP SYNCH BIT SET. CHECK THAT
;* THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, STRIP SYNCH SET
;*                        6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 24 - DPV-11
;* CRC-CCITT PRESET TO ONES.
;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
;* SET WHEN AN ABORT IS RECEIVED.  IN BOP MODE THIS BIT IS SET WHEN THE
;* CRC IS IN ERROR.  THE ERROR CHECK BIT SHOULD BE ZERO WHEN REOM=1,
;* IF THE CRC WERE CORRECTLY RECEIVED. BY FORCING AN ABORT WE INTENTIONALLY
;* LOOK AT THE ERROR BIT WHEN IT SHOULD BE IN AN ERROR STATE.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1, LOOP SET,
;*                        4 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 25 - DPV-11
;* CRC-CCITT PRESET TO ZERO.
;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
;* SET WHEN AN ABORT IS RECEIVED.  IN BOP MODE THIS BIT IS SET WHEN THE
;* CRC IS IN ERROR.  THE ERROR CHECK BIT SHOULD BE ZERO WHEN REOM=1,
;* IF THE CRC WERE CORRECTLY RECEIVED. BY FORCING AN ABORT WE INTENTIONALLY
;* LOOK AT THE ERROR BIT WHEN IT SHOULD BE IN AN ERROR STATE.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 0, LOOP SET,
;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;*****************************************************************


;*****************************************************************
;*                TEST 26 - DPV-11
;* CRC-16 PRESET TO 0
;*
;* SUBTEST 1 - CRC-16 ERROR
;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
;* CLEAR IF THE RECEIVER IS SHUTDOWN BEFORE THE CRC IS RECEIVED.
;* IN BCP MODE THIS BIT IS CLEAR WHEN THE CRC IS IN ERROR.
;* THE ERROR CHECK BIT SHOULD BE SET WHEN THE LAST CHARACTER IS RECEIVED,
;* IF THE CRC WERE GOOD.
;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO 0, LOOP SET,
;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
;*
;* SUBTEST 2 -  CRC-16 CHECK
;* CHECK THAT THE CORRECT CRC-16 IS RECEIVED FOR THE DATA MESSAGE.
;* THE CRC FOR THIS DATA MESSAGE WAS PREDETERMINED.
;*
;*****************************************************************
```

```
                                ;*****************************************************************
                                ;*                TEST 27 - DPV-11
                                ;* VRC ODD PARITY ERROR
                                ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
                                ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
                                ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, XMIT=7 &
                                ;*                        RCV=6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;*****************************************************************

                                ;*****************************************************************
                                ;*                TEST 28 - DPV-11
                                ;* VRC EVEN PARITY ERROR
                                ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
                                ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
                                ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY, XMIT=5 &
                                ;*                        RCV=4 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;*****************************************************************

                                ;*****************************************************************
                                ;*                TEST 29 - DPV-11
                                ;* DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE WITHOUT THE USE OF INTERRUPT
                                ;* SERVICE ROUTINES. CHECK THAT THE DATA IS  CORRECT.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                ;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;*****************************************************************

                                ;*****************************************************************
                                ;*                TEST 30 - DPV-11
                                ;* BOP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
                                ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*****************************************************************

                                ;*****************************************************************
                                ;*                TEST 31 - DPV-11
                                ;* BOP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                ;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*****************************************************************
```

```
;*****************************************************************
;*                TEST 32 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 33 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 34 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 35 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZEROS,
;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 36 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO, LOOP SET,
;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 37 - DPV-11
;* BCP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE BIT SET
;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 38 - DPV-11
;* BCP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 39 - DPV-11
;* BCP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES, STRIP SYNCHS,
;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 40 - DPV-11
;* BCP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES,
;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************
```

```
;*****************************************************************
;*                TEST 41 - DPV-11
;* DDCMP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE USING THE
;* DDCMP MESSAGE FORMAT.  CHECK THAT THE DATA IS CORRECTLY RECEIVED
;* AND THAT THE CRC CHARACTERS ARE RECEIVED IN THE PROPER DDCMP
;* ORDER.
;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES, STRIP SYNCHS
;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 42 - DPV-11
;* BCP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES,
;*                        5 OR 8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************

;*****************************************************************
;*                TEST 43 - DPV-11
;* BOP DATA TEST
;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
;* DATA IS CORRECTLY RECEIVED.
;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
;*                        5 OR 8 BIT CHARACTERS, USER SELECTED LOOPBACK.
;*
;*****************************************************************
```

9.0 ERROR INFORMATION

9.1 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 AN "TIME OUT" ERROR, AND PROVIDES THE PC OF THE ERROR CALL AND THE PC OF THE CALL TO THE SUBROUTINE REPORTING IT, THE FAILING REGISTER NAME, AND DEVICE REGISTER CONTENTS :

```
DPV DVC FTL ERR 00002 ON UNIT 00 TST 020 SUB 000 PC:  004756
TIME OUT - DURING INTERRUPT EXERCISE
ERROR IN SUBROUTINE CALLED AT PC:  031706
RXCSR:  000160
RDSR :  000000
```

```
TXCSR:  122432
TDSR :  001402

DPV  EOP        1
     1 CUMULATIVE ERRORS

@
```

```
        002000                          .=2000
                                        .MCALL  SVC
002000                                  SVC                                     ; INITIALIZE SUPERVISOR MACROS
002000                          BGNMOD
        000001                  $LSTIN=  1      ;   LIST INSTRUCTIONS
        000001                  $LSTTAG= 1
        000001                  SVCINS=  1      ;   LIST INSTRUCTIONS, SHIFTED RIGHT
        000001                  SVCTST=  1      ;   LIST TEST TAGS, SHIFTED RIGHT
        000001                  SVCSUB=  1      ;   LIST SUBTEST TAGS, SHIFTED RIGHT
        000001                  SVCGBL=  1      ;   LIST GLOBAL TAGS, SHIFTED RIGHT
        000001                  SVCTAG=  1      ;   LIST OTHER TAGS, SHIFTED RIGHT

                                ;       CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
                                ;       TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
                                ;       SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
                                ;       CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.

002000                                  POINTER BGNDU
```

```
                                .SBTTL  PROGRAM HEADER
                                ;++
                                ;       THE PROGRAM HEADER MACRO CHARACTERIZES THIS DIAGNOSTIC. THE
                                ;       HEADER MACRO'S ARGUMENTS ARE FILE NAME, RELEASE LEVEL, PATCH
                                ;       DISPOSITION OF THE MOST RECENT PATCH, MAXIMUM TEST TIME IN SEC.,
                                ;       AND THE TYPE OF DIAGNOSTIC (0-SEQUENTIAL, 1-EXERCISER).  THESE
                                ;       ARGUMENTS ARE IN RESPECTIVE ORDER.
                                ;--


002000                          HEADER CNDPV,A,0,200.,0
002000                                                                          L$NAME::
002000      103                                                                         .ASCII /C/
002001      116                                                                         .ASCII /N/
002002      104                                                                         .ASCII /D/
002003      120                                                                         .ASCII /P/
002004      126                                                                         .ASCII /V/
002005      000                                                                         .BYTE   0
002006      000                                                                         .BYTE   0
002007      000                                                                         .BYTE   0
002010                                                                          L$REV::
002010      101                                                                         .ASCII  /A/
002011                                                                          L$DEPO::
002011      060                                                                         .ASCII  /0/
002012                                                                          L$UNIT::
002012  000000                                                                          .WORD   0
002014                                                                          L$TIML::
002014  000310                                                                          .WORD   200.
002016                                                                          L$HPCP::
002016  040250                                                                          .WORD   L$HARD
002020                                                                          L$SPCP::
002020  000000                                                                          .WORD   0
002022                                                                          L$HPTP::
002022  002254                                                                          .WORD   L$HW
002024                                                                          L$SPTP::
002024  000000                                                                          .WORD   0
002026                                                                          L$LADP::
002026  040540                                                                          .WORD   L$LAST
002030                                                                          L$STA::
002030  000000                                                                          .WORD   0
002032                                                                          L$CO::
002032  000000                                                                          .WORD   0
002034                                                                          L$DTYP::
002034  000000                                                                          .WORD   0
002036                                                                          L$APT::
002036  000000                                                                          .WORD   0
002040                                                                          L$DTP::
002040  002124                                                                          .WORD   L$DISPATCH
002042                                                                          L$PRIO::
002042  000000                                                                          .WORD   0
002044                                                                          L$ENVI::
002044  000000                                                                          .WORD   0
002046                                                                          L$EXP1::
002046  000000                                                                          .WORD   0
002050                                                                          L$MREV::
002050      003                                                                         .BYTE   C$REVISION
002051      003                                                                         .BYTE   C$EDIT
```

```
002052
002052  000000                                          L$EF::
                                                                .WORD   0
002054  000000                                                  .WORD   0
002056                                                  L$SPC::
002056  000000                                                  .WORD   0
002060                                                  L$DEVP::
002060  003674                                                  .WORD   L$DVTYP
002062                                                  L$REPP::
002062  000000                                                  .WORD   0
002064                                                  L$EXP4::
002064  000000                                                  .WORD   0
002066                                                  L$EXP5::
002066  000000                                                  .WORD   0
002070                                                  L$AUT::
002070  000000                                                  .WORD   0
002072                                                  L$DUT::
002072  017750                                                  .WORD   L$DU
002074                                                  L$LUN::
002074  000000                                                  .WORD   0
002076                                                  L$DESP::
002076  003702                                                  .WORD   L$DESC
002100                                                  L$LOAD::
002100  104035                                                  EMT     E$LOAD
002102                                                  L$ETP::
002102  000000                                                  .WORD   0
002104                                                  L$ICP::
002104  015372                                                  .WORD   L$INIT
002106                                                  L$CCP::
002106  016564                                                  .WORD   L$CLEAN
002110                                                  L$ACP::
002110  016500                                                  .WORD   L$AUTO
002112                                                  L$PRT::
002112  015364                                                  .WORD   L$PROT
002114                                                  L$TEST::
002114  000000                                                  .WORD   0
002116                                                  L$DLY::
002116  000000                                                  .WORD   0
002120                                                  L$HIME::
002120  000000                                                  .WORD   0
1468
1474
1475
1476
1477
1478                                    .EVEN
1479
1480
1481
1482
1483
1484
```

```
                                .SBTTL  DISPATCH TABLE

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

002122                                  DISPATCH 43
                                                                                                .WORD   43
002122  000053                                                                          L$DISPATCH::
002124                                                                                          .WORD   T1
002124  020030                                                                                  .WORD   T2
002126  020434                                                                                  .WORD   T3
002130  020660                                                                                  .WORD   T4
002132  021410                                                                                  .WORD   T5
002134  021752                                                                                  .WORD   T6
002136  022204                                                                                  .WORD   T7
002140  022362                                                                                  .WORD   T8
002142  022614                                                                                  .WORD   T9
002144  023112                                                                                  .WORD   T10
002146  024120                                                                                  .WORD   T11
002150  025234                                                                                  .WORD   T12
002152  025500                                                                                  .WORD   T13
002154  025770                                                                                  .WORD   T14
002156  026700                                                                                  .WORD   T15
002160  030004                                                                                  .WORD   T16
002162  030714                                                                                  .WORD   T17
002164  031240                                                                                  .WORD   T18
002166  031412                                                                                  .WORD   T19
002170  031622                                                                                  .WORD   T20
002172  032072                                                                                  .WORD   T21
002174  032240                                                                                  .WORD   T22
002176  032424                                                                                  .WORD   T23
002200  032610                                                                                  .WORD   T24
002202  032774                                                                                  .WORD   T25
002204  033164                                                                                  .WORD   T26
002206  033352                                                                                  .WORD   T27
002210  033770                                                                                  .WORD   T28
002212  034160                                                                                  .WORD   T29
002214  034350                                                                                  .WORD   T30
002216  034746                                                                                  .WORD   T31
002220  035122                                                                                  .WORD   T32
002222  035304                                                                                  .WORD   T33
002224  035474                                                                                  .WORD   T34
002226  035646                                                                                  .WORD   T35
002230  036022                                                                                  .WORD   T36
002232  036204                                                                                  .WORD   T37
002234  036366                                                                                  .WORD   T38
002236  036570                                                                                  .WORD   T39
002240  036772                                                                                  .WORD   T40
002242  037174                                                                                  .WORD   T41
002244  037352                                                                                  .WORD   T42
002246  037624                                                                                  .WORD   T43
002250  040034
```

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

                                ;////////////////////////////////////////////////////////////////////////////////
                                ;/ THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES FOR
                                ;/ THE TEST-DEVICE PARAMETERS.
                                ;////////////////////////////////////////////////////////////////////////////////

 002252                                 BGNHW   DFPTBL
 002252  000003                                                                                  .WORD   L10000-L$HW/2
 002254                                                                                  L$HW::
 002254                                                                                  DFPTBL::

 002254  174700                         .WORD   174700          ;DPV11 CSR UNIBUS ADDRESS
 002256  000200                         .WORD      200          ;DPV11 INTERRUPT VECTOR
 002260  000001                         .WORD        1          ;TURNAROUND (DEFAULT = RS423)


 002262                                 ENDHW
 002262                                                                                  L10000:
```

```
                                .SBTTL  GLOBAL EQUATES SECTION

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

 002262                                 EQUALS
                                ;
                                ; BIT DIFINITIONS
                                ;
                                BIT15== 100000
 100000                         BIT14== 40000
 040000                         BIT13== 20000
 020000                         BIT12== 10000
 010000                         BIT11== 4000
 004000                         BIT10== 2000
 002000                         BIT09== 1000
 001000                         BIT08== 400
 000400                         BIT07== 200
 000200                         BIT06== 100
 000100                         BIT05== 40
 000040                         BIT04== 20
 000020                         BIT03== 10
 000010                         BIT02== 4
 000004                         BIT01== 2
 000002                         BIT00== 1
 000001                         ;
                                BIT9==  BIT09
 001000                         BIT8==  BIT08
 000400                         BIT7==  BIT07
 000200                         BIT6==  BIT06
 000100                         BIT5==  BIT05
 000040                         BIT4==  BIT04
 000020                         BIT3==  BIT03
 000010                         BIT2==  BIT02
 000004                         BIT1==  BIT01
 000002                         BIT0==  BIT00
 000001                         ;
                                ; EVENT FLAG DEFINITIONS
                                ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
                                ;
                                ;                                       ;  BIT POSITION IN SECOND STATUS WORD
 000040                         EF.START==      32.                     ; (100000) START COMMAND WAS ISSUED
 000037                         EF.RESTART==    31.                     ; (040000) RESTART COMMAND WAS ISSUED
 000036                         EF.CONTINUE==   30.                     ; (020000) CONTINUE COMMAND WAS ISSUED
 000035                         EF.NEW==        29.                     ; (010000) A NEW PASS HAS BEEN STARTED
 000034                         EF.PWR==        28.                     ; (004000) A POWER-FAIL/POWER-UP OCCURRED
                                ;
                                ;
                                ; PRIORITY LEVEL DEFINITIONS
                                ;
 000340                         PRI07== 340
 000300                         PRI06== 300
 000240                         PRI05== 240
 000200                         PRI04== 200
 000140                         PRI03== 140
```

```
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==       4
000010                  LOT==      10
000020                  ADR==      20
000040                  IDU==      40
000100                  ISR==     100
000200                  UAM==     200
000400                  BOE==     400
001000                  PNT==    1000
002000                  PRI==    2000
004000                  IXE==    4000
010000                  IBE==   10000
020000                  IER==   20000
040000                  LOE==   40000
100000                  HOE==  100000
                        ;;*****************************************************************
                        ;;*****************************************************************
                        ;SWITCH REGISTER OPTIONS

100000                  SW15=   100000
040000                  SW14=   40000
020000                  SW13=   20000
010000                  SW12=   10000
004000                  SW11=   4000
002000                  SW10=   2000
001000                  SW09=   1000
000400                  SW08=   400
000200                  SW07=   200
000100                  SW06=   100
000040                  SW05=   40
000020                  SW04=   20
000010                  SW03=   10
000004                  SW02=   4
000002                  SW01=   2
000001                  SW00=   1

                        ;;*****************************************************************
                        ;;CSR AND STATUS WORD DEFINITIONS

                        ;;RXCSR - CSR0   (EXTERNAL REGISTER)  READ/WRITE BITS 0 - 6

000001                  SF=     BIT0            ;SELECT FREQUENCY.
000001                  RL=     BIT0            ;REMOTE LOOPBACK - IF WIRE WRAPPED
                                                ;SELECTED.
000002                  DTR=    BIT1            ;DATA TERMINAL READY  R/W
000004                  RTS=    BIT2            ;REQUEST TO SEND  R/W
000010                  LL=     BIT3            ;LOCAL LOOPBACK
000020                  RXENA=  BIT4            ;RECEIVER ENALBLE  R/W
000040                  DSITEN= BIT5            ;DATA SET INTERRUPT ENABLE  R/W
000100                  RXITEN= BIT6            ;RECEIVER INTERRUPT ENABLE  R/W
                                                ;** BITS 7 - 15   READ ONLY **
```

```
000200                  RDATRY= BIT7            ;RECEIVE DATA READY  READ ONLY
000400                  SFR=    BIT8            ;SYNCH OR FLAG DETECT  READ ONLY
001000                  DM=     BIT9            ;DATA MODE  READ ONLY
002000                  RSTARY= BIT10           ;RECEIVER STATUS READY  READ ONLY
004000                  RXACT=  BIT11           ;RECEIVER ACTIVE  READ ONLY
010000                  RR=     BIT12           ;RECEIVER READY  READ ONLY
020000                  CTS=    BIT13           ;CLEAR TO SEND  READ ONLY
040000                  IC=     BIT14           ;INCOMING CALL  READ ONLY
100000                  DSCNG=  BIT15           ;DATA SET CHANGE  READ ONLY


                        ;;PCSAR - CSR2   (INTERNAL USNYR/T REGISTERS 4 AND 5)  WRITE ONLY

                                                ;BITS 0-7 SYNCH CHARACTER OR SECONDARY STATION
                                                ;ADDRESS.  LOWER BYTE OF THE PCSAR IS THE
                                                ;SYNCH CHARACTER USED WITH IN BCP MODE   OR
                                                ;THE SECONDARY ADDRESS USED IN BOP MODE.

                                                ;BITS 8-10 ERROR DETECTION SELECTION
000000                  CCITT1= 0               ;CRC CCITT INITIALIZED TO ONES
000400                  CCITT0= BIT8            ;CRC CCITT INITIALIZED TO ZEROS
001400                  CRC16=  BIT8!BIT9       ;CRC 16
002000                  VRCO=   BIT10           ;VRC ODD PARITY
002400                  VRCE=   BIT8!BIT10      ;VRC EVEN PARITY
003400                  NOERR=  BIT8!BIT9!BIT10 ;ALL ERROR DETECTION INHIBITED.
001000                  NONE1=  BIT9            ;NOT USED
003000                  NONE2=  BIT9!BIT10      ;NOT USED

004000                  IDLE=   BIT11           ;IDLE MODE SELECT
010000                  SECADR= BIT12           ;SECONDARY ADDRESS SELECT
020000                  SSYNCH= BIT13           ;STRIP SYNCH - BCP
020000                  LOOP=   BIT13           ;LOOP MODE - BOP
040000                  PROTO=  BIT14           ;PROTOCOL SELECT.
100000                  APA=    BIT15           ;ALL PARTIES ADDRESSED.


                        ;;RDSR  - CSR2   (INTERNAL USNYR/Y REGISTERS 0 AND 1)  READ ONLY

                                                ;BITS 0-7 RECEIVE DATA BUFFER
000400                  RSOM=   BIT8            ;RECEIVED START OF MESSAGE.
001000                  REOM=   BIT9            ;RECEIVED END OF MESSAGE.
002000                  RABORT= BIT10           ;RECEIVER ABORT OR GO AHEAD
004000                  ROVER=  BIT11           ;RECEIVER OVERRUN.
                                                ;BITS 12-14 ASSEMBLED BIT COUNT (ABC)
000000                  ALL=    0               ;ALL BITS VALID
010000                  ONE=    BIT12           ;ONE BIT VALID
020000                  TWO=    BIT13           ;TWO BITS VALID
030000                  THREE=  BIT12!BIT13     ;THREE BITS VALID
040000                  FOUR=   BIT14           ;FOUR BITS VALID
050000                  FIVE=   BIT12!BIT14     ;FIVE BITS VALID
060000                  SIX=    BIT13!BIT14     ;SIX BITS VALID
070000                  SEVEN=  BIT12!BIT13!BIT14 ;SEVEN BITS VALID

100000                  ERR=    BIT15           ;ERROR CHECK


                        ;;TXCSR - CSR4   (EXTERNAL LO BYTE  -  INTERNAL 7 HI BYTE) READ/WRITE
```

```
000001                  RESET=  BIT0            ;DEVICE RESET  - WRITE ONLY
000002                  TXACT=  BIT1            ;TRANSMITTER ACTIVE - READ ONLY
000004                  TBE=    BIT2            ;TRANSMITTER BUFFER EMPTY - READ ONLY
000010                  MM=     BIT3            ;MAINTENANCE MODE - R/W
000020                  TXENA=  BIT4            ;TRANSMITTER ENABLE - R/W
000040                  SQ=     BIT5            ;SIGNAL QUALITY -READ ONLY
000040                  TM=     BIT5            ;TEST MODE - READ ONLY  WIRE WRAPPED FOR
                                                ;TEST MODE
000100                  TXIE=   BIT6            ;TRANSMIT INTERRUPT ENABLE - R/W

                        ;;PCR   - HI BYTE CSR4 (INTERNAL USNYR/T REGISTER 7)

000010                  EXCON=  BIT3            ;EXTENDED CONTROL FIELD
000020                  EXADD=  BIT4            ;EXTENDED ADDRESS FIELD.

                        ;;TDCSR - CSR6   (INTERNAL USNYR/T REGISTERS 7 AND 7) READ/WRITE

                                                ;BITS 0-7 TRANSMITTER DATA
000400                  TSOM=   BIT8            ;TRANSMIT START OF MESSAGE - R/W
001000                  TEOM=   BIT9            ;TRANSMIT END OF MESSAGE - R/W
002000                  TXABO=  BIT10           ;TRANSMIT ABORT - R/W
004000                  TGA=    BIT11           ;TRANSMIT GO AHEAD - R/W
                                                ;BITS 12 - 14 RESERVED
100000                  TERR=   BIT15           ;TRANSMIT DATA LATE ERROR. - READ ONLY


                        ;;*******************************************************************
                        ;;*******************************************************************
                        ; MISC. EQUATES

000226                  SYN=    226             ;DDCMP SYNCH CHARACTER
000207                  RETURN= 207             ;RETURN FROM SUB.     [=  JSR PC]
100000                  BOP=    BIT15           ;BIT SET IN MODE WHEN IN BOP MODE
000015                  CR=     15              ;ASCII CARRIAGE RETURN
000012                  LF=     12              ;ASCII LINE FEED
000007                  MFPT=   7               ;OPCODE FOR LSI 11/23 TO MOVE PROCESSOR TYPE
                                                ;TO R0   R0=3 MEANS LSI 11/23  - ILLEGAL INSTRUCTION
                                                ;ON AN LSI 11 OR LSI 11/2
000332                  CRCLO=  332             ;LOW BYTE OF CRC IN TEST 26.
000266                  CRCHI=  266             ;HIGH BYTE OF CRC IN TEST 26.
```

```
                                .SBTTL  GLOBAL DATA SECTION

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


                                ;;*********************************************************************
                                ;DPV11 VECTOR AND REGISTER INDIRECT POINTERS
002262  000000                  RCVEC:  .WORD   0               ;DPV11 RECEIVER INTERRUPT VECTOR
002264  000000                  XMTVEC: .WORD   0               ;DPV11 TRANSMITTER INT. VECTOR
002266  000000                  CSR0:   .WORD   0               ;POINTER TO DPV11 CSR0
002270  000000                  CSR2:   .WORD   0               ;POINTER TO DPV11 CSR2
002272  000000                  CSR4:   .WORD   0               ;POINTER TO DPV11 CSR4
002274  000000                  CSR6:   .WORD   0               ;POINTER TO DPV11 CSR6
002276  000000                  CSR1:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR0
002300  000000                  CSR3:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR2
002302  000000                  CSR5:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR4
002304  000000                  CSR7:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR6

        002266                  RXCSR=  CSR0                    ;RECEIVER CSR (READ/WRITE)
        002270                  PCSAR=  CSR2                    ;PARAMETER CONTROL SYNCH/ADDRESS REG.
                                                                ;(WRITE ONLY)
        002270                  RDCR-   CSR2                    ;RECEIVE DATA/STATUS REGISTER (READ ONLY)
        002272                  TXCSR=  CSR4                    ;TRANSMITTER CSR (READ/WRITE)
        002274                  TDSR=   CSR6                    ;TRANSMIT DATA/STATUS REGISTER (READ ONLY)
        002302                  PCR=    CSR5                    ;PCR = PARAMETER CONTROL REGISTER

                                ;;OTHER HARDWARE PARAMETERS

002306  000000                  TURN:   .WORD   0               ;TURN AROUND TYPE (0-7)

                                ;;*********************************************************************
                                ;PROGRAM CONTROL PARAMETERS


002310  000000                  FRSTIM: .WORD   0               ;FLAG=0 IF PROGRAM JUST LOADED
002312  000000                  FRSPAS: .WORD   0               ;FLAG=0 IF FIRST PASS AFTER LOAD
002314  000000                  STARES: .WORD   0               ;FLAG=0 IF 1ST TIME THRU AFTER STA OR RES


                                ;;*********************************************************************
                                ;PROGRAM VARIABLES

                                ;* MISCELLANEOUS STORAGE
002316  000000                  ABORT:  .WORD   0               ;FLAG TO ALLOW AN ABORT TO BE ISSUED.
002320  000000                  BITS:   .WORD   0               ;BITS TO BET SET IN THE CSR REGISTER
002322  000000                  COUNTER:.WORD   0               ;COUNTER FOR # OF CHARACTERS TO RCV. (RDATA2)
002324  000000                  CPU:    .WORD   0               ;PROCESSOR TYPE
                                                                ;(3 = LSI11/23, 0 = LSI 11 OR LSI 11/2)
002326  000000                  DATA:   .WORD   0               ;COUNTER FOR # OF DATA CHARATERS TRANSMITTED.
002330  000000                  ERROR:  .WORD   0               ;ERROR STORAGE
002332  000000                  EXERR:  .WORD   0               ;FLAG THAT AN ERROR IS EXPECTED IN DATA
```

```
002334  000000          FLAG:    .WORD   0          ;SCRATCH WORD USED FOR MISC. FLAG IN SUB.
002336  000000          HEADER:  .WORD   0          ;FLAG USED TO MARK DDCMP HEADER.
002340  000000          HIGH:    .WORD   0          ;FLAG USED TO INDICATE HIGH SPEED ISR WHEN SET
002342  000000          IPCR:    .WORD   0          ;IMAGE OF PCR
002344  000000          IPCSAR:  .WORD   0          ;IMAGE OF PCSAR
002346  000000          IRXCSR:  .WORD   0          ;IMAGE OF RXCSR
002350  000000          IRDSR:   .WORD   0          ;IMAGE OF RDSR.
002352  000000          LENGTH:  .WORD   0          ;CHARACTER LENGTH.
002354  000000          LOGDEV:  .WORD   0          ;LOGICAL DEVICE NUMBER
002356  000000          MAINT:   .WORD   0          ;MAINTENANCE MODE LOOPBACK FLAG
002360  000000          MCFLAG:  .WORD   0          ;WORD USED IN TO TRACK MODEM CONTROL INT.
002362  000000          MODE:    .WORD   0          ;PROTOCOL TYPE
002364  000000          NESTPC:  .WORD   0          ;FLAG TO NOTIFY WHEN A SUBR IS NESTED
002366  000000          NXMFLG:  .WORD   0          ;WORD USED WHEN ADDRESS IS NXM.
002370  000000          OVER:    .WORD   0          ;FLAG TO ALLOW RECEIVE OVERRUN.
002372  000000          PSTACK:  .WORD   0          ;CONTAINS BASE LEVEL PROGRAM SP
002374  000000          REG:     .WORD   0          ;STORAGE OF A CSR ADDRESS
002376  000000          RFLAG:   .WORD   0          ;WORD USED IN RECEIVE ROUTINE.
002400  000000          RSAVE:   .WORD   0          ;TEMPORARY LOCATION TO SAVE RDSR ON INTERRUPT
002402  000000          RXINI:   .WORD   0          ;RECEIVER INITIALIZATION
002404  000000          RXINIT:  .WORD   0          ;RECEIVER INITIALIZATION WITH INT ENABLED.
002406  000000          RXMINI:  .WORD   0          ;RECEIVER INIT WITH MAINTENANCE LOOPBACK.
002410  000000          SAVE:    .WORD   0          ;SCRATCH WORD USED FOR MISC. STORAGE IN SUB.
002412  000000          SAVTIM:  .WORD   0          ;STORAGE TO SAVE TIMER VALUE
002414  000000          START:   .WORD   0          ;CONTER FOR # OF START CHARACTERS TO XMIT.
002416  000000          SUBRPC:  .WORD   0          ;PC OF SUBR CALL FOR ERROR REPORTS
002420  000000          TEMP:    .WORD   0          ;SCRATCH WORD USED FOR MISC. STORAGE IN SUB.
002422  000000          TEND:    .WORD   0          ;TRANSMIT END
002424  000000          TFLAG:   .WORD   0          ;WORD USED IN TRANSMIT INTERRUPT ROUTINE
002426  000000          TIMEO:   .WORD   0          ;FLAG TO MARK TIME OUT IN $DATA SUBROUTINE.
002430  000000          TIMER:   .WORD   0          ;TIMER VALUE
002432  000000          TOGGLE:  .WORD   0          ;FLAG TO ALLOW TOGGLE OF RTS IN TEST.
002434  000000          TSTART:  .WORD   0          ;TRANSMIT START
002436  000000          TXINI:   .WORD   0          ;TRANSMITTER INITIALIZATION
002440  000000          TXINIT:  .WORD   0          ;TRANSMITTER INITIALIZATION WITH INT ENABLED.
002442  000000          TXMINI:  .WORD   0          ;TRANSMITTER INIT WITH MAINTENANCE LOOPBACK
                                 .EVEN
                        ;;*******************************************************************
                        ;;*******************************************************************
                        ;;MODEM CONTROL
002444                  MODEM:   .BLKW   10.        ;BUFFER AREA FOR MODEM STATUS
                        ;;*******************************************************************
                        ;;*******************************************************************
                        ;;BUFFER AREA
002470  000000          XTYPE:   .WORD   0          ;POINTER TO DATA TYPE TO LOAD INTO XMIT BUFFER
002472  000000          XCOUNT:  .WORD   0          ;# OF CHARACTERS TO TRANSMIT.
```

```
002474  000000                    ECOUNT: .WORD   0               ;# OF CHARACTERS FOR END OF MSG. IN BCP MODE.
002476  000000                    XMITD:  .WORD   0               ;# OF CHARACTERS TRANSMITTED.
002500  000000                    RCOUNT: .WORD   0               ;# OF CHARACTERS RECEIVED.


                                  ;;*******************************************************************
                                          ;         ** CCITT PSUEDO-RANDOM TEST PATTERN **
                                          ; THE FOLLOWING 32 WORDS TRANSLATE INTO A 512 BIT PATTERN
                                          ; THAT WAS GENERATED ACCORDING TO CCITT RECOMMENDATION V.52.  THIS
                                          ; PATTERN WAS GENERATED BY A 9 BIT SHIFT REGISTER (INITIALIZED
                                          ; AS 1S) WHOSE 5TH AND 9TH BITS ARE XORED.  THIS XOR RESULT IS SHIFTED
                                          ; INTO THE 1ST BIT OF THE REGISTER AS THE REGISTER IS SHIFTED RIGHT.
                                          ; THE 9TH BIT (OR BIT SHIFTED OUT) IS SHIFTED INTO THE BIT PATTERN.
                                          ; NOTE: CCITT RECOMMENDED 511 BITS, I'VE EXTENDED THIS BY 1 BIT TO END
                                          ; ON A WORD BOUNDARY.
002502                            $CCITT:
002502  177603  157427  031011            .WORD   177603,157427,031011
002510  047321  163715  105221            .WORD   047321,163715,105221
002516  143325  142304  040041            .WORD   143325,142304,040041
002524  014116  052606  172334            .WORD   014116,052606,172334
002532  105025  123754  111337            .WORD   105025,123754,111337
002540  111523  030030  145064            .WORD   111523,030030,145064
002546  137642  143531  063617            .WORD   137642,143531,063617
002554  135015  066730  026575            .WORD   135015,066730,026575
002562  052012  053627  070071            .WORD   052012,053627,070071
002570  151172  165044  031605            .WORD   151172,165044,031605
002576  166632  016741                    .WORD   166632,016741

                                  ;;*******************************************************************
                                  ;; ALPHANUMERIC DATA

002602     101     102     103    ALPHA:  .ASCIZ  /ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789/
         000045                    ACOUNT= .-ALPHA                 ;CHARACTER COUNT
                                           .EVEN

                                  ;;*******************************************************************
                                  ;; DDCMP BUFFER

002650     201                    DDCMP:  .BYTE   201             ;SOH (START OF HEADER)
002651     064     000                    .BYTE   64,0             ;COUNT AND FLAGS (BITS 0 AND 1 FLAGS)
002653     000                            .BYTE   0                ;RESPONSE NUMBER
002654     000                            .BYTE   0                ;TRANSMIT NUMBER
002655     001                            .BYTE   1                ;STATION ADDRESS
         000006                    DDCMP1= .-DDCMP
                                                                    ;2 BYTES OF CRC16
002656     104     104     103    DDMSG:  .ASCII  /DDCMP MESSAGE/
                                                                    ;2 BYTES OF CRC16
         000015                    DDCMP2= .-DDMSG

                                  ;;*******************************************************************
                                  ;; TRANSMIT BUFFER

002673                            XMTBUF: .BLKB   256.

                                  ;;*******************************************************************
                                  ;; RECEIVE BUFFER
```

```
003273                          RCVBUF: .BLKB   256.            ;256. BYTE BUFFER
        000400                  RSIZE=  .-RCVBUF
                                        .EVEN
```

```
                                .SBTTL  GLOBAL TEXT SECTION

                                ;%%%
```

```
.SBTTL  GLOBAL SUBROUTINES

;////////////////////////////////////////////////////////////////////////////////
;/       THE GLOBAL SUBROUTINES ARE CALLED BY MORE THAN ONE TEST
;////////////////////////////////////////////////////////////////////////////////


;;*****************************************************************
;
;
;;*****************************************************************

;;*****************************************************************
; CALL MACRO - CALL ROUTINE = JSR PC, ROUTINE
;              (NOTE: RETURN IS  EQUATED TO A RTS PC)
;;*****************************************************************


;;*****************************************************************
; PUSH REGS MACRO
;
;;*****************************************************************

;;*****************************************************************
; POP REGS MACRO
;
;;*****************************************************************


;;*****************************************************************
; WAIT MACRO
;
;;*****************************************************************



;;*****************************************************************
; DELAY MACRO
;
;;*****************************************************************
```

```
                                ;;*****************************************************************
                                ;;*****************************************************************
                                ;
                                ;                    SUBROUTINE $WAIT
                                ;
                                ;            FUNCTION -  TO WAIT FOR A BIT TO BE SET IN A GIVEN
                                ;                        ADDRESS (USUALLY A DPV REGISTER).
                                ;
                                ;      CALLING FORMAT:         JSR     PC,$WAIT
                                ;                                      .WORD           ;BIT
                                ;                                      .WORD           ;ADDRESS
                                ;
                                ;
                                ;      ENTRY CONDITIONS -
                                ;
                                ;
                                ;      EXIT CONDITIONS  - EXIT WHEN BIT SET OR UPON TIME OUT.
                                ;                         IF TIME OUT, PRINT TIME OUT ERROR.
                                ;
                                ;      CALLED BY        - TESTS 4,5,7
                                ;
                                ;   REGISTERS DESTROYED - R0-R2 SAVED AND RESTORED
                                ;
                                ;;*****************************************************************
                                ;;*****************************************************************
003724                          $WAIT:
003724  011637  002416                  MOV     (SP),SUBRPC     ;SAVE THE PC THAT CALLED THE ROUTINE.
003730  162737  000004  002416          SUB     #4,SUBRPC       ;CORRECT THE PC.
003736  017637  000000  002320          MOV     @(SP),BITS      ;SAVE THE BITS THAT WE ARE CHECKING.
003744  062716  000002                  ADD     #2,(SP)         ;UPDATE THE ADDRESS ON THE STACK.
003750  017637  000000  002374          MOV     @(SP),REG       ;SAVE THE ADDRESS OF THE CSR POINTER
003756  017737  176412  002374          MOV     @REG,REG        ;SAVE THE ACTUAL CSR ADDRESS.
003764  062716  000002                  ADD     #2,(SP)         ;UPDATE THE ADDRESS ON THE STACK.
003770                                  PUSH    <R2,R1,R0>      ;PUSH REGS ON THE STACK
003776  005000                          CLR     R0              ;USE R0 AS A LOOP TIMER.

004000                          10$:
004000  017701  176370                  MOV     @REG,R1         ;SAVE THE CONTENTS OF THE CSR.
004004  033701  002320                  BIT     BITS,R1         ;IS THE BIT SET ?
004010  001026                          BNE     20$             ;BRANCH IF SET
004012                                  BREAK                   ;BREAK FOR SUPERVISOR.
004012  104422                                                                          TRAP    C$BRK
004014  005300                          DEC     R0              ;DECREMENT TIMER
004016  001370                          BNE     10$             ;CONTINUE IF TIMER NOT EXPIRED.
004020  010102                          MOV     R1,R2           ;SAVE EXPECTED RESULTS FOR ERROR MESSAGE.
004022  053702  002320                  BIS     BITS,R2         ;SET THE EXPECTED BITS.
004026                                  ERRDF   0,EMG1,ERRG12   ;PRINT TIME OUT ERROR.
004026  104455                                                                          TRAP    C$ERDF
004030  000000                                                                          .WORD   0
004032  013462                                                                          .WORD   EMG1
004034  010214                                                                          .WORD   ERRG12
004036  032737  000004  002320          BIT     #TBE,BITS       ;WERE WE WAITING FOR TBE?
004044  001410                          BEQ     20$             ;IF NOT, EXIT.
004046                                  PRINTB  #FMS1           ;SUGGEST THAT THE XMIT CLOCK IS INOP.
004046  012746  004102                                                                  MOV     #FMS1,-(SP)
004052  012746  000001                                                                  MOV     #1,-(SP)
004056  010600                                                                          MOV     SP,R0
```

```
        004060  104414                                                                  TRAP    C$PNTB
        004062  062706  000004                                                          ADD     #4,SP
 2049   004066                          20$:
 2050   004066                                  POP     <R0,R1,R2>      ;POP REGISTERS OFF STACK.
 2051   004074  005037  002416                  CLR     SUBRPC
 2052
 2053   004100  000207                          RETURN
 2054
 2055   004102     045     101     050  FMS1:   .ASCIZ  /%A(CHECK THE XMIT CLOCK)%N/
 2056                                            .EVEN
 2057
```

```
                                ;;*****************************************************************
                                ;;*****************************************************************
                                ;
                                ;                    SUBROUTINE $RESET
                                ;
                                ;            FUNCTION -  TO PERFORM A MASTER RESET AND TO CHECK THAT
                                ;                        THE DPV IS IN THE PROPER INIT STATE.
                                ;
                                ;       CALLING FORMAT:         JSR     PC,$RESET
                                ;
                                ;       ENTRY CONDITIONS -
                                ;
                                ;       EXIT CONDITIONS  - DEVICE IS RESET CORRECTLY OR AN ERROR IS REPORTED
                                ;
                                ;       CALLED BY        - TESTS 2-43
                                ;
                                ;    REGISTERS NOT AFFECTED
                                ;
                                ;;*****************************************************************
                                ;;*****************************************************************
004136                          $RESET:
004136  012777  000001  176126          MOV     #RESET,@TXCSR   ;RESET THE DPV.
004144  105777  176116                  TSTB    @RXCSR          ;IS THE RECEIVE CSR = 0?
004150  001015                          BNE     10$             ;IF NOT ERROR.
004152  005777  176112                  TST     @RDSR           ;IS THE RECEIVE STATUS AND DATA REG = 0?
004156  001012                          BNE     10$             ;IF NOT, ERROR.
004160  032777  000004  176104          BIT     #4,@TXCSR       ;IS TBE SET?
004166  001406                          BEQ     10$             ;IF NOT, ERROR.
004170  105777  176106                  TSTB    @PCR            ;IS THE PARAMETER CONTROL REG = 0?
004174  001003                          BNE     10$             ;IF NOT, ERROR.
004176  005777  176072                  TST     @TDSR           ;IS THE XMIT STATUS AND DATA REG = 0?
004202  001413                          BEQ     20$             ;IF YES - RESET OK.
004204                          10$:
004204  011637  002416                  MOV     (SP),SUBRPC     ;FLAG WHERE THIS SUBR. WAS CALLED.
004210  162737  000004  002416          SUB     #4,SUBRPC       ;ADJUST THE PC
004216                                  ERRDF   1,EMG3,ERRG11   ;PRINT ERROR MESSAGE
                                                                                        TRAP    C$ERDF
004216  104455                                                                          .WORD   1
004220  000001                                                                          .WORD   EMG3
004222  013540                                                                          .WORD   ERRG11
004224  007572
004226  005037  002416                  CLR     SUBRPC          ;CLEAR THE FLAG
004232                          20$:
004232  017737  176030  002444          MOV     @RXCSR,MODEM    ;SAVE THE MODEM STATUS.
004240  042737  006760  002444          BIC     #6760,MODEM     ;CLEAR ALL BUT MODEM
004246  032777  000040  176016          BIT     #TM,@TXCSR      ;IS TEST MODE SET?
004254  001417                          BEQ     30$             ;IF NOT OK
004256  052737  000040  002444          BIS     #TM,MODEM       ;OTHERWISE SET TM IN MODEM
                                                                ;ALSO CHECK FOR -12V
004264  122777  000162  176004          CMPB    #162,@CSR1      ;ARE RING, CTS, CD AND DM ALSO SET?
004272  001010                          BNE     30$             ;IF NOT, PROBABLY HAVE -12V
004274                                  PRINTB  #FMG9           ;PROMPT USER TO CHECK -12V.
                                                                                        MOV     #FMG9,-(SP)
004274  012746  011522                                                                  MOV     #1,-(SP)
004300  012746  000001                                                                  MOV     SP,R0
004304  010600                                                                          TRAP    C$PNTB
004306  104414                                                                          ADD     #4,SP
004310  062706  000004
```

```
2107 004314                          30$:
2108
2109 004314  000207                          RETURN
2110
```

```
                                ;;*****************************************************************
                                ;;*****************************************************************
                                ;
                                ;                    SUBROUTINE $BUFRS
                                ;
                                ;            FUNCTION -  TO SET UP THE TRANSMIT BUFFER WITH A DATA
                                ;                        PATTERN AND TO CLEAR THE RECEIVE BUFFER
                                ;
                                ;       CALLING FORMAT:         JSR     PC,$BUFRS
                                ;
                                ;       ENTRY CONDITIONS - IPCSAR  = IMAGE OF THE PCSAR (CSR 2 OF THE DPV)
                                ;                          IPCR    = IMAGE OF THE PCR (CSR 5 OF THE DPV)
                                ;                          XTYPE   = ADDRESS OF THE XMIT TYPE
                                ;                          XCOUNT  = # OF CHARACTERS TO TRANSMIT
                                ;                          LENGTH  = CHARACTER LENGTH
                                ;                          MODE    = PROTOCOL TYPE (BCP OR BOP)
                                ;
                                ;       EXIT CONDITIONS  - ECOUNT  = # OF CHARACTERS TO TRANSMIT (MODIFIED
                                ;                                    XCOUNT)
                                ;                          XMTBUF  = CONTAINS XMIT DATA TYPE PATTERN
                                ;                          RCVBUF  = RECEIVE BUFFER CLEARED
                                ;
                                ;       CALLED BY        - TESTS 15-40
                                ;
                                ;    REGISTERS R1-R4 DESTROYED
                                ;
                                ;;*****************************************************************
                                ;;*****************************************************************
004316                          $BUFRS:
004316  013701  002352                  MOV     LENGTH,R1       ;GET THE CHARACTER LENGTH
004322  013702  002470                  MOV     XTYPE,R2        ;ADDRESS OF DATA TYPE
004326  012703  002673                  MOV     #XMTBUF,R3      ;ADDRESS OF TRANSMIT BUFFER.
004332  013704  002472                  MOV     XCOUNT,R4       ;CHARACTER COUNT.
004336  005737  002362                  TST     MODE            ;WHAT MODE?
004342  001444                          BEQ     10$             ;IF BCP, SKIP ADDRESS CHECK.

004344  032737  100000  002344          BIT     #APA,IPCSAR     ;IS APA DESIRED?
004352  001403                          BEQ     5$              ;IF NOT CHECK SECONDARY ADDRESS.
004354  112723  000377                  MOVB    #377,(R3)+      ;PUT APA IN THE XMIT BUFFER
004360  000422                          BR      7$
004362                          5$:
004362  032737  010000  002344          BIT     #SECADR,IPCSAR  ;IS THE SECONDARY ADDRESS DESIRED?
004370  001403                          BEQ     6$              ;IF NOT  - JUST LOAD DATA
004372  113723  002344                  MOVB    IPCSAR,(R3)+    ;PUT SECONDARY ADDRESS IN THE XMIT BUFFER.
004376  000413                          BR      7$
004400                          6$:
004400  112223                          MOVB    (R2)+,(R3)+     ;LOAD ADDRESS CHARACTER
004402  032737  000020  002342          BIT     #EXADD,IPCR     ;IS EXTENDED ADDRESS REQUESTED?
004410  001406                          BEQ     7$              ;BR IF NOT
004412  142763  000001  177777          BICB    #BIT0,-1(R3)    ;MAKE SURE THE LSB OF THE ADDRESS IS 0
004420  112223                          MOVB    (R2)+,(R3)+     ;GET THE EXTENDED ADDRESS BYTE.
004422  005237  002472                  INC     XCOUNT          ;COMPENSATE TRANSMIT COUNT.
004426                          7$:
004426  112223                          MOVB    (R2)+,(R3)+     ;LOAD CONTROL CHARACTER
004430  032737  000010  002342          BIT     #EXCON,IPCR     ;IS EXTENDED CONTROL DESIRED?
```

```
004436  001403                          BEQ     8$                  ;BR IF NOT
004440  112223                          MOVB    (R2)+,(R3)+         ;LOAD EXTENDED CONTROL
004442  005237  002472                  INC     XCOUNT              ;COMPENSATE TRANSMIT COUNT
004446                          8$:
004446  062737  000002  002472          ADD     #2,XCOUNT           ;COMPENSATE TRANSMIT COUNT
004454                          10$:
004454  013737  002472  002474          MOV     XCOUNT,ECOUNT       ;TRANSMIT COUNT IS THE END COUNT IN BCP MODE.
004462                          11$:
004462  112213                          MOVB    (R2)+,(R3)          ;SAVE THE DATA IN THE TRANSMIT BUFFER
004464  146123  004514                  BICB    MASK(R1),(R3)+      ;CLEAR UNUSED BITS (DEPENDS ON CHAR LENGTH)
004470  005304                          DEC     R4                  ;DECREMENT COUNTER.
004472  001373                          BNE     11$                 ;LOOP UNTIL THE TRANSMIT BUFFER IS LOADED.

004474  012701  003273                  MOV     #RCVBUF,R1          ;GET THE ADDRESS OF THE RECEIVE BUFFER
004500  012702  000400                  MOV     #RSIZE,R2           ;GET THE LENGTH OF THE BUFFER.
004504                          20$:
004504  105021                          CLRB    (R1)+               ;CLEAR THE ENTIRE BUFFER
004506  005302                          DEC     R2                  ;DECREMENT THE COUNTER
004510  001375                          BNE     20$                 ;LOOP UNTIL THE ENTIRE RECEIVE BUFFER IS CLEAR

004512  000207                          RETURN

004514     000     376     374  MASK:   .BYTE   0,376,374,370,360,340,300,200,0
                                        .EVEN
```

```
;;*******************************************************************
;;*******************************************************************
;
;                        SUBROUTINE $DATA
;
;                FUNCTION -
;
;        CALLING FORMAT:          JSR     PC,$DATA
;                                 JSR     PC,$DATA1
;
;
;        ENTRY CONDITIONS - RCVBUF  = CLEARED RECEIVE BUFFER
;                           XMTBUF  = XMIT BUFFER
;                           MAINT   = MAINTENANCE MODE FLAG
;                                     IF SET, MAINT. MODE DESIRED
;                           RXMINI  = RECEIVER INIT WITH MAINTENANCE MODE SET.
;                           RXINIT  = USER SELECTED RECEIVER INIT WORD.
;                           TXMINI  = XMIT INIT WORD WITH MAINTENANCE MODE SET.
;                           TXINIT  = USER SELECTED XMIT INIT WORD
;                           TIMER   = TIME OUT VALUE (DETERMINED IN INIT -
;                                     DEPENDENT ON PROCESSOR TYPE)
;                           EXERR   = FLAG FOR EXPECTED ERROR.
;                                       0 = NO ERROR EXPECTED.
;                                     NONO = ERROR EXPECTED.
;
;
;        EXIT CONDITIONS  - IF A CORRECT DATA TRANSMISSION - CARRY CLEAR
;                           IF ERROR IN TRANSMISSION - CARRY SET AND ERROR
;                           FLAG SET. IF ERROR WAS NOT EXPECTED, A MESSAGE
;                           WILL BE OUTPUT.
;
;        CALLED BY        - $DATA  - TESTS 15-28 & 30 - 40
;                           $DATA1 - TESTS 41 -43
;
;
;    REGISTERS R1-R5 DESTROYED
;
;;*******************************************************************
;;*******************************************************************
$DATA:
                CLR     RFLAG           ;CLEAR THE RECEIVE FLAG
                CLR     TFLAG           ;CLEAR THE TRANSMIT FLAG
                CLR     MCFLAG          ;CLEAR THE MODEM CONTROL FLAG
                CLR     ERROR           ;ERROR CONDITION FLAG
                CLR     TIMEO           ;CLEAR TIMEOUT FLAG
                CLR     XMITD           ;CLEAR XMIT COUNTER.

                MOV     #RCVBUF,R1      ;RECEIVE BUFFER
                MOV     #XMTBUF,R2      ;TRANSMIT BUFFER
                MOV     XCOUNT,R3       ;TRANSMIT COUNTER
                CLR     RCOUNT          ;CLEAR RECEIVE COUNTER.
                                        ;SET UP THE VECTORS.
                TST     HIGH            ;IS THIS A HIGH SPEED TEST?
                BEQ     5$              ;BRANCH IF LOW SPEED
                                        ;SET VECTORS WITH THE HIGH SPEED ISRS
```

```
004526
004526  005037  002376
004532  005037  002424
004536  005037  002360
004542  005037  002330
004546  005037  002426
004552  005037  002476

004556  012701  003273
004562  012702  002673
004566  013703  002472
004572  005037  002500

004576  005737  002340
004602  001435
```

```
2252 004604                                  SETVEC  XMTVEC,#XDATA2,#PRI04 ;HIGH SPEED BOP XMIT ISR.
     004604  012746  000200                                                                MOV     #PRI04,-(SP)
     004610  012746  017512                                                                MOV     #XDATA2,-(SP)
     004614  013746  002264                                                                MOV     XMTVEC,-(SP)
     004620  012746  000003                                                                MOV     #3,-(SP)
     004624  104437                                                                        TRAP    C$SVEC
     004626  062706  000010                                                                ADD     #10,SP
2253 004632                                  SETVEC  RCVEC,#RDATA2,#PRI04  ;HIGH SPEED RECV VECTOR
     004632  012746  000200                                                                MOV     #PRI04,-(SP)
     004636  012746  017164                                                                MOV     #RDATA2,-(SP)
     004642  013746  002262                                                                MOV     RCVEC,-(SP)
     004646  012746  000003                                                                MOV     #3,-(SP)
     004652  104437                                                                        TRAP    C$SVEC
     004654  062706  000010                                                                ADD     #10,SP
2254 004660  042737  000040  002404          BIC     #DSITEN,RXINIT  ;IGNORE DATA SET INTERRUPTS IN HIGH SPEED.
2255 004666  013737  002472  002322          MOV     XCOUNT,COUNTER  ;SET UP COUNTER FOR INT SERVICE ROUTINE RDATA2
2256 004674  000426                          BR      7$
2257 004676                             5$:
2258 004676                                  SETVEC  XMTVEC,#XDATA,#PRI04  ;XMIT VECTOR
     004676  012746  000200                                                                MOV     #PRI04,-(SP)
     004702  012746  017340                                                                MOV     #XDATA,-(SP)
     004706  013746  002264                                                                MOV     XMTVEC,-(SP)
     004712  012746  000003                                                                MOV     #3,-(SP)
     004716  104437                                                                        TRAP    C$SVEC
     004720  062706  000010                                                                ADD     #10,SP
2259 004724                                  SETVEC  RCVEC,#RDATA,#PRI04   ;RECV VECTOR
     004724  012746  000200                                                                MOV     #PRI04,-(SP)
     004730  012746  016732                                                                MOV     #RDATA,-(SP)
     004734  013746  002262                                                                MOV     RCVEC,-(SP)
     004740  012746  000003                                                                MOV     #3,-(SP)
     004744  104437                                                                        TRAP    C$SVEC
     004746  062706  000010                                                                ADD     #10,SP
2260 004752                             7$:
2261 004752                                  SETPRI  #PRI00          ;ENABLE INTERRUPTS
     004752  012700  000000                                                                MOV     #PRI00,R0
     004756  104441                                                                        TRAP    C$SPRI
2262 004760  005737  002356                  TST     MAINT           ;SET MAINTENANCE MODE?
2263 004764  001407                          BEQ     $DATA1          ;BR IF NOT
2264 004766  053777  002406  175272          BIS     RXMINI,@RXCSR   ;INIT RECEIVER WITH MAINTENANCE MODE
2265 004774  053777  002442  175270          BIS     TXMINI,@TXCSR   ;INIT TRANSMITTER WITH MAINT. MODE.
2266 005002  000411                          BR      $GO
2267
2268 005004                             $DATA1:
2269 005004  053777  002404  175254          BIS     RXINIT,@RXCSR   ;ISSUE RECEIVER INIT (DETERMINED IN INIT CODE)
2270 005012  053777  002440  175252          BIS     TXINIT,@TXCSR   ;ISSUE XMIT INIT (DETERMINED IN INIT CODE)
2271 005020  052737  000040  002404          BIS     #DSITEN,RXINIT  ;RESET THE DATA SET INTERRUPT (MAY BE CLEARED
2272                                                                 ;IF THIS IS A HIGH SPEED TEST).
2273 005026                             $GO:
2274 005026  011637  002416                  MOV     (SP),SUBRPC     ;FLAG WHERE THIS SUBR. WAS CALLED.
2275 005032  162737  000004  002416          SUB     #4,SUBRPC       ;ADJUST THE PC
2276 005040  013704  002430                  MOV     TIMER,R4        ;SET UP TIMER
2277 005044                             8$:
2278 005044  012705  001000                  MOV     #1000,R5        ;INNER LOOP COUNTER
2279 005050                             10$:
2280 005050  005777  175220                  TST     @TDSR           ;IS THERE A TRANSMITTER ERROR?
2281 005054  100426                          BMI     20$             ;BR IF YES
2282 005056  005737  002376                  TST     RFLAG           ;IS THE RECEIVER DONE?
```

```
2283 005062  001033                          BNE     22$                ;EXIT LOOP IF YES
2284 005064  005305                          DEC     R5                 ;DECREMENT INNER LOOP COUNTER
2285 005066  001370                          BNE     10$                ;LOOP UNTIL DONE
2286 005070  022737  000002  002306          CMP     #2,TURN            ;IS THIS RS422?
2287 005076  001401                          BEQ     11$                ;IF YES - DON'T ALLOW A SUPERVISOR BREAK.
2288 005100                                  BREAK                      ;BREAK FOR SUPERVISOR INTERRUPT
     005100  104422                                                                                   TRAP    C$BRK
2289 005102                          11$:
2290 005102  005304                          DEC     R4                 ;DECREMENT OUTSIDE LOOP COUNTER
2291 005104  001357                          BNE     8$                 ;LOOP UNTIL DONE
2292 005106  005237  002426                  INC     TIMEO              ;SET TIME OUT FLAG.
2293
2294 005112  005737  002332                  TST     EXERR              ;WAS AN ERROR EXPECTED?
2295 005116  001036                          BNE     25$                ;IF YES - EXIT WITHOUT ERROR MESSAGE.
2296 005120                                  ERRDF   2,EMG2,ERRG2       ;TIME OUT
     005120  104455                                                                                   TRAP    C$ERDF
     005122  000002                                                                                   .WORD   2
     005124  013473                                                                                   .WORD   EMG2
     005126  006700                                                                                   .WORD   ERRG2
2297 005130  000422                          BR      24$
2298 005132                          20$:
2299 005132  042777  000020  175132          BIC     #TXENA,@TXCSR      ;DISABLE THE TRANSMITTER.
2300 005140                                  ERRDF   3,EMG30,ERRG2      ;TRANSMIT UNDERRUN
     005140  104455                                                                                   TRAP    C$ERDF
     005142  000003                                                                                   .WORD   3
     005144  014766                                                                                   .WORD   EMG30
     005146  006700                                                                                   .WORD   ERRG2
2301 005150  000412                          BR      24$
2302 005152                          22$:
2303 005152  005737  002376                  TST     RFLAG              ;WAS THIS THE END OF MESSAGE?
2304 005156  100016                          BPL     25$                ;OK - IF YES
2305 005160  005737  002332                  TST     EXERR              ;WAS AN ERROR EXPECTED?
2306 005164  001013                          BNE     25$                ;IF YES - EXIT WITHOUT ERROR MESSAGE.
2307 005166                                  ERRDF   4,EMG31,ERRG2      ;RECEIVER ERROR
     005166  104455                                                                                   TRAP    C$ERDF
     005170  000004                                                                                   .WORD   4
     005172  015004                                                                                   .WORD   EMG31
     005174  006700                                                                                   .WORD   ERRG2
2308 005176                          24$:
2309 005176  012737  000001  002330          MOV     #1,ERROR           ;FLAG ERROR
2310 005204  005037  002416                  CLR     SUBRPC             ;CLEAR THE SUBR PC FLAG
2311 005210  000261                          SEC                        ;SET CARRY - ERROR
2312 005212  000403                          BR      30$
2313
2314 005214                          25$:
2315 005214  000241                          CLC                        ;CLEAR CARRY - NO ERROR
2316 005216  005037  002416                  CLR     SUBRPC             ;CLEAR THE SUBR PC FLAG
2317 005222                          30$:
2318 005222  052777  000001  175042          BIS     #RESET,@TXCSR      ;RESET THE DPV
2319 005230                                  CLRVEC  XMTVEC             ;RESTORE VECTORS
     005230  013700  002264                                                                           MOV     XMTVEC,R0
     005234  104436                                                                                   TRAP    C$CVEC
2320 005236                                  CLRVEC  RCVEC              ;
     005236  013700  002262                                                                           MOV     RCVEC,R0
     005242  104436                                                                                   TRAP    C$CVEC
2321 005244  000207                          RETURN
2322
```

```
;;*****************************************************************
;;*****************************************************************
;                        SUBROUTINE  $CHECK
;
;               FUNCTION - AFTER A DATA TRANSMISSION CHECK
;                          1. THE ERROR CHECK BIT 2. THAT THE XMIT AND RCV
;                          CHARACTER COUNTS ARE EQUAL 3. THAT THE XMIT AND
;                          RCV BUFFERS ARE IDENTICAL
;
;       CALLING FORMAT:          JSR     PC,$CHECK
;                                JSR     PC,$CHK1
;
;
;       ENTRY CONDITIONS - IRDSR  = IMAGE OF THE LAST RECEIVED RDSR
;                          XCOUNT = TRANSMIT CHARACTER COUNT.
;                          RCOUNT = RECEIVER CHARACTER COUNT.
;                          XMTBUF = THE TRANSMIT BUFFER STARTING ADDRESS.
;                          RCVBUF = THE RECEIVE BUFFER STARTING ADDRESS.
;                          MODE   = PROTOCOL MODE: 0 = BCP,  NON0 = BOP
;
;
;       EXIT CONDITIONS  - IF ERROR DETECTED, A MESSAGE WILL BE OUTPUT.
;
;       CALLED BY        - $CHECK - TESTS 15, 17-23, 29-40
;                          $CHK1  - TESTS 41-43
;
;    REGISTERS R1 - R3 DESTROYED
;
;;*****************************************************************
;;*****************************************************************
$CHECK:
                .ENABL  LSB                 ;ENABLE LOCAL SYMBOL BLOCK.

                TST     HIGH                ;IS THIS A HIGH SPEED TEST (HIGH SPEED ISRS)
                BNE     5$                  ;IF YES SKIP CRC ERROR CHECK AND
                TST     MODE                ;IS THIS BCP MODE?
                BEQ     1$                  ;BR IF YES
                TST     IRDSR               ;IS THE ERROR BIT SET (BIT 15)
                BMI     3$                  ;IF YES - CRC ERROR.
                BR      4$
1$:
                BIT     #BIT10,IPCSAR       ;WAS CRC16 USED? (ONLY TIME BIT 10 IS SET)
                BNE     4$                  ;IF NOT DON'T CHECK BIT.
                TST     IRDSR               ;IS THE ERROR BIT SET (BIT 15)?
                BMI     4$                  ;IF YES - OK
3$:
                MOV     (SP),SUBRPC         ;FLAG WHERE THIS SUBR. WAS CALLED.
                SUB     #4,SUBRPC           ;ADJUST THE PC
                ERRDF   5,EMG37,ERRG1       ;CRC ERROR
                                                                        TRAP    C$ERDF
                                                                        .WORD   5
                                                                        .WORD   EMG37
                                                                        .WORD   ERRG1
                BR      30$
4$:
                CMP     XCOUNT,RCOUNT       ;ARE THE CHARACTER COUNTS THE SAME.
```

```
005342  001412                          BEQ     5$                  ;IF YES - CONTINUE
005344  011637  002416                  MOV     (SP),SUBRPC         ;FLAG WHERE THIS SUBR. WAS CALLED.
005350  162737  000004  002416          SUB     #4,SUBRPC           ;ADJUST THE PC
005356                                  ERRDF   6,EMG25,ERRG14      ;CHARACTER COUNTS DIFFERENT
                                                                                        TRAP    C$ERDF
005356  104455                                                                          .WORD   6
005360  000006                                                                          .WORD   EMG25
005362  014725                                                                          .WORD   ERRG14
005364  010760
005366  000426                          BR      30$
005370                          5$:
005370  012701  002673                  MOV     #XMTBUF,R1          ;GET THE ADDRESS OF THE XMIT BUFFER.
005374  012702  003273                  MOV     #RCVBUF,R2          ;GET THE ADDRESS OF THE RECV BUFFER.
005400  013703  002472                  MOV     XCOUNT,R3           ;GET THE CHARACTER COUNT
005404                          $CHK1:
005404  122122                          CMPB    (R1)+,(R2)+         ;ARE THE CHARACTERS THE SAME
005406  001003                          BNE     20$                 ;IF NOT, REPORT THE ERROR
005410  005303                          DEC     R3                  ;DECREMENT THE COUNT.
005412  001414                          BEQ     30$                 ;LOOP UNTIL DONE
005414  000773                          BR      $CHK1
005416                          20$:
005416  011637  002416                  MOV     (SP),SUBRPC         ;FLAG WHERE THIS SUBR. WAS CALLED.
005422  162737  000004  002416          SUB     #4,SUBRPC           ;ADJUST THE PC
005430  005301                          DEC     R1                  ;POINT TO DATA IN ERROR
005432  005302                          DEC     R2                  ;POINT TO DATA IN ERROR.
005434                                  ERRDF   7,EMG26,ERRG3       ;CHARACTERS DON'T MATCH
                                                                                        TRAP    C$ERDF
005434  104455                                                                          .WORD   7
005436  000007                                                                          .WORD   EMG26
005440  014753                                                                          .WORD   ERRG3
005442  007014
005444                          30$:
005444  005037  002416                  CLR     SUBRPC              ;CLEAR THE SUBR PC FLAG
                                        .DSABL  LSB                 ;DISABLE LOCAL SYMBOL BLOCK.
005450  000207                          RETURN
```

```
                                        ;;*****************************************************************
                                        ;;*****************************************************************
                                        ;
                                        ;                    SUBROUTINE $MODEM
                                        ;
                                        ;            FUNCTION - TO PRINT OUT THE MODEM STATUS FROM A TEST
                                        ;
                                        ;       CALLING FORMAT:         JSR     PC,$MODEM
                                        ;
                                        ;
                                        ;       ENTRY CONDITIONS - ERROR  = FLAG SET IF THERE WAS AN ERROR IN $DATA
                                        ;                          MCFLAG = # OF MODEM CONTROL INTERRUPTS RECEIVED.
                                        ;                                   ALSO USED AS THE INDEX INTO THE MODEM
                                        ;                                   STATUS TABLE.
                                        ;                          MODEM  = ADDRESS OF MODEM STATUS TABLE
                                        ;
                                        ;
                                        ;       EXIT CONDITIONS  - IF THERE IS AN ERROR OR MORE THAT 1 MODEM
                                        ;                          CONTROL INTERRUPT, PRINT OUT MODED STATUS.
                                        ;                          OTHERWISE, UNEVENTFUL EXIT.
                                        ;
                                        ;       CALLED BY        - TESTS 30-40
                                        ;
                                        ;    REGISTERS R1-R3 DESTROYED
                                        ;
                                        ;;*****************************************************************
                                        ;;*****************************************************************
005452                                  $MODEM:
005452  011637  002416                          MOV     (SP),SUBRPC     ;FLAG WHERE THIS SUBR. WAS CALLED.
005456  162737  000004  002416                  SUB     #4,SUBRPC       ;ADJUST THE PC
005464  005737  002330                          TST     ERROR           ;WAS THERE AN ERROR IN THE $DATA ROUTINE
005470  001041                                  BNE     1$              ;IF YES PRINT OUT STATUS
005472  022737  000001  002360                  CMP     #1,MCFLAG       ;WAS THERE MORE THAN 1 MODEM CONTROL INT?
005500  002152                                  BGE     35$             ;IF NOT - SKIP PRINT OUT
005502                                          ERRDF   8,EMG40,ERRG1   ;MULTIPLE INTERRUPTS RECEIVED
                                                                                                        TRAP    C$ERDF
005502  104455                                                                                          .WORD   8
005504  000010                                                                                          .WORD   EMG40
005506  015321                                                                                          .WORD   ERRG1
005510  006652
005512                                          PRINTB  #FMODEM,MCFLAG  ;PRINT THE NUMBER OF INTERRUPTS.
                                                                                                        MOV     MCFLAG,-(SP)
005512  013746  002360                                                                                  MOV     #FMODEM,-(SP)
005516  012746  006030                                                                                  MOV     #2,-(SP)
005522  012746  000002                                                                                  MOV     SP,R0
005526  010600                                                                                          TRAP    C$PNTB
005530  104414                                                                                          ADD     #6,SP
005532  062706  000006
005536  022737  000011  002360                  CMP     #9.,MCFLAG      ;WERE MORE THAN NINE INTERRUPTS RECEIVED?
005544  002013                                  BGE     1$              ;IF NOT, SKIP THE NEXT MESSAGE.
005546  012737  000011  002360                  MOV     #9.,MCFLAG      ;ONLY PRINT OUT 9 INTERRUPTS
005554                                          PRINTB  #FMODE6         ;INFORM THE USER INTERRUPTS DISABLED.
                                                                                                        MOV     #FMODE6,-(SP)
005554  012746  006325                                                                                  MOV     #1,-(SP)
005560  012746  000001                                                                                  MOV     SP,R0
005564  010600                                                                                          TRAP    C$PNTB
005566  104414                                                                                          ADD     #4,SP
005570  062706  000004
005574                                  1$:
```

```
005574  012701  002444                MOV     #MODEM,R1       ;ADDRESS OF MODEM STATUS
005600                                PRINTB  #FMODE0
                                                                        MOV     #FMODE0,-(SP)
005600  012746  006115                                                  MOV     #1,-(SP)
005604  012746  000001                                                  MOV     SP,R0
005610  010600                                                          TRAP    C$PNTB
005612  104414                                                          ADD     #4,SP
005614  062706  000004
005620                                PRINTB  #FMODE1         ;PRINT INITIAL MODEM STATUS
                                                                        MOV     #FMODE1,-(SP)
005620  012746  006144                                                  MOV     #1,-(SP)
005624  012746  000001                                                  MOV     SP,R0
005630  010600                                                          TRAP    C$PNTB
005632  104414                                                          ADD     #4,SP
005634  062706  000004
005640                                PRINTB  #FMODE2
                                                                        MOV     #FMODE2,-(SP)
005640  012746  006233                                                  MOV     #1,-(SP)
005644  012746  000001                                                  MOV     SP,R0
005650  010600                                                          TRAP    C$PNTB
005652  104414                                                          ADD     #4,SP
005654  062706  000004
005660  005002                        CLR     R2              ;CLEAR COUNTER
005662                        5$:
005662  012703  006420                MOV     #MMASK,R3
005666  012704  000012                MOV     #10.,R4         ;# OF BITS TO CHECK IN THE MODEM STATUS

005672                        10$:
005672  032311                        BIT     (R3)+,(R1)      ;CHECK THE BIT
005674  001011                        BNE     12$             ;IS IT SET?
005676                                PRINTB  #FMODE3         ;IF NOT, PRINT A 0
                                                                        MOV     #FMODE3,-(SP)
005676  012746  006257                                                  MOV     #1,-(SP)
005702  012746  000001                                                  MOV     SP,R0
005706  010600                                                          TRAP    C$PNTB
005710  104414                                                          ADD     #4,SP
005712  062706  000004
005716  000410                        BR      15$
005720                        12$:
005720                                PRINTB  #FMODE4         ;PRINT A 1
                                                                        MOV     #FMODE4,-(SP)
005720  012746  006266                                                  MOV     #1,-(SP)
005724  012746  000001                                                  MOV     SP,R0
005730  010600                                                          TRAP    C$PNTB
005732  104414                                                          ADD     #4,SP
005734  062706  000004
005740                        15$:
005740  005304                        DEC     R4              ;DECREMENT BIT COUNTER
005742  001353                        BNE     10$             ;LOOP UNTIL DONE.


005744  005737  002360                TST     MCFLAG          ;IS THIS THE LAST STATUS
005750  001416                        BEQ     30$             ;IF YES, EXIT
005752  005721                        TST     (R1)+           ;INCREMENT MODEM STATUS POINTER.
005754  005337  002360                DEC     MCFLAG          ;DECREMENT MC FLAG
005760  005202                        INC     R2              ;INCREMENT COUNTER.

005762                                PRINTB  #FMODE5,R2      ;PRINT NEXT MODEM
                                                                        MOV     R2,-(SP)
005762  010246                                                          MOV     #FMODE5,-(SP)
005764  012746  006275                                                  MOV     #2,-(SP)
005770  012746  000002                                                  MOV     SP,R0
005774  010600
```

```
        005776  104414                                                                                  TRAP    C$PNTB
        006000  062706  000006                                                                          ADD     #6,SP
  2474  006004  000726                          BR      5$
  2475  006006                          30$:
  2476  006006                                  PRINTB  #FMG6           ;PRINT CARRIAGE RETURN.
        006006  012746  011410                                                                          MOV     #FMG6,-(SP)
        006012  012746  000001                                                                          MOV     #1,-(SP)
        006016  010600                                                                                  MOV     SP,R0
        006020  104414                                                                                  TRAP    C$PNTB
        006022  062706  000004                                                                          ADD     #4,SP
  2477  006026                          35$:
  2478  006026  000207                          RETURN
  2479
  2480  006030     045     101     116  FMODEM: .ASCIZ  /%ANUMBER OF MODEM CONTROL INTERRUPTS RECEIVED: %D2%N/
  2481  006115     045     116     045  FMODE0: .ASCIZ  /%N%AMODEM STATUS%N%S14/
  2482  006144     045     101     040  FMODE1: .ASCIZ  /%A     RL  DTR  RTS   LL   TM  DSR   CD  CTS  RING CNG/
  2483  006233     045     116     045  FMODE2: .ASCIZ  /%N%AMODEM ON RESET:/
  2484  006257     045     123     064  FMODE3: .ASCIZ  /%S4%A0/
  2485  006266     045     123     064  FMODE4: .ASCIZ  /%S4%A1/
  2486  006275     045     116     045  FMODE5: .ASCIZ  /%N%AMODEM CHANGE %D1%A:/
  2487  006325     045     101     052  FMODE6: .ASCIZ  /%A** MODEM CONTROL INTERRUPT DISABLED AFTER 9 CHANGES **%N/
  2488                                           .EVEN
  2489                                           ;MASKS OF EACH BIT
  2490  006420  000001  000002  000004  MMASK:  .WORD   SF,DTR,RTS,LL,TM,DM,RR,CTS,IC,DSCNG
  2491
  2492
  2493
```

```
                                ;;*****************************************************************
                                ;;*****************************************************************
                                ;
                                ;                    SUBROUTINE $TURN
                                ;
                                ;            FUNCTION - DETERMINE IF TURNAROUND IS AVAILABLE
                                ;
                                ;       CALLING FORMAT:          JSR     PC,$TURN
                                ;
                                ;
                                ;       ENTRY CONDITIONS -       TURN - 0 = TURNAROUND OFF
                                ;                                STARES   = START RESTART COUNT
                                ;
                                ;
                                ;
                                ;       EXIT CONDITIONS  -       TURNAROUND ON  - CARRY CLEAR (DO THE TEST)
                                ;                                TURNAROUND OFF - CARRY SET (DON'T DO THE TEST)
                                ;                                IF TURNAROUND OFF AND IF ON FIRST PASS, OUTPUT
                                ;                                A MESSAGE TO THE  USER.
                                ;
                                ;
                                ;       CALLED BY        - TESTS 12 - 14
                                ;
                                ;    REGISTERS NOT EFFECTED
                                ;
                                ;;*****************************************************************
                                ;;*****************************************************************
006444                          $TURN:
006444  005737  002306                  TST     TURN            ;IS THERE A TURNAROUND
006450  001022                          BNE     5$              ;IF YES - CLEAR CARRY TO DO THE TEST.
006452  022737  000001  002314          CMP     #1,STARES       ;IS THIS THE FIRST PASS
006460  001014                          BNE     1$              ;IF NOT, DON'T OUTPUT MESSAGE JUST SET FLAG.
006462                                  PRINTX  #FMG0,L$TEST,LOGDEV ;INFORM THE USER THAT TEST CAN'T BE RUN
006462  013746  002354                                                                  MOV     LOGDEV,-(SP)
006466  013746  002114                                                                  MOV     L$TEST,-(SP)
006472  012746  011070                                                                  MOV     #FMG0,-(SP)
006476  012746  000003                                                                  MOV     #3,-(SP)
006502  010600                                                                          MOV     SP,R0
006504  104415                                                                          TRAP    C$PNTX
006506  062706  000010                                                                  ADD     #10,SP
                                                                        ;WITHOUT THE TURNAROUND.
006512                          1$:
006512  000261                          SEC                     ;FLAG NOT TO DO THE TEST.
006514  000401                          BR      10$             ;BR TO RETURN
006516                          5$:
006516  000241                          CLC                     ;FLAG TO DO THE TEST.
006520                          10$:
006520  000207                          RETURN
```

```
                                ;;*******************************************************************
                                ;;*******************************************************************
                                ;
                                ;                       SUBROUTINE $SPEED
                                ;
                                ;               FUNCTION - DETERMINE IF THE TEST CAN BE RUN WITH
                                ;                          WITH THE SELECTED TURNAROUND AND/OR PROCESSOR.
                                ;
                                ;       CALLING FORMAT:         JSR     PC,$SPEED
                                ;
                                ;       ENTRY CONDITIONS -      TURN = 1 - RS423
                                ;                               TURN = 2 - RS422
                                ;                               CPU  = 0 - LSI 11 OR LSI 11/2
                                ;                               CPU  = 3 - LSI 11/23
                                ;
                                ;
                                ;
                                ;       EXIT CONDITIONS  -      OK TO RUN TEST - CARRY CLEAR
                                ;                               DON'T RUN TEST - CARRY SET
                                ;                               IF TEST CAN'T BE RUN, THE USER WILL BE
                                ;                               INFORMED ON THE FIRST PASS.
                                ;
                                ;       CALLED BY        - $SPEED CALLED BY TESTS 29 - 41
                                ;
                                ;    REGISTERS NOT EFFECTED
                                ;
                                ;;*******************************************************************
                                ;;*******************************************************************
006522                          $SPEED:
006522  005737  002324                  TST     CPU             ;IS THIS A LSI 11/23?
006526  001024                          BNE     5$              ;IF YES - CLEAR CARRY TO DO THE TEST.
006530  022737  000002  002306          CMP     #2,TURN         ;IS THIS RS422?
006536  001020                          BNE     5$              ;IF NOT - CLEAR CARRY AND DO THE TEST.
006540  022737  000001  002314          CMP     #1,STARES       ;IS THIS THE FIRST PASS?
006546  001012                          BNE     1$              ;IF NOT, DON'T OUTPUT MESSAGE JUST SET FLAG.
006550                                  PRINTX  #FMG27,L$TEST   ;INFORM THE USER THAT THE TEST CAN'T BE RUN
006550  013746  002114                                                                          MOV     L$TEST,-(SP)
006554  012746  013011                                                                          MOV     #FMG27,-(SP)
006560  012746  000002                                                                          MOV     #2,-(SP)
006564  010600                                                                                  MOV     SP,R0
006566  104415                                                                                  TRAP    C$PNTX
006570  062706  000006                                                                          ADD     #6,SP
                                                                ;WITH THIS CPU AND RS422.
006574                          1$:
006574  000261                          SEC                     ;FLAG NOT TO DO THE TEST.
006576  000401                          BR      10$             ;BR TO RETURN.
006600                          5$:
006600  000241                          CLC                     ;FLAG TO DO THE TEST.
006602                          10$:
006602  000207                          RETURN
```

```
                                        ;;*****************************************************************
                                        ;;*****************************************************************
                                        ;
                                        ;                    SUBROUTINE $DLAY
                                        ;
                                        ;            FUNCTION - TO SAVE PROGRAM SPACE BY USING ONLY 1
                                        ;                       EXPANSION OF THE SUPERVISOR MACRO "DELAY"
                                        ;
                                        ;
                                        ;      CALLING FORMAT:          JSR     PC,$DLAY
                                        ;                                       .WORD   #
                                        ;
                                        ;      ENTRY CONDITIONS -       @(SP) = # OF DELAY LOOPS TO USE.
                                        ;
                                        ;
                                        ;      EXIT CONDITIONS  -
                                        ;
                                        ;      CALLED BY        - TESTS  2, 5-9, 12, 13
                                        ;
                                        ;   REGISTER R0 RESTORED
                                        ;
                                        ;;*****************************************************************
                                        ;;*****************************************************************
 006604                                 $DLAY:
 006604  017600  000000                         MOV     @(SP),R0        ;GET THE # OF DELAY LOOPS
 006610  062716  000002                         ADD     #2,(SP)         ;UPDATE THE PC
 006614                                 10$:
 006614                                         DELAY   1               ;1 DELAY LOOP
 006614  012727  000001                                                                  MOV     #1,(PC)+
 006620  000000                                                                          .WORD   0
 006622  013727  002116                                                                  MOV     L$DLY,(PC)+
 006626  000000                                                                          .WORD   0
 006630  005367  177772                                                                  DEC     -6(PC)
 006634  001375                                                                          BNE     .-4
 006636  005367  177756                                                                  DEC     -22(PC)
 006642  001367                                                                          BNE     .-20
 006644  005300                                 DEC     R0              ;DECREMENT VARIABLE LOOP COUNTER
 006646  001362                                 BNE     10$             ;LOOP UNTIL DONE
 006650  000207                                 RETURN
```

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

006652                                  BGNMSG  ERRG1
006652                                                                                          ERRG1::
006652                                          PRINTB  #FMG3,SUBRPC    ;PC THAT SUBROUTINE WAS CALLED.
006652  013746  002416                                                                          MOV     SUBRPC,-(SP)
006656  012746  011260                                                                          MOV     #FMG3,-(SP)
006662  012746  000002                                                                          MOV     #2,-(SP)
006666  010600                                                                                  MOV     SP,R0
006670  104414                                                                                  TRAP    C$PNTB
006672  062706  000006                                                                          ADD     #6,SP
006676                                  ENDMSG
006676                                                                                          L10001:
006676  104423                                                                                  TRAP    C$MSG

006700                                  BGNMSG  ERRG2
006700                                                                                          ERRG2::
006700  005737  002416                          TST     SUBRPC          ;IS THE ERROR IN A SUBROUTINE?
006704  001412                                  BEQ     10$             ;IF NOT, DON'T PRINT SUBR. PC
006706                                          PRINTB  #FMG3,SUBRPC    ;PC THAT SUBROUTINE WAS CALLED.
006706  013746  002416                                                                          MOV     SUBRPC,-(SP)
006712  012746  011260                                                                          MOV     #FMG3,-(SP)
006716  012746  000002                                                                          MOV     #2,-(SP)
006722  010600                                                                                  MOV     SP,R0
006724  104414                                                                                  TRAP    C$PNTB
006726  062706  000006                                                                          ADD     #6,SP
006732                                  10$:
006732                                          PRINTB  #FMG1,@CSR0,@CSR2 ;PRINT CSR0 AND CSR2 CONTENTS.
006732  017746  173332                                                                          MOV     @CSR2,-(SP)
006736  017746  173324                                                                          MOV     @CSR0,-(SP)
006742  012746  011166                                                                          MOV     #FMG1,-(SP)
006746  012746  000003                                                                          MOV     #3,-(SP)
006752  010600                                                                                  MOV     SP,R0
006754  104414                                                                                  TRAP    C$PNTB
006756  062706  000010                                                                          ADD     #10,SP
006762                                          PRINTB  #FMG2,@CSR4,@CSR6 ;PRINT CSR4 AND CSR2 CONTENTS.
006762  017746  173306                                                                          MOV     @CSR6,-(SP)
006766  017746  173300                                                                          MOV     @CSR4,-(SP)
006772  012746  011223                                                                          MOV     #FMG2,-(SP)
006776  012746  000003                                                                          MOV     #3,-(SP)
007002  010600                                                                                  MOV     SP,R0
007004  104414                                                                                  TRAP    C$PNTB
007006  062706  000010                                                                          ADD     #10,SP
007012                                  ENDMSG
007012                                                                                          L10002:
007012  104423                                                                                  TRAP    C$MSG

007014                                  BGNMSG  ERRG3
007014                                                                                          ERRG3::
007014                                          PRINTB  #FMG3,SUBRPC    ;PC THAT SUBROUTINE WAS CALLED.
007014  013746  002416                                                                          MOV     SUBRPC,-(SP)
```

```
        007020  012746  011260                                                          MOV     #FMG3,-(SP)
        007024  012746  000002                                                          MOV     #2,-(SP)
        007030  010600                                                                  MOV     SP,R0
        007032  104414                                                                  TRAP    C$PNTB
        007034  062706  000006                                                          ADD     #6,SP
   2643 007040                          PRINTB  #FMG8,<B,@R1>,<B,@R2>
        007040  005046                                                                  CLR     -(SP)
        007042  151216                                                                  BISB    @R2,(SP)
        007044  005046                                                                  CLR     -(SP)
        007046  151116                                                                  BISB    @R1,(SP)
        007050  012746  011457                                                          MOV     #FMG8,-(SP)
        007054  012746  000003                                                          MOV     #3,-(SP)
        007060  010600                                                                  MOV     SP,R0
        007062  104414                                                                  TRAP    C$PNTB
        007064  062706  000010                                                          ADD     #10,SP
   2644 007070                  ENDMSG
        007070                                                                  L10003:
        007070  104423                                                                  TRAP    C$MSG
   2645
   2646
   2647 007072                  BGNMSG  ERRG4
        007072                                                                  ERRG4::
   2648 007072                          PRINTB  #FMG4                   ;PRINT HEADER
        007072  012746  011332                                                          MOV     #FMG4,-(SP)
        007076  012746  000001                                                          MOV     #1,-(SP)
        007102  010600                                                                  MOV     SP,R0
        007104  104414                                                                  TRAP    C$PNTB
        007106  062706  000004                                                          ADD     #4,SP
   2649 007112                          PRINTB  #FMG7,CSR0,<B,@CSR0>    ;PRINT THE LOW BYTE OF CSR0
        007112  005046                                                                  CLR     -(SP)
        007114  157716  173146                                                          BISB    @CSR0,(SP)
        007120  013746  002266                                                          MOV     CSR0,-(SP)
        007124  012746  011413                                                          MOV     #FMG7,-(SP)
        007130  012746  000003                                                          MOV     #3,-(SP)
        007134  010600                                                                  MOV     SP,R0
        007136  104414                                                                  TRAP    C$PNTB
        007140  062706  000010                                                          ADD     #10,SP
   2650 007144                          PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
        007144  005046                                                                  CLR     -(SP)
        007146  150116                                                                  BISB    R1,(SP)
        007150  012746  011377                                                          MOV     #FMG5,-(SP)
        007154  012746  000002                                                          MOV     #2,-(SP)
        007160  010600                                                                  MOV     SP,R0
        007162  104414                                                                  TRAP    C$PNTB
        007164  062706  000006                                                          ADD     #6,SP
   2651 007170                  ENDMSG
        007170                                                                  L10004:
        007170  104423                                                                  TRAP    C$MSG
   2652
   2653
   2654 007172                  BGNMSG  ERRG7
        007172                                                                  ERRG7::
   2655 007172                          PRINTB  #FMG4                   ;PRINT HEADER
        007172  012746  011332                                                          MOV     #FMG4,-(SP)
        007176  012746  000001                                                          MOV     #1,-(SP)
        007202  010600                                                                  MOV     SP,R0
        007204  104414                                                                  TRAP    C$PNTB
```

```
     007206  062706  000004                                                                  ADD     #4,SP
2656 007212                          PRINTB  #FMG10,CSR4,<B,@CSR4>   ;PRINT THE LOW BYTE OF CSR4
     007212  005046                                                                          CLR     -(SP)
     007214  157716  173052                                                                  BISB    @CSR4,(SP)
     007220  013746  002272                                                                  MOV     CSR4,-(SP)
     007224  012746  011574                                                                  MOV     #FMG10,-(SP)
     007230  012746  000003                                                                  MOV     #3,-(SP)
     007234  010600                                                                          MOV     SP,R0
     007236  104414                                                                          TRAP    C$PNTB
     007240  062706  000010                                                                  ADD     #10,SP
2657 007244                          PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
     007244  005046                                                                          CLR     -(SP)
     007246  150116                                                                          BISB    R1,(SP)
     007250  012746  011377                                                                  MOV     #FMG5,-(SP)
     007254  012746  000002                                                                  MOV     #2,-(SP)
     007260  010600                                                                          MOV     SP,R0
     007262  104414                                                                          TRAP    C$PNTB
     007264  062706  000006                                                                  ADD     #6,SP
2658 007270                     ENDMSG
     007270                                                                  L10005:
     007270  104423                                                                          TRAP    C$MSG
2659
2660 007272                     BGNMSG  ERRG8
     007272                                                                  ERRG8::
2661 007272                          PRINTB  #FMG4                   ;PRINT HEADER
     007272  012746  011332                                                                  MOV     #FMG4,-(SP)
     007276  012746  000001                                                                  MOV     #1,-(SP)
     007302  010600                                                                          MOV     SP,R0
     007304  104414                                                                          TRAP    C$PNTB
     007306  062706  000004                                                                  ADD     #4,SP
2662 007312                          PRINTB  #FMG11,CSR5,<B,@PCR>    ;PRINT THE HIGH BYTE OF CSR4
     007312  005046                                                                          CLR     -(SP)
     007314  157716  172762                                                                  BISB    @PCR,(SP)
     007320  013746  002302                                                                  MOV     CSR5,-(SP)
     007324  012746  011640                                                                  MOV     #FMG11,-(SP)
     007330  012746  000003                                                                  MOV     #3,-(SP)
     007334  010600                                                                          MOV     SP,R0
     007336  104414                                                                          TRAP    C$PNTB
     007340  062706  000010                                                                  ADD     #10,SP
2663 007344                          PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
     007344  005046                                                                          CLR     -(SP)
     007346  150116                                                                          BISB    R1,(SP)
     007350  012746  011377                                                                  MOV     #FMG5,-(SP)
     007354  012746  000002                                                                  MOV     #2,-(SP)
     007360  010600                                                                          MOV     SP,R0
     007362  104414                                                                          TRAP    C$PNTB
     007364  062706  000006                                                                  ADD     #6,SP
2664 007370                     ENDMSG
     007370                                                                  L10006:
     007370  104423                                                                          TRAP    C$MSG
2665
2666 007372                     BGNMSG  ERRG9
     007372                                                                  ERRG9::
2667 007372                          PRINTB  #FMG4                   ;PRINT HEADER
     007372  012746  011332                                                                  MOV     #FMG4,-(SP)
     007376  012746  000001                                                                  MOV     #1,-(SP)
     007402  010600                                                                          MOV     SP,R0
```

```
        007404  104414                                                                    TRAP    C$PNTB
        007406  062706  000004                                                            ADD     #4,SP
   2668 007412                          PRINTB  #FMG12,CSR6,<B,@CSR6>   ;PRINT THE LOW BYTE OF CSR6
        007412  005046                                                                    CLR     -(SP)
        007414  157716  172654                                                            BISB    @CSR6,(SP)
        007420  013746  002274                                                            MOV     CSR6,-(SP)
        007424  012746  011704                                                            MOV     #FMG12,-(SP)
        007430  012746  000003                                                            MOV     #3,-(SP)
        007434  010600                                                                    MOV     SP,R0
        007436  104414                                                                    TRAP    C$PNTB
        007440  062706  000010                                                            ADD     #10,SP
   2669 007444                          PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
        007444  005046                                                                    CLR     -(SP)
        007446  150116                                                                    BISB    R1,(SP)
        007450  012746  011377                                                            MOV     #FMG5,-(SP)
        007454  012746  000002                                                            MOV     #2,-(SP)
        007460  010600                                                                    MOV     SP,R0
        007462  104414                                                                    TRAP    C$PNTB
        007464  062706  000006                                                            ADD     #6,SP
   2670 007470                  ENDMSG
        007470                                                                  L10007:
        007470  104423                                                                    TRAP    C$MSG
   2671
   2672 007472                  BGNMSG  ERRG10
        007472                                                                  ERRG10::
   2673 007472                          PRINTB  #FMG4                   ;PRINT HEADER
        007472  012746  011332                                                            MOV     #FMG4,-(SP)
        007476  012746  000001                                                            MOV     #1,-(SP)
        007502  010600                                                                    MOV     SP,R0
        007504  104414                                                                    TRAP    C$PNTB
        007506  062706  000004                                                            ADD     #4,SP
   2674 007512                          PRINTB  #FMG13,CSR7,<B,@CSR7>   ;PRINT THE HIGH BYTE OF CSR6
        007512  005046                                                                    CLR     -(SP)
        007514  157716  172564                                                            BISB    @CSR7,(SP)
        007520  013746  002304                                                            MOV     CSR7,-(SP)
        007524  012746  011750                                                            MOV     #FMG13,-(SP)
        007530  012746  000003                                                            MOV     #3,-(SP)
        007534  010600                                                                    MOV     SP,R0
        007536  104414                                                                    TRAP    C$PNTB
        007540  062706  000010                                                            ADD     #10,SP
   2675 007544                          PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
        007544  005046                                                                    CLR     -(SP)
        007546  150116                                                                    BISB    R1,(SP)
        007550  012746  011377                                                            MOV     #FMG5,-(SP)
        007554  012746  000002                                                            MOV     #2,-(SP)
        007560  010600                                                                    MOV     SP,R0
        007562  104414                                                                    TRAP    C$PNTB
        007564  062706  000006                                                            ADD     #6,SP
   2676 007570                  ENDMSG
        007570                                                                  L10010:
        007570  104423                                                                    TRAP    C$MSG
   2677
   2678
   2679 007572                  BGNMSG  ERRG11
        007572                                                                  ERRG11::
   2680 007572  005737  002416          TST     SUBRPC                  ;WAS THE RESET ERROR FOUND IN THE SUB
   2681 007576  001412                  BEQ     5$                      ;IF NOT SKIP
```

```
 2682 007600                                PRINTB  #FMG23,SUBRPC          ;PRINT WHERE CALLED
      007600  013746  002416                                                                MOV     SUBRPC,-(SP)
      007604  012746  012536                                                                MOV     #FMG23,-(SP)
      007610  012746  000002                                                                MOV     #2,-(SP)
      007614  010600                                                                        MOV     SP,R0
      007616  104414                                                                        TRAP    C$PNTB
      007620  062706  000006                                                                ADD     #6,SP
 2683 007624                        5$:
 2684 007624                                PRINTB  #FMG4                  ;PRINT HEADER
      007624  012746  011332                                                                MOV     #FMG4,-(SP)
      007630  012746  000001                                                                MOV     #1,-(SP)
      007634  010600                                                                        MOV     SP,R0
      007636  104414                                                                        TRAP    C$PNTB
      007640  062706  000004                                                                ADD     #4,SP
 2685 007644                                PRINTB  #FMG7,CSR0,<B,@CSR0>   ;PRINT THE LOW BYTE OF CSR0
      007644  005046                                                                        CLR     -(SP)
      007646  157716  172414                                                                BISB    @CSR0,(SP)
      007652  013746  002266                                                                MOV     CSR0,-(SP)
      007656  012746  011413                                                                MOV     #FMG7,-(SP)
      007662  012746  000003                                                                MOV     #3,-(SP)
      007666  010600                                                                        MOV     SP,R0
      007670  104414                                                                        TRAP    C$PNTB
      007672  062706  000010                                                                ADD     #10,SP
 2686 007676                                PRINTB  #FMG5,#0               ;PRINT EXPECTED CONTENTS
      007676  012746  000000                                                                MOV     #0,-(SP)
      007702  012746  011377                                                                MOV     #FMG5,-(SP)
      007706  012746  000002                                                                MOV     #2,-(SP)
      007712  010600                                                                        MOV     SP,R0
      007714  104414                                                                        TRAP    C$PNTB
      007716  062706  000006                                                                ADD     #6,SP
 2687 007722                                PRINTB  #FMG10,CSR4,<B,@CSR4>  ;PRINT THE LOW BYTE OF CSR4
      007722  005046                                                                        CLR     -(SP)
      007724  157716  172342                                                                BISB    @CSR4,(SP)
      007730  013746  002272                                                                MOV     CSR4,-(SP)
      007734  012746  011574                                                                MOV     #FMG10,-(SP)
      007740  012746  000003                                                                MOV     #3,-(SP)
      007744  010600                                                                        MOV     SP,R0
      007746  104414                                                                        TRAP    C$PNTB
      007750  062706  000010                                                                ADD     #10,SP
 2688 007754                                PRINTB  #FMG5,#TBE             ;PRINT EXPECTED CONTENTS
      007754  012746  000004                                                                MOV     #TBE,-(SP)
      007760  012746  011377                                                                MOV     #FMG5,-(SP)
      007764  012746  000002                                                                MOV     #2,-(SP)
      007770  010600                                                                        MOV     SP,R0
      007772  104414                                                                        TRAP    C$PNTB
      007774  062706  000006                                                                ADD     #6,SP
 2689 010000                                PRINTB  #FMG11,PCR,<B,@PCR>    ;PRINT THE HIGH BYTE OF CSR4
      010000  005046                                                                        CLR     -(SP)
      010002  157716  172274                                                                BISB    @PCR,(SP)
      010006  013746  002302                                                                MOV     PCR,-(SP)
      010012  012746  011640                                                                MOV     #FMG11,-(SP)
      010016  012746  000003                                                                MOV     #3,-(SP)
      010022  010600                                                                        MOV     SP,R0
      010024  104414                                                                        TRAP    C$PNTB
      010026  062706  000010                                                                ADD     #10,SP
 2690 010032                                PRINTB  #FMG5,#0               ;PRINT EXPECTED CONTENTS
      010032  012746  000000                                                                MOV     #0,-(SP)
```

```
        010036  012746  011377                                                                  MOV     #FMG5,-(SP)
        010042  012746  000002                                                                  MOV     #2,-(SP)
        010046  010600                                                                          MOV     SP,R0
        010050  104414                                                                          TRAP    C$PNTB
        010052  062706  000006                                                                  ADD     #6,SP
   2691 010056                          PRINTB  #FMG12,CSR6,<B,@CSR6>   ;PRINT THE LOW BYTE OF CSR6
        010056  005046                                                                          CLR     -(SP)
        010060  157716  172210                                                                  BISB    @CSR6,(SP)
        010064  013746  002274                                                                  MOV     CSR6,-(SP)
        010070  012746  011704                                                                  MOV     #FMG12,-(SP)
        010074  012746  000003                                                                  MOV     #3,-(SP)
        010100  010600                                                                          MOV     SP,R0
        010102  104414                                                                          TRAP    C$PNTB
        010104  062706  000010                                                                  ADD     #10,SP
   2692 010110                          PRINTB  #FMG5,#0                ;PRINT EXPECTED CONTENTS
        010110  012746  000000                                                                  MOV     #0,-(SP)
        010114  012746  011377                                                                  MOV     #FMG5,-(SP)
        010120  012746  000002                                                                  MOV     #2,-(SP)
        010124  010600                                                                          MOV     SP,R0
        010126  104414                                                                          TRAP    C$PNTB
        010130  062706  000006                                                                  ADD     #6,SP
   2693 010134                          PRINTB  #FMG13,CSR7,<B,@CSR7>   ;PRINT THE HIGH BYTE OF CSR6
        010134  005046                                                                          CLR     -(SP)
        010136  157716  172142                                                                  BISB    @CSR7,(SP)
        010142  013746  002304                                                                  MOV     CSR7,-(SP)
        010146  012746  011750                                                                  MOV     #FMG13,-(SP)
        010152  012746  000003                                                                  MOV     #3,-(SP)
        010156  010600                                                                          MOV     SP,R0
        010160  104414                                                                          TRAP    C$PNTB
        010162  062706  000010                                                                  ADD     #10,SP
   2694 010166                          PRINTB  #FMG5,#0                ;PRINT EXPECTED CONTENTS
        010166  012746  000000                                                                  MOV     #0,-(SP)
        010172  012746  011377                                                                  MOV     #FMG5,-(SP)
        010176  012746  000002                                                                  MOV     #2,-(SP)
        010202  010600                                                                          MOV     SP,R0
        010204  104414                                                                          TRAP    C$PNTB
        010206  062706  000006                                                                  ADD     #6,SP
   2695 010212                  ENDMSG
        010212                                                                          L10011:
        010212  104423                                                                          TRAP    C$MSG
   2696
   2697 010214                  BGNMSG  ERRG12                                          ERRG12::
        010214
   2698 010214                          PRINTB  #FMG3,SUBRPC            ;PC THAT SUBROUTINE WAS CALLED.
        010214  013746  002416                                                                  MOV     SUBRPC,-(SP)
        010220  012746  011260                                                                  MOV     #FMG3,-(SP)
        010224  012746  000002                                                                  MOV     #2,-(SP)
        010230  010600                                                                          MOV     SP,R0
        010232  104414                                                                          TRAP    C$PNTB
        010234  062706  000006                                                                  ADD     #6,SP
   2699 010240                          PRINTB  #FMG14,REG,R1,R2        ;PRINT TIME OUT ERROR
        010240  010246                                                                          MOV     R2,-(SP)
        010242  010146                                                                          MOV     R1,-(SP)
        010244  013746  002374                                                                  MOV     REG,-(SP)
        010250  012746  012014                                                                  MOV     #FMG14,-(SP)
        010254  012746  000004                                                                  MOV     #4,-(SP)
        010260  010600                                                                          MOV     SP,R0
```

```
        010262  104414                                                                          TRAP    C$PNTB
        010264  062706  000012                                                                  ADD     #12,SP
   2700 010270                          ENDMSG
        010270                                                                          L10012:
        010270  104423                                                                          TRAP    C$MSG
   2701
   2702 010272                          BGNMSG  ERRG13
        010272                                                                          ERRG13::
   2703 010272  032777  000004  171766          BIT     #RTS,@RXCSR             ;IS RTS SET
   2704 010300  001413                          BEQ     5$
   2705 010302  012701  030004                  MOV     #RTS!CTS!RR,R1          ;SET UP THE EXPECTED RESULTS
   2706 010306                                  PRINTB  #FMG17
        010306  012746  012144                                                                  MOV     #FMG17,-(SP)
        010312  012746  000001                                                                  MOV     #1,-(SP)
        010316  010600                                                                          MOV     SP,R0
        010320  104414                                                                          TRAP    C$PNTB
        010322  062706  000004                                                                  ADD     #4,SP
   2707 010326  000544                          BR      20$
   2708 010330                          5$:
   2709 010330  032777  000002  171730          BIT     #DTR,@RXCSR             ;IS DTR SET?
   2710 010336  001413                          BEQ     10$                     ;BR IF NOT
   2711 010340  012701  040002                  MOV     #DTR!IC,R1              ;SET UP THE EXPECTED RESULTS
   2712 010344                                  PRINTB  #FMG18
        010344  012746  012221                                                                  MOV     #FMG18,-(SP)
        010350  012746  000001                                                                  MOV     #1,-(SP)
        010354  010600                                                                          MOV     SP,R0
        010356  104414                                                                          TRAP    C$PNTB
        010360  062706  000004                                                                  ADD     #4,SP
   2713 010364  000525                          BR      20$
   2714 010366                          10$:
   2715 010366  032777  000010  171672          BIT     #LL,@RXCSR              ;IS LOCAL LOOP SET
   2716 010374  001433                          BEQ     15$
   2717 010376  012701  001010                  MOV     #LL!DM,R1               ;SET UP THE EXPECTED RESULTS
   2718 010402                                  PRINTB  #FMG19
        010402  012746  012270                                                                  MOV     #FMG19,-(SP)
        010406  012746  000001                                                                  MOV     #1,-(SP)
        010412  010600                                                                          MOV     SP,R0
        010414  104414                                                                          TRAP    C$PNTB
        010416  062706  000004                                                                  ADD     #4,SP
   2719 010422                                  PRINTB  #FMG21
        010422  012746  012422                                                                  MOV     #FMG21,-(SP)
        010426  012746  000001                                                                  MOV     #1,-(SP)
        010432  010600                                                                          MOV     SP,R0
        010434  104414                                                                          TRAP    C$PNTB
        010436  062706  000004                                                                  ADD     #4,SP
   2720 010442                                  PRINTB  #FMG29
        010442  012746  013221                                                                  MOV     #FMG29,-(SP)
        010446  012746  000001                                                                  MOV     #1,-(SP)
        010452  010600                                                                          MOV     SP,R0
        010454  104414                                                                          TRAP    C$PNTB
        010456  062706  000004                                                                  ADD     #4,SP
   2721 010462  000466                          BR      20$
   2722
   2723 010464                          15$:
   2724 010464  032777  000001  171574          BIT     #SF,@RXCSR              ;IS SEL FREQ SET?
   2725 010472  001520                          BEQ     25$                     ;IF NONE OF THOSE BITS SET - ERROR
   2726 010474  012701  000040                  MOV     #SQ,R1                  ;SET UP THE EXPECTED RESULTS
```

```
 2727 010500                                PRINTB  #FMG20
      010500  012746  012335                                                    MOV     #FMG20,-(SP)
      010504  012746  000001                                                    MOV     #1,-(SP)
      010510  010600                                                            MOV     SP,R0
      010512  104414                                                            TRAP    C$PNTB
      010514  062706  000004                                                    ADD     #4,SP
 2728 010520                                PRINTB  #FMG21
      010520  012746  012422                                                    MOV     #FMG21,-(SP)
      010524  012746  000001                                                    MOV     #1,-(SP)
      010530  010600                                                            MOV     SP,R0
      010532  104414                                                            TRAP    C$PNTB
      010534  062706  000004                                                    ADD     #4,SP
 2729 010540                                PRINTB  #FMG4                   ;PRINT HEADER
      010540  012746  011332                                                    MOV     #FMG4,-(SP)
      010544  012746  000001                                                    MOV     #1,-(SP)
      010550  010600                                                            MOV     SP,R0
      010552  104414                                                            TRAP    C$PNTB
      010554  062706  000004                                                    ADD     #4,SP
 2730 010560                                PRINTB  #FMG10,CSR4,<B,@CSR4>   ;PRINT THE LOW BYTE OF CSR4
      010560  005046                                                            CLR     -(SP)
      010562  157716  171504                                                    BISB    @CSR4,(SP)
      010566  013746  002272                                                    MOV     CSR4,-(SP)
      010572  012746  011574                                                    MOV     #FMG10,-(SP)
      010576  012746  000003                                                    MOV     #3,-(SP)
      010602  010600                                                            MOV     SP,R0
      010604  104414                                                            TRAP    C$PNTB
      010606  062706  000010                                                    ADD     #10,SP
 2731 010612                                PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
      010612  005046                                                            CLR     -(SP)
      010614  150116                                                            BISB    R1,(SP)
      010616  012746  011377                                                    MOV     #FMG5,-(SP)
      010622  012746  000002                                                    MOV     #2,-(SP)
      010626  010600                                                            MOV     SP,R0
      010630  104414                                                            TRAP    C$PNTB
      010632  062706  000006                                                    ADD     #6,SP
 2732 010636  000447                        BR      30$
 2733
 2734 010640                            20$:
 2735 010640                                PRINTB  #FMG4                   ;PRINT HEADER
      010640  012746  011332                                                    MOV     #FMG4,-(SP)
      010644  012746  000001                                                    MOV     #1,-(SP)
      010650  010600                                                            MOV     SP,R0
      010652  104414                                                            TRAP    C$PNTB
      010654  062706  000004                                                    ADD     #4,SP
 2736 010660                                PRINTB  #FMG15,CSR0,@CSR0       ;PRINT THE LOW BYTE OF CSR0
      010660  017746  171402                                                    MOV     @CSR0,-(SP)
      010664  013746  002266                                                    MOV     CSR0,-(SP)
      010670  012746  012071                                                    MOV     #FMG15,-(SP)
      010674  012746  000003                                                    MOV     #3,-(SP)
      010700  010600                                                            MOV     SP,R0
      010702  104414                                                            TRAP    C$PNTB
      010704  062706  000010                                                    ADD     #10,SP
 2737 010710                                PRINTB  #FMG16,R1               ;PRINT EXPECTED CONTENTS
      010710  010146                                                            MOV     R1,-(SP)
      010712  012746  012133                                                    MOV     #FMG16,-(SP)
      010716  012746  000002                                                    MOV     #2,-(SP)
      010722  010600                                                            MOV     SP,R0
```

```
        010724  104414                                                                                    TRAP    C$PNTB
        010726  062706  000006                                                                            ADD     #6,SP
  2738  010732  000411                          BR      30$
  2739  010734                          25$:
  2740  010734                                  PRINTB  #FMG22,R2               ;PRINT BIT THAT ISN'T WRITTEN.
        010734  010246                                                                                    MOV     R2,-(SP)
        010736  012746  012471                                                                            MOV     #FMG22,-(SP)
        010742  012746  000002                                                                            MOV     #2,-(SP)
        010746  010600                                                                                    MOV     SP,R0
        010750  104414                                                                                    TRAP    C$PNTB
        010752  062706  000006                                                                            ADD     #6,SP
  2741  010756                          30$:
  2742  010756                          ENDMSG
        010756                                                                          L10013:
        010756  104423                                                                                    TRAP    C$MSG
  2743
  2744  010760                          BGNMSG  ERRG14
        010760                                                                          ERRG14::
  2745  010760  005737  002416                  TST     SUBRPC          ;IS THE ERROR IN A SUBROUTINE?
  2746  010764  001412                          BEQ     10$             ;IF NOT, DON'T PRINT SUBR. PC
  2747  010766                                  PRINTB  #FMG3,SUBRPC    ;PC THAT SUBROUTINE WAS CALLED.
        010766  013746  002416                                                                            MOV     SUBRPC,-(SP)
        010772  012746  011260                                                                            MOV     #FMG3,-(SP)
        010776  012746  000002                                                                            MOV     #2,-(SP)
        011002  010600                                                                                    MOV     SP,R0
        011004  104414                                                                                    TRAP    C$PNTB
        011006  062706  000006                                                                            ADD     #6,SP
  2748  011012                          10$:
  2749  011012                                  PRINTB  #FMG24,XMITD,RCOUNT     ;PRINT CHARACTERS XMITTED AND RCVD.
        011012  013746  002500                                                                            MOV     RCOUNT,-(SP)
        011016  013746  002476                                                                            MOV     XMITD,-(SP)
        011022  012746  012605                                                                            MOV     #FMG24,-(SP)
        011026  012746  000003                                                                            MOV     #3,-(SP)
        011032  010600                                                                                    MOV     SP,R0
        011034  104414                                                                                    TRAP    C$PNTB
        011036  062706  000010                                                                            ADD     #10,SP
  2750  011042                          ENDMSG
        011042                                                                          L10014:
        011042  104423                                                                                    TRAP    C$MSG
  2751
  2752  011044                          BGNMSG  ERRG15
        011044                                                                          ERRG15::
  2753  011044                                  PRINTB  #FMG25,R2               ;PRINT BIT THAT ISN'T CLEARED.
        011044  010246                                                                                    MOV     R2,-(SP)
        011046  012746  012652                                                                            MOV     #FMG25,-(SP)
        011052  012746  000002                                                                            MOV     #2,-(SP)
        011056  010600                                                                                    MOV     SP,R0
        011060  104414                                                                                    TRAP    C$PNTB
        011062  062706  000006                                                                            ADD     #6,SP
  2754  011066                          ENDMSG
        011066                                                                          L10015:
        011066  104423                                                                                    TRAP    C$MSG
  2755
  2756  011070     045     101     125  FMG0:   .ASCIZ  /%AUNABLE TO RUN TEST %D2%A ON UNIT %D2%A WITHOUT TURNAROUND%N/
  2757  011166     045     101     122  FMG1:   .ASCIZ  /%ARXCSR: %O6%N%ARDSR : %O6%N/
  2758  011223     045     101     120  FMG2:   .ASCIZ  /%APCSCR: %O6%N%ATDSR : %O6%N/
  2759  011260     045     101     105  FMG3:   .ASCIZ  /%AERROR IN SUBROUTINE CALLED AT PC: %O6%N/
```

```
011332    045    123    071  FMG4:   .ASCIZ  /%S9%S9%S9%S3%AFOUND:%S2%AEXPECTED:%N/
011377    045    123    067  FMG5:   .ASCIZ  /%S7%O3%N/
011410    045    116    000  FMG6:   .ASCIZ  /%N/
011413    045    101    122  FMG7:   .ASCIZ  /%ARXCSR    = %O6%A (EXTERNAL):  %O3/
011457    045    101    130  FMG8:   .ASCIZ  /%AXMIT DATA: %O3%A RCV DATA: %O3%N/
011522    045    116    045  FMG9:   .ASCIZ  /%N%A** CHECK -V FROM THE CHARGE PUMP **%N/
011574    045    101    120  FMG10:  .ASCIZ  /%APCSCR    = %O6%A (EXTERNAL):  %O3/
011640    045    101    120  FMG11:  .ASCIZ  /%APCR      = %O6%A (USYNRT R7): %O3/
011704    045    101    124  FMG12:  .ASCIZ  /%AT. DATA  = %O6%A (USYNRT R2): %O3/
011750    045    101    124  FMG13:  .ASCIZ  /%AT. STATUS= %O6%A (USYNRT R3): %O3/
012014    045    101    103  FMG14:  .ASCIZ  /%ACONTENTS OF %O6%A = %O6%A   EXPECTED %O6%N/
012071    045    101    122  FMG15:  .ASCIZ  /%ARXCSR   = %O6%A (EXTERNAL): %O6/
012133    045    123    063  FMG16:  .ASCIZ  /%S3%O6%N/
012144    045    101    122  FMG17:  .ASCIZ  /%ARTS NOT TURNED AROUND TO CTS AND RR (CD)%N/
012221    045    101    104  FMG18:  .ASCIZ  /%ADTR NOT TURNED AROUND TO IC (RING)%N/
012270    045    101    114  FMG19:  .ASCIZ  /%ALL NOT TURNED AROUND TO DM (DSR)%N/
012335    045    101    122  FMG20:  .ASCIZ  /%ARL NOT TURNED AROUND TO TEST MODE (SIG. QUALITY)%N/
012422    045    101    103  FMG21:  .ASCIZ  /%ACHECK THAT THE JUMPER IS INSTALLED%N/
012471    045    101    103  FMG22:  .ASCIZ  /%ACAN'T WRITE BIT %O6%A INTO RXCSR%N/
012536    045    101    122  FMG23:  .ASCIZ  /%ARESET SUBROUTINE CALLED AT PC: %O6%N/
012605    045    101    124  FMG24:  .ASCIZ  /%ATRANSMITTED: %D2%A RECEIVED: %D2%N/
012652    045    101    103  FMG25:  .ASCIZ  /%ACAN'T CLEAR BIT %O6%A IN RXCSR%N/
012715    045    101    116  FMG26:  .ASCIZ  /%ANOTE: DATA SET INTERRUPT MAY BE DISABLED - CHECK JUMPER%N/
013011    045    101    124  FMG27:  .ASCII  /%ATEST %D2%A WILL ONLY RUN WITH RS422 ON A LSI-11/
013072    057                        .BYTE    57
013073    062    063    045          .ASCIZ  /23%N/
013100    045    101    111  FMG28:  .ASCII  /%AIF CPU IS A M7264 WITH MEMORY REFRESH ENABLED, A HIGH/
013167    045    101    040          .ASCIZ  /%A SPEED TEST CAN'T RUN%N/
013221    045    101    052  FMG29:  .ASCIZ  /%A** IF M8020 JUMPERED FOR RS422, THIS ERROR EXPECTED **%N/
013314    045    101    052  FMG30:  .ASCIZ  /%A** CHECK BYTE OP SIGNAL - STUCK LOW ?? **%N/

013372    122    105    123  EMG0:   .ASCIZ  /RESET ERROR AFTER BUS RESET (DETECTED ONLY ON 1ST PASS)/
013462    124    111    115  EMG1:   .ASCIZ  /TIME OUT/
013473    124    111    115  EMG2:   .ASCIZ  /TIME OUT - DURING INTERRUPT EXERCISE/
013540    122    105    123  EMG3:   .ASCIZ  /RESET ERROR/
013554    103    123    122  EMG4:   .ASCIZ  /CSR READ-WRITE ERROR/
013601    125    123    131  EMG5:   .ASCIZ  /USYNRT XMIT ACTIVE NOT SET/
013634    125    123    131  EMG6:   .ASCIZ  /USYNRT XMIT ACTIVE NOT CLEAR/
013671    124    102    105  EMG7:   .ASCIZ  /TBE NOT CLEAR/
013707    124    102    105  EMG8:   .ASCIZ  /TBE NOT SET/
013723    130    115    111  EMG9:   .ASCIZ  /XMIT INTERRUPT NOT RECEIVED/
013757    130    115    111  EMG10:  .ASCIZ  /XMIT INTERRUPT RECEIVED WHEN NOT EXPECTED/
014031    122    105    103  EMG11:  .ASCIZ  /RECEIVER NOT DEACTIVATED/
014062    122    105    103  EMG12:  .ASCIZ  /RECEIVER NOT ACTIVE/
014106    122    105    103  EMG13:  .ASCIZ  /RECEIVER NOT INITIALIZED AFTER RECEIVER DISABLED/
014167    122    105    103  EMG14:  .ASCIZ  /RECEIVER ACTIVE BEFORE FIRST DATA CHARACTER/
014243    122    103    126  EMG15:  .ASCIZ  /RCV INTERRUPT NOT RECEIVED/
014276    122    103    126  EMG16:  .ASCIZ  /RCV INTERRUPT RECEIVED BEFORE EXPECTED/
014345    122    103    126  EMG17:  .ASCIZ  /RCV END OF MESSAGE NOT RECEIVED/
014405    122    103    126  EMG18:  .ASCIZ  /RCV STATUS NOT CLEARED/
014434    122    103    126  EMG19:  .ASCIZ  /RCV OVERRUN NOT RECEIVED/
014465    122    103    126  EMG20:  .ASCIZ  /RCV ABORT NOT RECEIVED/
014514    122    103    126  EMG21:  .ASCIZ  /RCV STATUS INTERRUPT NOT RECEIVED/
014556    115    117    104  EMG22:  .ASCIZ  /MODEM LOOPBACK ERROR/
014603    115    117    104  EMG23:  .ASCIZ  /MODEM STATUS INTERRUPT RECEIVED WHEN DISABLED/
014661    115    117    104  EMG24:  .ASCIZ  /MODEM STATUS INTERRUPT NOT RECEIVED/
014725    103    110    101  EMG25:  .ASCIZ  /CHARACTER COUNT ERROR/
```

```
014753     104     101     124  EMG26:  .ASCIZ  /DATA ERROR/
014766     130     115     111  EMG30:  .ASCIZ  /XMIT UNDERRUN/
015004     122     105     103  EMG31:  .ASCIZ  /RECEIVER ERROR/
015023     101     102     117  EMG32:  .ASCIZ  /ABORT NOT RECEIVED/
015046     107     117     040  EMG33:  .ASCIZ  /GO AHEAD NOT RECEIVED/
015074     101     102     117  EMG34:  .ASCIZ  /ABORT RECEIVED WHEN NOT EXPECTED/
015135     101     104     104  EMG35:  .ASCIZ  /ADDRESS INCORRECTLY RECOGNIZED/
015174     101     123     123  EMG36:  .ASCIZ  /ASSEMBLED BIT COUNT ERROR/
015226     103     122     103  EMG37:  .ASCIZ  /CRC ERROR/
015240     103     122     103  EMG38:  .ASCIZ  /CRC ERROR NOT DETECTED/
015267     120     101     122  EMG39:  .ASCIZ  /PARITY ERROR NOT DETECTED/
015321     115     125     114  EMG40:  .ASCIZ  /MULTIPLE MODEM CONTROL INTERRUPTS/
                                        .EVEN
```

```
                                .SBTTL  LOAD DEVICE PROTECTION TABLE

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

 015364                                 BGNPROT
 015364                                                                                         L$PROT::

 015364  177777                         .WORD   -1              ;DON'T CHECK CSR ADDRESS
 015366  177777                         .WORD   -1              ;DON'T CHECK MASSBUS UNIT NUMBER
 015370  177777                         .WORD   -1              ;DON'T CHECK DRIVE NUMBER

 015372                                 ENDPROT
```

```
                                        .SBTTL  INITIALIZE SECTION

                                        ;////////////////////////////////////////////////////////////////////////
                                        ;/ THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
                                        ;/ AT THE BEGINNING OF THE TEST SEQUENCE ON THE NEXT UNIT.
                                        ;////////////////////////////////////////////////////////////////////////

015372                                  BGNINIT
015372                                                                                          L$INIT::

015372                                          SETPRI  #PRI06          ;SET DIAGNOSTIC PRIORITY = 6
015372  012700  000300                                                                          MOV     #PRI06,R0
015376  104441                                                                                  TRAP    C$SPRI
015400  010637  002372                          MOV     SP,PSTACK       ;STORE BASE LEVEL PROGRAM STACK POINTER
015404  005037  002416                          CLR     SUBRPC          ;CLEAR STORAGE WORD FOR SUBROUTINE PC CALL
015410  005037  002330                          CLR     ERROR           ;CLEAR ERROR FLAGS
                                                                        ;CLEAR MISC. FLAGS
015414  005037  002334                          CLR     FLAG
015420  005037  002376                          CLR     RFLAG
015424  005037  002424                          CLR     TFLAG
015430  005037  002366                          CLR     NXMFLG
015434  005037  002316                          CLR     ABORT
015440  005037  002432                          CLR     TOGGLE
015444  005037  002370                          CLR     OVER
015450  005037  002340                          CLR     HIGH

015454  005737  002310                          TST     FRSTIM          ;IS THIS THE TIME THROUGH AFTER LOAD?
015460  001005                                  BNE     1$              ;IF NOT - ERROR TRAP VECTOR ALREADY SAVED
015462  012737  000001  002310                  MOV     #1,FRSTIM       ;FLAG THAT WE'VE BEEN THRU THE 1ST TIME
015470  005037  002312                          CLR     FRSPAS          ;CLEAR COUNTER FOR # OF PASSES AFTER LOAD

015474                                  1$:
015474                                          CLRVEC  #4              ;ENSURE VECTOR 4 IS IN NORMAL STATE.
015474  012700  000004                                                                          MOV     #4,R0
015500  104436                                                                                  TRAP    C$CVEC

015502                                          READEF  #EF.START       ;IS THIS JUST STARTED?
015502  012700  000040                                                                          MOV     #EF.START,R0
015506  104447                                                                                  TRAP    C$REFG
015510                                          BCOMPLETE STARST        ;IF YES - BRANCH.
015510  103416                                                                                  BCS     STARST
015512                                          READEF  #EF.RESTART     ;IS THIS A RESTART ?
015512  012700  000037                                                                          MOV     #EF.RESTART,R0
015516  104447                                                                                  TRAP    C$REFG
015520                                          BCOMPLETE STARST        ;IF YES - BRANCH.
015520  103412                                                                                  BCS     STARST
015522                                          READEF  #EF.NEW         ;IS THIS A NEW PASS?
015522  012700  000035                                                                          MOV     #EF.NEW,R0
015526  104447                                                                                  TRAP    C$REFG
015530                                          BCOMPLETE NEWST         ;IF YES - BRANCH
015530  103410                                                                                  BCS     NEWST
015532                                          READEF  #EF.CONTINUE    ;IS THIS A CONTINUATION?
015532  012700  000036                                                                          MOV     #EF.CONTINUE,R0
015536  104447                                                                                  TRAP    C$REFG
015540                                          BNCOMPLETE GETPRM       ;IF NOT - GET PARAMETERS
015540  103013                                                                                  BCC     GETPRM
015542  000137  016310                          JMP     END             ;OTHERWISE - DON'T INITIALIZE.
```

```
2893
2894 015546                                STARST:
2895 015546  005037  002314                        CLR     STARES          ;CLEAR THE FLAG TO SHOW START/RESTART.
2896
2897 015552                                NEWST:
2898 015552  012737  177777  002354                MOV     #-1,LOGDEV      ;INITIALIZE LOGICAL UNIT NUMBER.
2899 015560  005237  002312                        INC     FRSPAS          ;INCREMENT # OF PASSES AFTER LOAD.
2900 015564  005237  002314                        INC     STARES          ;INCREMENT # OF PASSES SINCE START/RESTART.
2901 015570                                GETPRM:
2902 015570  005237  002354                        INC     LOGDEV          ;NEXT LOGICAL UNIT TO BE TESTED
2903 015574  023737  002354  002012                CMP     LOGDEV,L$UNIT   ;IS THE MAXIMUM UNIT # EXCEEDED?
2904 015602  002363                                BGE     NEWST           ;IF YES - DO A NEW START
2905 015604                                        GPHARD  LOGDEV,R1       ;GET THE P-TABLE POINTER INTO R1
     015604  013700  002354                                                                     MOV     LOGDEV,R0
     015610  104442                                                                             TRAP    C$GPHRD
     015612  010001                                                                             MOV     R0,R1
2906 015614                                        BNCOMPLETE  GETPRM      ;IF NOT AVAILABLE, GET THE NEXT ONE
     015614  103365                                                                             BCC     GETPRM
2907 015616  011100                                MOV     (R1),R0         ;SAVE THE ADDRESS
2908 015620  032700  000007                        BIT     #7,R0           ;DOES THIS DEVICE ADDRESS END IN NON-ZERO?
2909 015624  001414                                BEQ     10$             ;IF NOT - OK (76XXX0)
2910 015626  042711  000007                        BIC     #7,(R1)         ;MAKE IT 76XXX0
2911 015632                                        PRINTB  #FINIT1,(R1),R0 ;INFORM THE USER
     015632  010046                                                                             MOV     R0,-(SP)
     015634  011146                                                                             MOV     (R1),-(SP)
     015636  012746  016312                                                                     MOV     #FINIT1,-(SP)
     015642  012746  000003                                                                     MOV     #3,-(SP)
     015646  010600                                                                             MOV     SP,R0
     015650  104414                                                                             TRAP    C$PNTB
     015652  062706  000010                                                                     ADD     #10,SP
2912 015656                                10$:
2913 015656  011137  002266                        MOV     (R1),CSR0       ;CSR ADDRESS 0 = RECEIVER CSR (RXCSR)
2914                                                                       ;                READ/WRITE
2915 015662  013737  002266  002276                MOV     CSR0,CSR1       ;SAVE HIGH BYTE ADDRESS
2916 015670  005237  002276                        INC     CSR1
2917 015674  011137  002270                        MOV     (R1),CSR2
2918 015700  062737  000002  002270                ADD     #2,CSR2         ;CSR ADDRESS 2 = RECEIVE DATA/STATUS (RDSR)
2919                                                                       ;                READ ONLY
2920                                                                       ;CSR ADDRESS 2 = PARAMETER CONTROL/SYNCH ADDR
2921                                                                       ;                (PCSAR) - WRITE ONLY
2922 015706  013737  002270  002300                MOV     CSR2,CSR3       ;SAVE HIGH BYTE ADDRESS
2923 015714  005237  002300                        INC     CSR3
2924 015720  011137  002272                        MOV     (R1),CSR4
2925 015724  062737  000004  002272                ADD     #4,CSR4         ;CSR ADDRESS 4 = TRANSMITTER CSR (TXCSR)
2926                                                                       ;                READ/WRITE
2927
2928 015732  013737  002272  002302                MOV     CSR4,CSR5       ;CSR ADDRESS 5 = PARAMETER CONTROL REG (PCR)
2929                                                                       ;                READ/WRITE
2930 015740  005237  002302                        INC     CSR5            ;                PCR IS HI BYTE OF TXCSR
2931 015744  012137  002274                        MOV     (R1)+,CSR6
2932 015750  062737  000006  002274                ADD     #6,CSR6         ;CSR ADDRESS 6 = TRANSMIT DATA/STATUS (TDSR)
2933                                                                       ;                READ/WRITE
2934 015756  013737  002274  002304                MOV     CSR6,CSR7       ;SAVE HIGH BYTE ADDRESS
2935 015764  005237  002304                        INC     CSR7
2936 015770  011100                                MOV     (R1),R0         ;GET VECTOR
2937 015772  032700  000007                        BIT     #7,R0           ;DOES THIS VECTOR END IN NON-ZERO?
2938 015776  001414                                BEQ     11$             ;IF NOT - OK (XX0)
```

```
016000  042711  000007                  BIC     #7,(R1)          ;MAKE IT XX0
016004                                  PRINTB  #FINIT2,(R1),R0  ;INFORM THE USER
016004  010046                                                                          MOV     R0,-(SP)
016006  011146                                                                          MOV     (R1),-(SP)
016010  012746  016405                                                                  MOV     #FINIT2,-(SP)
016014  012746  000003                                                                  MOV     #3,-(SP)
016020  010600                                                                          MOV     SP,R0
016022  104414                                                                          TRAP    C$PNTB
016024  062706  000010                                                                  ADD     #10,SP
016030                          11$:
016030  011137  002262                  MOV     (R1),RCVEC       ;RCV. VECTOR
016034  012137  002264                  MOV     (R1)+,XMTVEC     ;TRANSMIT VECTOR
016040  062737  000004  002264          ADD     #4,XMTVEC        ;ADJUST XMIT VECTOR

016046  011137  002306                  MOV     (R1),TURN        ;TURNAROUND.
016052  012737  000020  002402          MOV     #RXENA,RXINI     ;RECEIVER INIT WORD
016060  012737  000020  002436          MOV     #TXENA,TXINI     ;TRANSMITTER INIT WORD
016066  005737  002306                  TST     TURN             ;WHAT WAS THE TURNAROUND
016072  001004                          BNE     15$              ;IF ACTUAL TURNAROUND DON'T SET MAINT MODE
016074  052737  000010  002436          BIS     #MM,TXINI        ;SET THE MAINT. MODE BIT.
016102  000422                          BR      20$
016104                          15$:
016104  052737  000004  002402          BIS     #RTS,RXINI       ;SET RTS FOR TURNAROUND LOOP.
016112  022737  000003  002306          CMP     #3,TURN          ;LOCAL LOOPBACK?
016120  001004                          BNE     17$              ;IF NOT SKIP.
016122  052737  000012  002402          BIS     #LL!DTR,RXINI    ;SET LOCAL LOOP AND DTR.
016130  000407                          BR      20$
016132                          17$:
016132  022737  000004  002306          CMP     #4,TURN          ;REMOTE LOOPBACK?
016140  001003                          BNE     20$
016142  052737  000003  002402          BIS     #DTR!RL,RXINI    ;SET REMOTE LOOP AND DTR
016150                          20$:
016150  013737  002402  002404          MOV     RXINI,RXINIT     ;SAVE RECEIVER INIT WORD
016156  052737  000140  002404          BIS     #RXITEN!DSITEN,RXINIT ;MAKE IT AN INTERRUPT INIT WORD
016164  013737  002436  002440          MOV     TXINI,TXINIT     ;SAVE TRANSMITTER INIT WORD
016172  052737  000100  002440          BIS     #TXIE,TXINIT     ;MAKE IT AN INTERRUPT INIT WORD
016200  012737  000120  002406          MOV     #RXITEN!RXENA,RXMINI     ;RCV INIT FOR MAINT. LOOP.
016206  012737  000130  002442          MOV     #TXIE!TXENA!MM,TXMINI    ;TRANS INIT WITH MAINT. LOOP.
                                                                         ;DETERMINE PROCESSOR TYPE
016214                                  SETVEC  #10,#ILLGL,#PRI06 ;SET UP ILLEGAL INSTRUCTION TRAP
016214  012746  000300                                                                  MOV     #PRI06,-(SP)
016220  012746  017744                                                                  MOV     #ILLGL,-(SP)
016224  012746  000010                                                                  MOV     #10,-(SP)
016230  012746  000003                                                                  MOV     #3,-(SP)
016234  104437                                                                          TRAP    C$SVEC
016236  062706  000010                                                                  ADD     #10,SP
016242  000007                          MFPT                     ;MOVE PROCESSOR TYPE TO R0
                                                                 ;FOR AN LSI 11/23 R0 = 3
                                                                 ;FOR OTHER LSI THIS WILL RESULT IN AN
                                                                 ;ILLEGAL INSTRUCTION (R0=0).
016244  010037  002324                  MOV     R0,CPU           ;SAVE THE PROCESSOR TYPE
016250                                  CLRVEC  #10              ;RESTORE TRAP TO THE SUPERVISOR
016250  012700  000010                                                                  MOV     #10,R0
016254  104436                                                                          TRAP    C$CVEC
016256  005737  002324                  TST     CPU              ;IS THE CPU A LSI11/23 ?
016262  001004                          BNE     25$              ;BR IF YES
016264  012737  000020  002430          MOV     #20,TIMER        ;SET THE TIMER FOR A LSI11 OR 11/2.
```

```
016272  000403                          BR      30$
016274                          25$:
016274  012737  000050  002430           MOV     #50,TIMER       ;SET THE TIMER FOR A LSI-11/23.
016302                          30$:
016302  013737  002430  002412           MOV     TIMER,SAVTIM    ;STORE THE TIMER VALUE.
016310                          END:
016310                          ENDINIT
016310                                                                          L10017:
016310  104411                                                                          TRAP    C$INIT
016312     045     101     052  FINIT1: .ASCIZ  /%A** WARNING - WILL ASSUME DPV ADDRESS %O6%A (NOT %O6%A)%N/
016405     045     101     052  FINIT2: .ASCIZ  /%A** WARNING - WILL ASSUME DPV VECTOR  %O3%A (NOT %O3%A)%N/
                                        .EVEN
```

```
                                .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.
                                ;////////////////////////////////////////////////////////////////////////////

016500                          BGNAUTO
016500                                                                          L$AUTO::

016500                                  SETVEC  #4,#NXM,#PRI06  ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.
016500  012746  000300                                                                  MOV     #PRI06,-(SP)
016504  012746  017734                                                                  MOV     #NXM,-(SP)
016510  012746  000004                                                                  MOV     #4,-(SP)
016514  012746  000003                                                                  MOV     #3,-(SP)
016520  104437                                                                          TRAP    C$SVEC
016522  062706  000010                                                                  ADD     #10,SP
016526  005037  002366                  CLR     NXMFLG          ;CLEAR FLAG USED IN TEST
016532  005777  163530                  TST     @CSR0           ;REFERENCE MEMORY ADDRESS FOR THE DEVICE
                                                                ;TO SEE IF IT EXISTS.

                                ;;*****************************************************************************
                                ; IF THE DEVICE DOESN'T EXIST THE RESULTANT TRAP TO VECTOR 04 WILL
                                ; CAUSE THE DEVICE TO BE DROPPED (SEE INTERRUPT ROUTINE 'DROP04').
                                ; OTHERWISE THE MEMORY REFERENCE IS UNEVENTFUL AND THE DEVICE IS READY.
                                ;;*****************************************************************************
016536  005737  002366                  TST     NXMFLG          ;WAS THERE A TRAP?
016542  001407                          BEQ     10$             ;BR IF NOT
016544                                  DODU    LOGDEV          ;DROP THE DEVICE
016544  013700  002354                                                                  MOV     LOGDEV,R0
016550  104451                                                                          TRAP    C$DODU
016552                                  DOCLN                   ;CLEAN UP CODE.
016552  104444                                                                          TRAP    C$DCLN
016554                                  CLRVEC  #4              ;RETURN VECTOR 04 TO NORMAL STATE
016554  012700  000004                                                                  MOV     #4,R0
016560  104436                                                                          TRAP    C$CVEC
016562                          10$:

016562                          ENDAUTO
016562                                                                          L10020:
016562  104461                                                                          TRAP    C$AUTO.
```

```
                                .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.  THIS SECTION IS REQUIRED
                                ;/  EVEN IF IT IS A NULL CLEANUP
                                ;////////////////////////////////////////////////////////////////////////////////

016564                          BGNCLN
016564                                                                                          L$CLEAN::
016564  005737  002366                  TST     NXMFLG          ;WAS THERE A NXM TRAP
016570  001003                          BNE     10$             ;IF YES, SKIP RESET
016572  012777  000001  163472          MOV     #RESET,@TXCSR   ;RESET THE DPV
016600                          10$:
016600                          ENDCLN
016600                                                                                          L10021:
016600  104412                                                                                          TRAP    C$CLEAN
```

```
                                .SBTTL  GLOBAL INTERRUPT HANDLING ROUTINES

                                ;////////////////////////////////////////////////////////////////////////
                                ;/ THE INTERRUPT HANDLING SECTION CONTAINS CODING REQUIRED TO USE
                                ;/ THE 'SETVEC' MACRO.  NOTE EVERY INTERRUPT ROUTINE SHOULD SAVE
                                ;/ AND RESTORE R0.
                                ;////////////////////////////////////////////////////////////////////////

                                ;*********************************************************************
                                ;       RINT -  INTERRUPT SERVICE ROUTINE
                                ;
                                ;       FUNCTION - RECEIVE INTERRUPT ROUTINE THAT SETS FLAGS WHEN
                                ;                  A RECEIVE INTERRUPT CONDITON IS RECEIVED.
                                ;
                                ;       ENTRY CONDTIONS
                                ;                       TOGGLE = IF NON ZERO, XOR THE BITS IN TOGGLE
                                ;                                INTO THE RXCSR
                                ;
                                ;       EXIT CONDITIONS RFLAG =  1 SET - DATA RECEIVED
                                ;                       =  2 SET - STATUS RECEIVED
                                ;                       IRXCSR=  IMAGE OF RXCSR
                                ;                       RSAVE =  IMAGE OF RDSR
                                ;                       MCFLAG=  MODEM CONTROL INTERRUPT COUNT.
                                ;
                                ;       USED IN TESTS: 8,10,11,13,14
                                ;
                                ;*********************************************************************


016602                          BGNSRV  RINT
016602                                                                                  RINT::
016602                          1$:
016602  017737  163460  002346          MOV     @RXCSR,IRXCSR   ;SAVE RXCSR
016610  100011                          BPL     5$              ;BR IF NOT
016612  005237  002360                  INC     MCFLAG          ;INCREMENT MODEM CONTROL FLAG.
016616  022737  000002  002360          CMP     #2,MCFLAG       ;HAS THERE BEEN MORE THAN 2 INTERRUPTS?
016624  002003                          BGE     5$              ;IF NOT, PROCEED.
016626  042777  000040  163432          BIC     #DSITEN,@RXCSR  ;DISABLE THE INTERRUPT.
016634                          5$:
016634  032737  000200  002346          BIT     #RDATRY,IRXCSR  ;IS DATA READY?
016642  001414                          BEQ     10$             ;IF NOT - CHECK STATUS.
016644  052737  000001  002376          BIS     #1,RFLAG        ;FLAG FOR DATA
016652  005737  002432                  TST     TOGGLE          ;TOGGLE ?
016656  001406                          BEQ     10$             ;IF NOT, SKIP TOGGLE
016660  013702  002432                  MOV     TOGGLE,R2       ;GET THE TOGGLE VALUE
016664  005037  002432                  CLR     TOGGLE          ;ONLY TOGGLE ONCE.
016670  074277  163372                  XOR     R2,@RXCSR       ;TOGGLE RTS.
016674                          10$:
016674  032737  002000  002346          BIT     #RSTARY,IRXCSR  ;IS STATUS READY?
016702  001404                          BEQ     20$             ;IF NOT - DON'T SET THE FLAG.
016704  052737  000002  002376          BIS     #2,RFLAG        ;SET THE FLAG
016712  000403                          BR      25$
016714                          20$:
016714  005737  002370                  TST     OVER            ;CREATE AN OVERRUN?
016720  001330                          BNE     1$              ;IF YES - DON'T READ THE DATA
                                                                ;UNTIL THE STATUS FLAG IS SET.
016722                          25$:
```

```
3106 016722  017737  163342  002400          MOV     @RDSR,RSAVE     ;SAVE RECEIVE DATA AND STATUS.
3107
3108 016730                          ENDSRV
     016730                                                                          L10022:
     016730  000002                                                                          RTI
3109
```

```
                                        ;*******************************************************************
                                        ;       RDATA - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - GENERAL PURPOSE RECEIVE INTERRUPT ROUTINE
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                       ECOUNT = # OF CHARACTERS TO BE RECEIVED.
                                        ;                       R1     = ADDRESS OF BUFFER FOR NEXT CHARACTER
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                       IRXCSR = IMAGE OF RXCSR
                                        ;                       IRDSR  = IMAGE OF RDSR
                                        ;                       RCOUNT = COUNT OF CHARACTERS RECEIVED
                                        ;                       MODE   = PROTOCOL MODE ( 0 = BCP, NON 0 = BOP)
                                        ;                       MCFLAG = COUNT OF MODEM CONTROL INTERRUPTS RECEIVED
                                        ;                       MODEM  = ADDRESS OF MODEM CONTROL INTERRUPT TABLE
                                        ;                       RFLAG  = RECEIVE END FLAG ( 1 = NO ERROR, -1 = ERROR)
                                        ;                       R1     = INCREMENTED TO NEXT BYTE IN BUFFER.
                                        ;
                                        ;       USED IN TESTS: 15-28 & 30-40 (CALLED IN SUBROUTINE $DATA), 41
                                        ;
                                        ;*******************************************************************

016732                                  BGNSRV  RDATA
016732                                                                                          RDATA::

016732  017737  163330  002346                  MOV     @RXCSR,IRXCSR   ;SAVE THE RXCSR
016740  100040                                  BPL     10$             ;IS DATA SET CHANGE?  IF NOT SET, BR.

016742  032737  000040  002346                  BIT     #DSITEN,IRXCSR  ;WAS THE DATA SET CHANGE INT. ENABLED?
016750  001434                                  BEQ     10$             ;IF NOT - DON'T KEEP TRACK OF THE CHANGES.
016752  005237  002360                          INC     MCFLAG          ;INCR MODEM CONTROL FLAG.
016756  022737  000011  002360                  CMP     #9.,MCFLAG      ;WERE TOO MANY INTERRUPTS RECECEIVED?
016764  002004                                  BGE     1$              ;IF NOT - PROCEED.
016766  042777  000040  163272                  BIC     #DSITEN,@RXCSR  ;CLEAR MODEM CONTROL INTERRUPT.
016774  000422                                  BR      10$
016776                                  1$:
016776                                          PUSH    <R5>            ;SAVE R5
017000  013705  002360                          MOV     MCFLAG,R5       ;USE THE INTERRUPT # AS A TABLE INDEX.
017004  006305                                  ASL     R5              ;CHANGE MODEM CONTROL TO ADDRESS OFFSET
017006  013765  002346  002444                  MOV     IRXCSR,MODEM(R5);SAVE THE MODEM STATUS
017014  042765  006760  002444                  BIC     #6760,MODEM(R5) ;SAVE ONLY THE MODEM STATUS.
017022  032777  000040  163242                  BIT     #TM,@TXCSR      ;WAS THE TEST MODE BIT SET?
017030  001403                                  BEQ     5$              ;BR IF NOT
017032  052765  000040  002444                  BIS     #TM,MODEM(R5)   ;SAVE TEST MODE STATUS.
017040                                  5$:
017040                                          POP     <R5>            ;RESTORE R5

017042                                  10$:
017042  032737  002200  002346                  BIT     #RSTARY!RDATRY,IRXCSR ;IS THE DATA OR STATUS BIT SET
017050  001444                                  BEQ     55$
017052  017737  163212  002350                  MOV     @RDSR,IRDSR     ;SAVE THE DATA AND STATUS REG.
017060  032737  000200  002346                  BIT     #RDATRY,IRXCSR  ;IS DATA SET?
017066  001404                                  BEQ     20$
017070  113721  002350                          MOVB    IRDSR,(R1)+     ;SAVE THE DATA.
017074  005237  002500                          INC     RCOUNT          ;INCREMENT BYTE COUNT
017100                                  20$:
```

```
017100  032737  002000  002346          BIT     #RSTARY,IRXCSR  ;IS STATUS SET?
017106  001410                          BEQ     50$
017110  032737  106000  002350          BIT     #ERR!ROVER!RABORT,IRDSR ;WAS THERE AN ERROR?
017116  001413                          BEQ     53$             ;IF NOT - MUST BE END OF MESSAGE.
017120  012737  177777  002376          MOV     #-1,RFLAG       ;OTHERWISE, SET ERROR FLAG.
017126  000412                          BR      54$
017130                          50$:
017130  005737  002362                  TST     MODE            ;IS THIS BCP?
017134  001012                          BNE     55$             ;IF NOT - EXIT
017136  023737  002500  002474          CMP     RCOUNT,ECOUNT   ;HAVE WE RECEIVED ALL THE CHARACTERS
017144  001006                          BNE     55$             ;IF NOT - EXIT
017146                          53$:
017146  012737  000001  002376          MOV     #1,RFLAG        ;SET FLAG
017154                          54$:
017154  042777  000100  163104          BIC     #RXITEN,@RXCSR  ;DISABLE INTERRUPT
017162                          55$:

017162                          ENDSRV
017162                                                                          L10023:
017162  000002                                                                          RTI
```

```
                                        ;*******************************************************************
                                        ;       RDATA2 - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - HIGH SPEED RECEIVE INTERRUPT ROUTINE
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                       COUNTER= # OF CHARACTERS BE RECEIVED
                                        ;                       R1     = ADDRESS OF BUFFER FOR NEXT CHARACTER
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                       RCOUNT = COUNT OF CHARACTERS RECEIVED
                                        ;                       RFLAG  = RECEIVE END FLAG ( 1 = NO ERROR, -1 = ERROR)
                                        ;                       R1     = INCREMENTED TO NEXT BYTE IN BUFFER.
                                        ;
                                        ;       USED IN TESTS: 42 & 43
                                        ;
                                        ;*******************************************************************

017164                                  BGNSRV  RDATA2
017164                                                                                          RDATA2::

017164  105777  163076                          TSTB    @RXCSR          ;IS THIS DATA?
017170  100404                                  BMI     5$
                                                                        ;DATA OR STATUS?
017172  012737  177777  002376                  MOV     #-1,RFLAG       ;FLAG FOR ERROR
017200  000410                                  BR      20$

017202                                  5$:
017202  117721  163062                          MOVB    @RDSR,(R1)+     ;SAVE THE DATA.
017206  005337  002322                          DEC     COUNTER         ;DECREMENT COUNT
017212  001006                                  BNE     30$             ;BR IF NOT DONE.
017214  012737  000001  002376                  MOV     #1,RFLAG        ;SET FLAG
017222                                  20$:
017222  042777  000100  163036                  BIC     #RXITEN,@RXCSR  ;DISABLE INTERRUPT
017230                                  30$:

017230                                  ENDSRV
017230                                                                                          L10024:
017230  000002                                                                                          RTI
```

```
                                        ;*******************************************************************
                                        ;       XINT -  INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - TRANSMIT INTERRUPT ROUTINE. SET A FLAG WHEN INTERRUPT
                                        ;                  GENERATED.  THIS ISR WILL TRANSMIT 4 DATA CHARACTERS AND
                                        ;                  END A MESSAGE IN A SPECIFIED MANNER.
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                  ABORT = FLAG, SET IF TERMINATE BY AN ABORT IS DESIRED.
                                        ;                  START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
                                        ;                          BE SENT.
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                  TFLAG = FLAG SET WHEN THIS INTERRUPT IS SERVICED
                                        ;                  DATA  = # OF DATA CHARACTERS TRANSMITTED
                                        ;
                                        ;       USED IN TESTS:  6, 8-11, 14
                                        ;
                                        ;*******************************************************************

 017232                                 BGNSRV  XINT
 017232                                                                                         XINT::
 017232  012737  000001  002424                 MOV     #1,TFLAG        ;SET THE TRANSMIT FLAG
 017240  005737  002414                         TST     START           ;SEND START
 017244  001410                                 BEQ     5$              ;IS THIS DATA OR A START
 017246  012777  000400  163020                 MOV     #TSOM,@TDSR     ;TRANSMIT A SYNCH/FLAG.
 017254  005337  002414                         DEC     START           ;DECREMENT START COUNTER.
 017260  005037  002326                         CLR     DATA            ;CLEAR DATA COUNTER
 017264  000424                                 BR      20$
 017266                                 5$:
 017266  022737  000004  002326                 CMP     #4,DATA         ;HAVE WE SENT 4 DATA CHARACTERS
 017274  001013                                 BNE     10$
 017276  005737  002316                         TST     ABORT           ;SEND AN ABORT?
 017302  001404                                 BEQ     7$
 017304  052777  002000  162762                 BIS     #TXABO,@TDSR    ;SEND AN ABORT
 017312  000411                                 BR      20$
 017314                                 7$:
 017314  012777  001021  162752                 MOV     #TEOM!21,@TDSR  ;SEND END OF MESSAGE
 017322  000405                                 BR      20$
 017324                                 10$:
 017324  012777  000041  162742                 MOV     #41,@TDSR       ;TRANSMIT DATA.
 017332  005237  002326                         INC     DATA            ;INCREMENT DATA
 017336                                 20$:
 017336                                 ENDSRV
 017336                                                                                         L10025:
 017336  000002                                                                                         RTI
```

```
                                        ;*******************************************************************
                                        ;       XDATA - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - GENERAL PURPOSE TRANSMIT INTERRUPT ROUTINE
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                       START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
                                        ;                               BE SENT.
                                        ;                       TSTART= TRANSMIT START OF MESSAGE BIT/(OR BITS)
                                        ;                       HEADER= # OF HEADER CHARACTERS (8 BIT CHARACTERS) TO
                                        ;                               TRANSMIT BEFORE, SETTING THE SELECTED
                                        ;                               CHARACTER LENGTH.
                                        ;                       IPCR  = IMAGE OF PCR. CHARACTER LENGTH TO SET AFTER
                                        ;                               THE HEADER CHARACTERS ARE SENT.
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                       XMITD = # OF DATA CHARACTERS TRANSMITTED
                                        ;                       RCOUNT= 0 (AFTER START OF MESSAGE TRANSMITTED)
                                        ;
                                        ;
                                        ;       USED IN TESTS: 15-28 & 30-40 (CALLED IN SUBROUTINE $DATA)
                                        ;
                                        ;*******************************************************************

017340                                  BGNSRV  XDATA
017340                                                                          XDATA::

017340  005737  002414                          TST     START           ;ANY STARTS LEFT TO SEND?
017344  001426                                  BEQ     10$             ;IF NOT, SKIP.
017346  032737  000001  002434                  BIT     #BIT0,TSTART    ;IS THIS SPECIAL START SEQUENCE.
017354  001407                                  BEQ     2$              ;IF NOT - SKIP.
                                                                        ;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT
                                                                        ;* A SPECIAL START SEQUENCE WHEN
                                                                        ;* TRANSMIT START AND END OF MESSAGE
                                                                        ;* ARE SET BY A BYTE OPERATION.
017356  113777  002434  162720                  MOVB    TSTART,@CSR7    ;SEND SPECIAL SEQUENCE START OF MESSAGE.
017364  042737  000002  002434                  BIC     #BIT1,TSTART    ;CLEAR END OF MESSAGE IN SPECIAL START
017372  000403                                  BR      5$
017374                                  2$:
017374  013777  002434  162672                  MOV     TSTART,@TDSR    ;SEND START OF MESSAGE.
017402                                  5$:
017402  005337  002414                          DEC     START           ;DECREMENT COUNTER.
017406  001040                                  BNE     20$             ;IF NOT LAST START EXIT.
017410  005037  002476                          CLR     XMITD           ;CLEAR TRANSMIT COUNT.
017414  005037  002500                          CLR     RCOUNT          ;CLEAR RECEIVER COUNT.
017420  000433                                  BR      20$
017422                                  10$:
017422  005737  002336                          TST     HEADER          ;IS THIS A CONTROL CHARACTER?
017426  001407                                  BEQ     15$             ;IF DONE WITH CONTROL CHAR, SET LENGTH
017430  100413                                  BMI     16$             ;AFTERWARDS - BR TO TRANSMIT
017432  042777  000400  162634                  BIC     #TSOM,@TDSR     ;CLEAR START OF MESSAGE.
017440  005337  002336                          DEC     HEADER          ;DECREMENT HEADER COUNT.
017444  000405                                  BR      16$             ;
017446                                  15$:
017446  005337  002336                          DEC     HEADER          ;MAKE HEADER FLAG - NEGATIVE
017452  153777  002342  162622                  BISB    IPCR,@PCR       ;SET CHARACTER LENGTH (BOP MODE)
```

```
017460                          16$:
017460  112277  162610                  MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
017464  005237  002476                  INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
017470  005303                          DEC     R3              ;DECREMENT COUNTER
017472  001006                          BNE     20$
017474  053777  002422  162572          BIS     TEND,@TDSR      ;TRANSMIT END OF MESSAGE.
017502  042777  000100  162562          BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
017510                          20$:

017510                          ENDSRV
017510                                                                  L10026:
017510  000002                                                                  RTI

```

```
                                        ;*****************************************************************
                                        ;       XDATA2 - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - HIGH SPEED TRANSMIT INTERRUPT ROUTINE FOR BOP MODE
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                       START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
                                        ;                               BE SENT.
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                       XMITD = # OF DATA CHARACTERS TRANSMITTED
                                        ;
                                        ;
                                        ;       USED IN TESTS: 31,38,42,43
                                        ;
                                        ;*****************************************************************

017512                                  BGNSRV  XDATA2
017512                                                                                          XDATA2::
017512  005737  002414                          TST     START           ;ANY STARTS LEFT TO SEND?
017516  100414                                  BMI     20$             ;IF NEGATIVE SEND DATA
017520  001406                                  BEQ     10$             ;IF NOT, SKIP.
017522  052777  000400  162544                  BIS     #TSOM,@TDSR     ;SEND SYNCH (OR FLAG)
017530                                  5$:
017530  005337  002414                          DEC     START           ;DECREMENT COUNTER.
017534  000430                                  BR      30$
017536                                  10$:
017536  005337  002414                          DEC     START           ;MAKE THE COUNTER NEGATIVE.
017542  042777  000400  162524                  BIC     #TSOM,@TDSR     ;CLEAR START OF MESSAGE
017550                                  20$:
017550  022737  000002  002476                  CMP     #2,XMITD        ;IS THIS THE 3RD CHARACTER.
017556  001003                                  BNE     25$             ;IF NOT SKIP
017560  113777  002342  162514                  MOVB    IPCR,@PCR       ;CHANGE THE CHARACTER LENGTH
017566                                  25$:
017566  112277  162502                          MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
017572  005237  002476                          INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
017576  005303                                  DEC     R3              ;DECREMENT COUNTER
017600  001006                                  BNE     30$
017602  052777  001000  162464                  BIS     #TEOM,@TDSR     ;TRANSMIT END OF MESSAGE.
017610  042777  000100  162454                  BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
017616                                  30$:


017616                                  ENDSRV
017616                                                                                          L10027:
017616  000002                                                                                          RTI
```

```
                                        ;*****************************************************************
                                        ;       XDDCMP - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - DDCMP TRANSMIT INTERRUPT ROUTINE
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;                       START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
                                        ;                               BE SENT.
                                        ;                       HEADER= FLAG WHICH IS SET AFTER THE DDCMP HEADER HAS
                                        ;                               BEEN TRANSMITTED
                                        ;                       DDCMP2= # OF DATA CHARACTERS IN THE DDCMP DATA MESSAGE
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                       XMITD = # OF DATA CHARACTERS TRANSMITTED
                                        ;                       RCOUNT= 0 (AFTER START OF MESSAGE TRANSMITTED)
                                        ;
                                        ;
                                        ;       USED IN TESTS: 41
                                        ;
                                        ;*****************************************************************

017620                                  BGNSRV  XDDCMP
017620                                                                                          XDDCMP::

017620  005737  002414                          TST     START           ;ANY STARTS LEFT TO SEND?
017624  001413                                  BEQ     10$             ;IF NOT, SKIP.
017626  012777  000400  162440                  MOV     #TSOM,@TDSR     ;SEND START OF MESSAGE.
017634  005337  002414                          DEC     START           ;DECREMENT COUNTER.
017640  001034                                  BNE     20$             ;
017642  005037  002476                          CLR     XMITD           ;CLEAR TRANSMIT COUNT.
017646  005037  002500                          CLR     RCOUNT          ;CLEAR RECEIVER COUNT.
017652  000427                                  BR      20$
017654                                  10$:
017654  042777  001400  162412                  BIC     #TEOM!TSOM,@TDSR ;CLEAR START OR END OF MESSAGE.
017662  112277  162406                          MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
017666  005237  002476                          INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
017672  005303                                  DEC     R3              ;DECREMENT COUNTER
017674  001016                                  BNE     20$
017676  052777  001000  162370                  BIS     #TEOM,@TDSR     ;TRANSMIT END OF MESSAGE.
017704  005737  002336                          TST     HEADER          ;IS THIS THE HEADER
017710  001005                                  BNE     15$             ;IF NOT, DISABLE THE TRANSMITTER
017712  005237  002336                          INC     HEADER          ;SET HEADER FLAG.
017716  012703  000015                          MOV     #DDCMP2,R3      ;COUNTER FOR THE MESSAGE
017722  000403                                  BR      20$
017724                                  15$:
017724  042777  000100  162340                  BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
017732                                  20$:


                                        ENDSRV
017732                                                                                          L10030:
017732  000002                                                                                          RTI
```

```
                                        ;*****************************************************************
                                        ;       NXM -   INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - NXM INTERRUPT ROUTINE.  THIS ROUTINE IS ASSIGNED
                                        ;                  TO VECTOR 4 WHEN ADDRESSING THE DPV FOR THE FIRST
                                        ;                  TIME.  IF THIS INTERRUPT IS GENERATED THE DPV IS
                                        ;                  INCORRECTLY ADDRESSED.
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                  NXMFLG= FLAG SET WHEN THIS INTERRUPT IS SERVICED.
                                        ;
                                        ;       USED IN TESTS:  AUTO DROP
                                        ;*****************************************************************

017734                                  BGNSRV  NXM
017734                                                                                  NXM::

017734  012737  000001  002366                  MOV     #1,NXMFLG               ;SET FLAG IF MEMORY IS NON-EXISTENT.

017742                                  ENDSRV
017742                                                                                  L10031:
017742  000002                                                                                  RTI
```

```
                                        ;*******************************************************************
                                        ;       ILLGL - INTERRUPT SERVICE ROUTINE
                                        ;
                                        ;       FUNCTION - ILLEGAL INSTRUCTION TRAP TO VECTOR 10
                                        ;                  THIS TRAP WILL OCCUR IF THE PROCESSOR IS AN
                                        ;                  LSI 11 OR LSI 11/2.  THIS TRAP IS USED TO
                                        ;                  AUTO SIZE FOR PROCESSOR TYPE IN THE
                                        ;                  INITIALIZATION SECTION.
                                        ;
                                        ;       ENTRY CONDTIONS
                                        ;
                                        ;       EXIT CONDITIONS
                                        ;                  R0 = 0
                                        ;
                                        ;       USED IN TESTS:  INIT CODE
                                        ;*******************************************************************

 017744                                 BGNSRV  ILLGL
 017744                                                                                  ILLGL::

 017744  005000                                 CLR     R0

 017746                                 ENDSRV
 017746                                                                                  L10032:
 017746  000002                                                                                  RTI
```

```
                                        .SBTTL  DROP UNIT SECTION

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

017750                                  BGNDU
017750                                                                                          L$DU::

                                                BRESET                  ;ISSUE LSI-BUS RESET TO CLEAN UP
017750  104433                                                                                          TRAP    C$RESET
017752                                          PRINTF  #FMDROP,LOGDEV
017752  013746  002354                                                                                  MOV     LOGDEV,-(SP)
017756  012746  020000                                                                                  MOV     #FMDROP,-(SP)
017762  012746  000002                                                                                  MOV     #2,-(SP)
017766  010600                                                                                          MOV     SP,R0
017770  104417                                                                                          TRAP    C$PNTF
017772  062706  000006                                                                                  ADD     #6,SP

017776                                  ENDDU
017776                                                                                          L10033:
017776  104453                                                                                          TRAP    C$DU

020000     045     116     045  FMDROP: .ASCIZ  /%N%AUNIT %D2%A DROPPED/
                                        .EVEN
```

```
                                .SBTTL          TEST 1 - CSR ADDRESSING
                                ;
                                ;*******************************************************************
                                ;*                TEST 1 - DPV-11
                                ;* VERIFY THAT ADDRESSING THE 4 LSI-BUS CSRS DOES NOT CAUSE A NON-
                                ;* EXISTENT MEMORY TRAP.
                                ;*
                                ;* THE DPV IS AN COMMUNICATION DEVICE RESIDING ON A LSI-BUS.
                                ;* COMMUNICATION BETWEEN THE MAIN CPU AND THE DPV IS ACCOMPLISHED
                                ;* THROUGH A SET OF FOUR 16-BIT LSI-BUS CONTROL AND STATUS REGISTERS
                                ;* (CSRS).  THE FOUR REGISTERS ARE ASSIGNED ADDRESSES IN THE I/O PAGE
                                ;* FLOATING ADDRESS SPACE: 76XXX0 - 76XXX6
                                ;*
                                ;* AN ERROR IN THIS TEST COULD MEAN THAT THE DEVICE IS INCORRECTLY
                                ;* CONFIGURED, THAT THE ADDRESS IS WRONG OR THAT THE CRYSTAL CLOCK
                                ;* ON THE DPV IS NOT WORKING.  THE SHIFT REGISTER CLOCK IS NEEDED
                                ;* FOR THE LS164 (E15) IN ORDER TO PROVIDE THE BUS REPLY (BRPLY/L ON
                                ;* PIN AF2).
                                ;*******************************************************************
020030                          BGNTST
020030                                                                          T1::

                                        SETVEC  #4,#LOCATE,#PRI06 ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.
020030  012746  000300                                                          MOV     #PRI06,-(SP)
020034  012746  020166                                                          MOV     #LOCATE,-(SP)
020040  012746  000004                                                          MOV     #4,-(SP)
020044  012746  000003                                                          MOV     #3,-(SP)
020050  104437                                                                  TRAP    C$SVEC
020052  062706  000010                                                          ADD     #10,SP
020056  005037  002366                  CLR     NXMFLG          ;FLAG USED IN THE TRAP ROUTINE.
020062  005001                          CLR     R1              ;USE REGISTER TO REMEMBER WHICH OF THE
                                                                ;4 CSRS WE ARE ADDRESSING.

                                ;;*******************************************************************
                                ; IF ADDRESSING ANY ONE OF THE CSRS RESULTS IN A TRAP TO VECTOR 04, THE TRAP
                                ; WILL REPORT THE ERROR (SEE INTERRUPT ROUTINE 'LOCATE').  OTHERWISE THE
                                ; MEMORY REFERENCE IS UNEVENTFUL AND THE DEVICE IS READY FOR FURTHER TESTS
                                ;;*******************************************************************

020064  005777  162176                  TST     @CSR0           ;TEST THE CSR AT 76XXX0
020070  012701  000002                  MOV     #2,R1           ;SAVE THE OFFSET OF THE NEXT CSR
020074  005777  162170                  TST     @CSR2           ;TEST THE CSR AT 76XXX2
020100  012701  000004                  MOV     #4,R1           ;SAVE THE OFFSET OF THE NEXT CSR
020104  005777  162162                  TST     @CSR4           ;TEST THE CSR AT 76XXX4
020110  012701  000006                  MOV     #6,R1           ;SAVE THE OFFSET OF THE NEXT CSR
020114  005777  162154                  TST     @CSR6           ;TEST THE CSR AT 76XXX6
020120  005737  002366                  TST     NXMFLG          ;WAS THERE A TRAP?
020124  001414                          BEQ     10$             ;IF NOT - EXIT.
020126                                  PRINTX  #FMT1           ;SUGGEST THE PROBLEM. (
020126  012746  020350                                                          MOV     #FMT1,-(SP)
020132  012746  000001                                                          MOV     #1,-(SP)
020136  010600                                                                  MOV     SP,R0
020140  104415                                                                  TRAP    C$PNTX
020142  062706  000004                                                          ADD     #4,SP
020146                                  DODU    LOGDEV          ;DROP THE DEVICE
020146  013700  002354                                                          MOV     LOGDEV,R0
020152  104451                                                                  TRAP    C$DODU
```

```
020154                                  DOCLN                   ;CLEAN UP CODE - FORCE BACK TO INIT.
020154  104444                                                                                  TRAP    C$DCLN

020156                          10$:
020156                                  CLRVEC  #4              ;RETURN VECTOR 04 TO NORMAL STATE
020156  012700  000004                                                                          MOV     #4,R0
020162  104436                                                                                  TRAP    C$CVEC

020164                          ENDTST
020164                                                                                  L10034:
020164  104401                                                                                  TRAP    C$ETST

020166                          BGNSRV  LOCATE                  ;INTERRUPT SERVICE ROUTINE
020166                                                                                  LOCATE::
020166  005737  002366                  TST     NXMFLG          ;HAVE WE HAD AT LEAST 1 PREVIOUS TRAP?
020172  001006                          BNE     10$             ;IF YES, DON'T BOTHER DECLARING ANOTHER

020174                                  ERRDF   9,EMT0          ;DEVICE FATAL ERROR
020174  104455                                                  ;NON-EXISTENT DEVICE ERROR                      TRAP    C$ERDF
020176  000011                                                                                  .WORD   9
020200  020240                                                                                  .WORD   EMT0
020202  000000                                                                                  .WORD   0
020204  005237  002366                  INC     NXMFLG          ;SET THE FLAG

020210                          10$:
020210                                  PRINTX  #FMT0,R1,CSR0(R1) ;PRINT THE CSR THAT DOESN'T RESPOND.
020210  016146  002266                                                                          MOV     CSR0(R1),-(SP)
020214  010146                                                                                  MOV     R1,-(SP)
020216  012746  020276                                                                          MOV     #FMT0,-(SP)
020222  012746  000003                                                                          MOV     #3,-(SP)
020226  010600                                                                                  MOV     SP,R0
020230  104415                                                                                  TRAP    C$PNTX
020232  062706  000010                                                                          ADD     #10,SP

020236                          ENDSRV
020236                                                                                  L10035:
020236  000002                                                                                  RTI

020240     103     123     122  EMT0:   .ASCIZ  /CSR ADDRESSING ERROR - TRAP 4/
020276     045     123     063  FMT0:   .ASCIZ  /%S3%ACSR%D1%A AT %O6%A DOES NOT RESPOND%N/
020350     045     101     050  FMT1:   .ASCIZ  /%A(CONFIGURATION ERROR  OR  NO BUS REPLY SIGNAL)%N2/
                                        .EVEN
```

```
                                .SBTTL          TEST 2 - DPV RESET

                                ;*****************************************************************
                                ;*              TEST 2 - DPV-11
                                ;* DPV RESET
                                ;* RESET THE DPV AND ENSURE THAT ALL REGISTERS ARE IN THEIR
                                ;* PROPER INITIALIZATION STATE.  THE RESET IS ASYNCHRONOUS TO ALL
                                ;* DATA SET TIMING AND ANY DATA PORT ACCESSES. THE FOLLOWING
                                ;* WILL BE CHECKED BY THE $RESET SUBROUTINE:
                                ;*      1. ALL BITS IN THE DATA PORT REGISTERS ARE CLEARED.
                                ;*      2. ALL OUTPUT INDICATORS ARE CLEARED.
                                ;*      3. TRANSMIT BUFFER EMPTY (TBE) IS SET
                                ;*
                                ;* SUBTEST 1 - AFTER RESET, CHECK THAT MAINTENANCE MODE AND
                                ;*             TRANSMITTER CAN BE SET. ALSO CHECK THAT TRANSMITTER
                                ;*             BUFFER EMPTY (TBE) IS CLEARED WHEN TDSR IS ACCESSED
                                ;*             WITHOUT SETTING TRANSMITTER ENABLE.
                                ;* SUBTEST 2 - ON THE FIRST PASS ONLY, CHECK THAT A BUS RESET, DOES
                                ;*             A DPV11 RESET.
                                ;*
                                ;* NOTE: DATA MODE, CTS, RR (RECEIVER READY) AND IC (INCOMING CALL)
                                ;*       ARE UNAFFECTED BY A RESET.
                                ;*
                                ;*****************************************************************
020434                          BGNTST
020434                                                                          T2::
020434                            BGNSUB
020434                                                                          T2.1:
020434  104402                                                                          TRAP    C$BSUB
020436                                  CALL    $RESET          ;RESET THE DPV
020442                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
020442  104410                                                                          TRAP    C$ESCAPE
020444  000212                                                                          .WORD   L10036-.
020446  005001                          CLR     R1              ;BITS SHOULD BE CLEAR.
020450  005077  161620                  CLR     @TDSR           ;CLEAR TBE
020454  005777  161612                  TST     @TXCSR          ;IS TBE CLEARED?
020460  001035                          BNE     10$             ;ERROR IF NOT CLEAR
020462  012701  000010                  MOV     #10,R1          ;REMEMBER BITS TO SET.
020466  050177  161600                  BIS     R1,@TXCSR       ;SET THOSE BITS
020472  020177  161574                  CMP     R1,@TXCSR       ;WERE THOSE BITS SET
020476  001026                          BNE     10$
020500  012701  000020                  MOV     #20,R1          ;NEXT BIT TO SET
020504  110177  161562                  MOVB    R1,@TXCSR
020510  020177  161556                  CMP     R1,@TXCSR
020514  001017                          BNE     10$
020516  012701  000030                  MOV     #30,R1
020522  112777  000030  161542          MOVB    #TXENA!MM,@TXCSR ;SET THE ENABLE AND MAINT. MODE.
020530  020177  161536                  CMP     R1,@TXCSR       ;ARE THOSE BITS SET?
020534  001007                          BNE     10$             ;BR IF IN ERROR.
020536  012701  000100                  MOV     #100,R1         ;SET TX INTERRUPT ENABLE.
020542  110177  161524                  MOVB    R1,@TXCSR       ;SET THE INTERRUPT BIT
020546  020177  161520                  CMP     R1,@TXCSR       ;IS THE BIT SET?
020552  001404                          BEQ     20$             ;IF YES - OK.
020554                          10$:
020554                                  ERRDF   10,EMG4,ERRG7
020554  104455                                                                          TRAP    C$ERDF
020556  000012                                                                          .WORD   10
```

```
        020560  013554                                                                    .WORD   EMG4
        020562  007172                                                                    .WORD   ERRG7
   3632 020564                          20$:
   3633 020564                            ENDSUB                                   L10037:
        020564                                                                            TRAP    C$ESUB
        020564  104403
   3634
   3635
   3636
   3637 020566                            BGNSUB                                   T2.2:
        020566                                                                            TRAP    C$BSUB
        020566  104402
   3638 020570  022737  000001  002314        CMP     #1,STARES       ;IS THIS THE FIRST PASS?
   3639 020576  001026                        BNE     30$             ;IF NOT - SKIP THIS TEST.
   3640 020600                                BRESET                  ;BUS RESET.
        020600  104433                                                                    TRAP    C$RESET
   3641 020602                                $DELAY  10              ;DELAY 1 MSEC.
                                                                      ;******** MACRO EXPANSION ********
        020602  004737  006604                JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
        020606  000010                                .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                      ;**********************************

   3642 020610  005001                        CLR     R1              ;EXPECT 0 IN ALL R/W REGISTERS
   3643 020612  105777  161450                TSTB    @RXCSR          ;IS THE RECEIVE CSR 0?
   3644 020616  001012                        BNE     20$             ;BRANCH ON ERROR.
   3645 020620  005777  161444                TST     @RDSR           ;EXPECT READ DATA/STATUS TO BE 0
   3646 020624  001007                        BNE     20$             ;BR IF NOT
   3647 020626  022777  000004  161436        CMP     #4,@TXCSR       ;EXPECT TBE TO BE SET.
   3648 020634  001003                        BNE     20$             ;BR IF NOT
   3649 020636  005777  161432                TST     @TDSR           ;EXPECT XMIT. DATA/STATUS TO BE 0.
   3650 020642  001404                        BEQ     30$             ;BRANCH IF OK.
   3651 020644                          20$:
   3652 020644                                ERRDF   11,EMG0,ERRG11  ;PRINT ERROR MESSAGE
        020644  104455                                                                    TRAP    C$ERDF
        020646  000013                                                                    .WORD   11
        020650  013372                                                                    .WORD   EMG0
        020652  007572                                                                    .WORD   ERRG11
   3653 020654                          30$:
   3654 020654                            ENDSUB                                   L10040:
        020654                                                                            TRAP    C$ESUB
        020654  104403
   3655
   3656 020656                          ENDTST                                     L10036:
        020656                                                                            TRAP    C$ETST
        020656  104401
```

```
                                .SBTTL          TEST 3 - CSR READ/WRITE

                                ;*****************************************************************
                                ;*              TEST 3 - DPV-11
                                ;* WRITE/READ DATA PATTERNS
                                ;* THIS TEST IS INTENDED TO TEST THE READ/WRITE BITS IN THE CSRS. THERE
                                ;* IS NO INTENTION TO CHECK THE USYNR/T; IT IS DESIRED TO ONLY CHECK THE
                                ;* READING AND WRITING OF THE CSRS.  IN ALL THE SUBTESTS THE BITS ARE
                                ;* CHECKED TOGETHER AND INDIVIDUALLY.
                                ;* SUBTEST 1 - RXCSR (LOW BYTE CSR0)
                                ;*             CHECK BITS 0-6
                                ;* SUBTEST 2 - PCR (HIGH BYTE CSR4)
                                ;*             CHECK BITS 0-7
                                ;* SUBTEST 3 - TDSR (LOW BYTE OF CSR6) - TRANSMIT DATA BUFFER
                                ;*             BITS 0-7
                                ;* SUBTEST 4 - TDSR (HIGH BYTE OF CSR6) - TRANSMIT STATUS REGISTER.
                                ;*             BITS 0-3
                                ;* SUBTEST 5 - TDSR  - CHECK BYTE OP SIGNAL FOR USYNRT
                                ;*
                                ;*****************************************************************
020660                          BGNTST
020660                                                                          T3::
020660                                  CALL    $RESET          ;RESET THE DPV
020664                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
020664  104410                                                                          TRAP    C$ESCAPE
020666  000520                                                                          .WORD   L10041-.

020670                          BGNSUB
020670                                                                          T3.1:
020670  104402                                                                          TRAP    C$BSUB
020672  012701  000001                  MOV     #BIT0,R1        ;START ROTATE PATTERN
020676  012702  000007                  MOV     #7,R2           ;COUNTER - WRITE INTO BITS 0-6.
020702                          10$:
020702  150177  161360                  BISB    R1,@RXCSR       ;WRITE BIT.
020706  120177  161354                  CMPB    R1,@RXCSR       ;IS THE BIT WRITTEN?
020712  001022                          BNE     20$             ;IF NOT - REPORT IT.
020714  006101                          ROL     R1              ;ROTATE THE BIT PATTERN.
020716  105077  161344                  CLRB    @RXCSR          ;CLEAR REGISTER
020722  005302                          DEC     R2
020724  001366                          BNE     10$             ;CONTINUE UNTIL DONE.

020726  012701  000137                  MOV     #137,R1         ;WRITE ALL BITS EXCEPT MODEM CONTROL INT.
                                                                ;MODEM CONTROL NOT WRITTEN BECAUSE WE DON'T
                                                                ;WANT TO ACTUALLY GENERATE AN INTERRUPT.
020732  110177  161330                  MOVB    R1,@RXCSR       ;WRITE BITS.
020736  120177  161324                  CMPB    R1,@RXCSR       ;IS THE PATTERN WRITTEN?
020742  001006                          BNE     20$             ;IF NOT REPORT IT
020744  005001                          CLR     R1              ;REMEMBER DATA PATTERN
020746  105077  161314                  CLRB    @RXCSR          ;CLEAR THOSE BITS.
020752  105777  161310                  TSTB    @RXCSR          ;ARE THOSE BITS CLEARED?
020756  001404                          BEQ     30$             ;IF YES, OK.
020760                          20$:
020760                                  ERRDF   12,EMG4,ERRG4
020760  104455                                                                          TRAP    C$ERDF
020762  000014                                                                          .WORD   12
020764  013554                                                                          .WORD   EMG4
020766  007072                                                                          .WORD   ERRG4
```

```
020770                                  30$:
020770  105077  161272                          CLRB    @RXCSR          ;CLEAR THE REGISTER

020774                                  ENDSUB
020774                                                                                  L10042:
020774  104403                                                                                  TRAP    C$ESUB

020776                                  BGNSUB
020776                                                                                  T3.2:
020776  104402                                                                                  TRAP    C$BSUB
021000  012701  000377                          MOV     #377,R1         ;WRITE DATA PATTERN
021004  110177  161272                          MOVB    R1,@PCR         ;WRITE THE PATTERN.
021010  120177  161266                          CMPB    R1,@PCR         ;IS THE PATTERN WRITTEN?
021014  001025                                  BNE     20$             ;IF NOT REPORT IT
021016  005001                                  CLR     R1              ;REMEMBER THE DATA PATTERN
021020  105077  161256                          CLRB    @PCR            ;CLEAR THOSE BITS
021024  105777  161252                          TSTB    @PCR            ;WERE THE BITS CLEARED?
021030  001017                                  BNE     20$             ;IF NOT - REPORT IT
021032  012701  000001                          MOV     #BIT0,R1        ;START ROTATE PATTERN
021036  012702  000006                          MOV     #6,R2           ;ROTATE THE BIT 4 TIMES
021042                                  10$:
021042  150177  161234                          BISB    R1,@PCR         ;WRITE PATTERN
021046  120177  161230                          CMPB    R1,@PCR         ;IS THE PATTERN WRITTEN?
021052  001006                                  BNE     20$             ;IF NOT - REPORT IT.
021054  006101                                  ROL     R1              ;ROTATE THE PATTERN
021056  105077  161220                          CLRB    @PCR            ;CLEAR THE PCR.
021062  005302                                  DEC     R2
021064  001366                                  BNE     10$             ;CONTINUE UNTIL DONE.
021066  000404                                  BR      30$             ;EXIT - WHEN DONE
021070                                  20$:
021070                                          ERRDF   13,EMG4,ERRG8
021070  104455                                                                                  TRAP    C$ERDF
021072  000015                                                                                  .WORD   13
021074  013554                                                                                  .WORD   EMG4
021076  007272                                                                                  .WORD   ERRG8
021100                                  30$:
021100  105077  161176                          CLRB    @PCR            ;CLEAR THE PCR

021104                                  ENDSUB
021104                                                                                  L10043:
021104  104403                                                                                  TRAP    C$ESUB

021106                                  BGNSUB
021106                                                                                  T3.3:
021106  104402                                                                                  TRAP    C$BSUB

021110  012701  000377                          MOV     #377,R1         ;WRITE DATA PATTERN
021114  110177  161154                          MOVB    R1,@TDSR        ;WRITE THE PATTERN.
021120  120177  161150                          CMPB    R1,@TDSR        ;IS THE PATTERN WRITTEN?
021124  001025                                  BNE     20$             ;IF NOT REPORT IT
021126  005001                                  CLR     R1              ;REMEMBER DATA PATTERN
021130  105077  161140                          CLRB    @TDSR           ;CLEAR THOSE BITS
021134  105777  161134                          TSTB    @TDSR           ;IS THE DATA CLEAR?
021140  001017                                  BNE     20$             ;IF NOT - REPORT IT.
021142  012701  000001                          MOV     #BIT0,R1        ;START ROTATE PATTERN
021146  012702  000006                          MOV     #6,R2           ;ROTATE THE BIT 4 TIMES
```

```
021152                          10$:
021152  150177  161116                  BISB    R1,@TDSR        ;WRITE PATTERN
021156  120177  161112                  CMPB    R1,@TDSR        ;IS THE PATTERN WRITTEN?
021162  001006                          BNE     20$             ;IF NOT - REPORT IT.
021164  105077  161104                  CLRB    @TDSR           ;CLEAR THE DATA.
021170  006101                          ROL     R1              ;ROTATE THE PATTERN
021172  005302                          DEC     R2
021174  001366                          BNE     10$             ;CONTINUE UNTIL DONE.
021176  000404                          BR      30$             ;EXIT - WHEN DONE
021200                          20$:
021200                                  ERRDF   14,EMG4,ERRG9                                   TRAP    C$ERDF
021200  104455                                                                                  .WORD   14
021202  000016                                                                                  .WORD   EMG4
021204  013554                                                                                  .WORD   ERRG9
021206  007372
021210                          30$:
021210  105077  161060                  CLRB    @TDSR           ;CLEAR THE TDSR

                                ENDSUB                                                  L10044:
021214                                                                                          TRAP    C$ESUB
021214
021214  104403

                                BGNSUB                                                  T3.4:
021216                                                                                          TRAP    C$BSUB
021216
021216  104402
021220  012701  000017                  MOV     #17,R1          ;WRITE DATA PATTERN
021224  110177  161054                  MOVB    R1,@CSR7        ;WRITE THE PATTERN.
021230  120177  161050                  CMPB    R1,@CSR7        ;IS THE PATTERN WRITTEN?
021234  001025                          BNE     20$             ;IF NOT REPORT IT
021236  005001                          CLR     R1              ;REMEMBER DATA PATTERN.
021240  105077  161040                  CLRB    @CSR7           ;CLEAR THOSE BITS
021244  105777  161034                  TSTB    @CSR7           ;ARE THE STATUS BITS CLEAR?
021250  001017                          BNE     20$             ;IF NOT - REPORT IT.
021252  012701  000001                  MOV     #BIT0,R1        ;START ROTATE PATTERN
021256  012702  000003                  MOV     #3,R2           ;ROTATE THE BIT 4 TIMES
021262                          10$:
021262  150177  161016                  BISB    R1,@CSR7        ;WRITE PATTERN
021266  120177  161012                  CMPB    R1,@CSR7        ;IS THE PATTERN WRITTEN?
021272  001006                          BNE     20$             ;IF NOT - REPORT IT.
021274  105077  161004                  CLRB    @CSR7           ;CLEAR STATUS BITS.
021300  006101                          ROL     R1              ;ROTATE THE PATTERN
021302  005302                          DEC     R2
021304  001366                          BNE     10$             ;CONTINUE UNTIL DONE.
021306  000404                          BR      30$             ;EXIT - WHEN DONE
021310                          20$:
021310                                  ERRDF   15,EMG4,ERRG10                                  TRAP    C$ERDF
021310  104455                                                                                  .WORD   15
021312  000017                                                                                  .WORD   EMG4
021314  013554                                                                                  .WORD   ERRG10
021316  007472
021320                          30$:
021320  105077  160760                  CLRB    @CSR7           ;CLEAR THE XMIT STATUS REG.

                                ENDSUB                                                  L10045:
021324                                                                                          TRAP    C$ESUB
021324
021324  104403
```

```
3795
3796 021326                                BGNSUB
     021326                                                                                    T3.5:
     021326  104402                                                                                  TRAP    C$BSUB
3797 021330  012777  007777  160736          MOV     #7777,@TDSR     ;WRITE TO TDSR
3798 021336  105077  160742                  CLRB    @CSR7           ;CLEAR ONLY THE HIGH BYTE.
3799 021342  105777  160726                  TSTB    @CSR6           ;SEE IF THE LOW BYTE WAS ALSO CLEARED
3800 021346  001016                          BNE     10$             ;IF NOT, BYTE OP IS OK.
3801 021350  012701  000377                  MOV     #377,R1         ;DATA FOR ERROR PRINT OUT.
3802 021354                                  ERRDF   16,EMG4,ERRG9   ;PRINT ERROR
     021354  104455                                                                                  TRAP    C$ERDF
     021356  000020                                                                                  .WORD   16
     021360  013554                                                                                  .WORD   EMG4
     021362  007372                                                                                  .WORD   ERRG9
3803 021364                                  PRINTX  #FMG30          ;ALSO WARN THAT BYTE OP MAY BE STUCK LOW.
     021364  012746  013314                                                                          MOV     #FMG30,-(SP)
     021370  012746  000001                                                                          MOV     #1,-(SP)
     021374  010600                                                                                  MOV     SP,R0
     021376  104415                                                                                  TRAP    C$PNTX
     021400  062706  000004                                                                          ADD     #4,SP
3804 021404                              10$:
3805
3806 021404                                ENDSUB
     021404                                                                                    L10046:
     021404  104403                                                                                  TRAP    C$ESUB
3807
3808 021406                              ENDTST
     021406                                                                                    L10041:
     021406  104401                                                                                  TRAP    C$ETST
3809
3810
3811
```

```
                                        .SBTTL          TEST 4 - TRANSMIT ENABLE

                                        ;*******************************************************************
                                        ;*              TEST 4 - DMR-11
                                        ;* TRANSMIT ENABLE/ TRANSMIT ACTIVE
                                        ;* AFTER A DEVICE RESET, SET TRANSMIT START OF MESSAGE (TSOM).  ENSURE
                                        ;* THAT TRANSMIT ACTIVE (TXACT) IS SET.
                                        ;*
                                        ;* TXACT IS USED TO INDICATE THE CURRENT STATE OF THE TRANSMITTER
                                        ;* DATA PATH.  THIS BIT WILL BE ASSERTED WHEN BOTH THE TRANSMITTER IS
                                        ;* ENABLED AND TSOM ARE INTERNALLY SYNCHRONIZED.  TXACT WILL BE CLEARED
                                        ;* UPON RESET OR WHEN THE TRANSMITTER ENTERS THE IDLE STATE.
                                        ;*
                                        ;*******************************************************************
 021410                                 BGNTST
 021410                                                                                         T4::

 021410                                   BGNSUB
 021410                                                                                         T4.1:
 021410  104402                                                                                         TRAP    C$BSUB
 021412                                         CALL    $RESET          ;RESET THE DPV
 021416                                         ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 021416  104410                                                                                         TRAP    C$ESCAPE
 021420  000330                                                                                         .WORD   L10047-.
 021422  005737  002306                         TST     TURN            ;TURNAROUND?
 021426  001003                                 BNE     5$              ;BR IF EXTERNAL.
 021430  052777  000010  160634                 BIS     #MM,@TXCSR      ;SET MAINTENANCE MODE.
 021436                                 5$:
 021436  052777  000020  160626                 BIS     #TXENA,@TXCSR   ;ENABLE THE TRANSMITTER.
 021444  052777  000400  160622                 BIS     #TSOM,@TDSR     ;TRANSMIT START OF MESSAGE.
 021452                                         WAIT    TBE             ;WAIT FOR TBE TO BE SET.
                                                                        ;******** MACRO EXPANSION ********
 021452  004737  003724                         JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
 021456  000004                                         .WORD   TBE     ;WAIT FOR TBE TO BE SET
 021460  002272                                         .WORD   TXCSR   ;IN TRANSMITTER  CSR.
                                                                        ;*********************************

 021462                                         ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
 021462  104410                                                                                         TRAP    C$ESCAPE
 021464  000264                                                                                         .WORD   L10047-.
 021466  032777  000002  160576                 BIT     #TXACT,@TXCSR   ;IS THE TRANSMITTER ACTIVE?
 021474  001011                                 BNE     10$             ;IF YES - OK.
 021476  017701  160570                         MOV     @TXCSR,R1       ;SAVE THE TRANSMIT STATUS
 021502  052701  000020                         BIS     #TXENA,R1       ;EXPECT TXENA TO BE SET.
 021506                                         ERRDF   17,EMG5,ERRG7
 021506  104455                                                                                         TRAP    C$ERDF
 021510  000021                                                                                         .WORD   17
 021512  013601                                                                                         .WORD   EMG5
 021514  007172                                                                                         .WORD   ERRG7
 021516  000425                                 BR      20$             ;SKIP THE REST OF THE SUBTEST.

 021520                                 10$:
 021520  005077  160550                         CLR     @TDSR           ;CLEAR TSOM
 021524  042777  000020  160540                 BIC     #TXENA,@TXCSR   ;DISABLE THE TRANSMITTER
 021532                                         WAIT    TBE             ;WAIT FOR TBE TO BE SET.
```

```
      021532  004737  003724                  JSR     PC,$WAIT          ;******** MACRO EXPANSION ********
      021536  000004                                  .WORD   TBE       ;CALL WAIT ROUTINE -
      021540  002272                                  .WORD   TXCSR     ;WAIT FOR TBE TO BE SET
                                                                        ;IN TRANSMITTER  CSR.
                                                                        ;**********************************
3852  021542                                  ESCAPE  TST               ;IF ERROR, BRANCH TO END OF TEST.
      021542  104410                                                                          TRAP    C$ESCAPE
      021544  000204                                                                          .WORD   L10047-.
3853  021546  032777  000002  160516          BIT     #TXACT,@TXCSR     ;IS THE TRANSMITTER INACTIVE?
3854  021554  001406                          BEQ     20$               ;IF YES - OK.
3855  021556  012701  000004                  MOV     #TBE,R1           ;EXPECT ONLY TBE TO BE SET.
3856  021562                                  ERRDF   18,EMG6,ERRG7
      021562  104455                                                                          TRAP    C$ERDF
      021564  000022                                                                          .WORD   18
      021566  013634                                                                          .WORD   EMG6
      021570  007172                                                                          .WORD   ERRG7
3857
3858  021572                          20$:
3859  021572                                  ESCAPE TST                ;IF ERROR, BRANCH TO END OF TEST
      021572  104410                                                                          TRAP    C$ESCAPE
      021574  000154                                                                          .WORD   L10047-.
3860
3861  021576                          ENDSUB
      021576                                                                          L10050:
      021576  104403                                                                          TRAP    C$ESUB
3862
3863
3864  021600                          BGNSUB
      021600                                                                          T4.2:
      021600  104402                                                                          TRAP    C$BSUB
3865  021602                                  CALL    $RESET            ;RESET THE DPV
3866  021606                                  ESCAPE  TST               ;IF ERROR, EXIT THE TEST
      021606  104410                                                                          TRAP    C$ESCAPE
      021610  000140                                                                          .WORD   L10047-.
3867  021612  005737  002306                  TST     TURN              ;TURNAROUND?
3868  021616  001003                          BNE     5$                ;BR IF EXTERNAL.
3869  021620  052777  000010  160444          BIS     #MM,@TXCSR        ;SET MAINTENANCE MODE.
3870  021626                          5$:
3871  021626  052777  000020  160436          BIS     #TXENA,@TXCSR     ;ENABLE THE TRANSMITTER.
3872  021634  052777  000400  160432          BIS     #TSOM,@TDSR       ;TRANSMIT START OF MESSAGE.
3873  021642                                  WAIT    TBE               ;WAIT FOR TBE TO BE SET.

                                                                        ;******** MACRO EXPANSION ********
      021642  004737  003724                  JSR     PC,$WAIT          ;CALL WAIT ROUTINE -
      021646  000004                                  .WORD   TBE       ;WAIT FOR TBE TO BE SET
      021650  002272                                  .WORD   TXCSR     ;IN TRANSMITTER  CSR.
                                                                        ;**********************************
3874  021652                                  ESCAPE  TST               ;IF ERROR, BRANCH TO END OF TEST.
      021652  104410                                                                          TRAP    C$ESCAPE
      021654  000074                                                                          .WORD   L10047-.
3875  021656  032777  000002  160406          BIT     #TXACT,@TXCSR     ;IS THE TRANSMITTER ACTIVE?
3876  021664  001010                          BNE     10$               ;IF YES - OK.
3877  021666  017701  160400                  MOV     @TXCSR,R1         ;SAVE THE TRANSMIT STATUS
3878  021672  052701  000020                  BIS     #TXENA,R1         ;EXPECT TXENA TO BE SET.
3879  021676                                  ERRDF   19,EMG5,ERRG7
```

```
        021676  104455                                                                                  TRAP    C$ERDF
        021700  000023                                                                                  .WORD   19
        021702  013601                                                                                  .WORD   EMG5
        021704  007172                                                                                  .WORD   ERRG7
  3880
  3881 021706                          10$:
  3882 021706                                  CALL    $RESET          ;RESET THE DPV
  3883 021712                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
        021712  104410                                                                                  TRAP    C$ESCAPE
        021714  000034                                                                                  .WORD   L10047-.
  3884 021716  032777  000002  160346         BIT     #TXACT,@TXCSR   ;IS THE TRANSMIITER INACTIVE?
  3885 021724  001406                          BEQ     20$             ;IF YES - OK.
  3886 021726  012701  000004                  MOV     #TBE,R1         ;EXPECT ONLY TBE TO BE SET.
  3887 021732                                  ERRDF   20,EMG6,ERRG7
        021732  104455                                                                                  TRAP    C$ERDF
        021734  000024                                                                                  .WORD   20
        021736  013634                                                                                  .WORD   EMG6
        021740  007172                                                                                  .WORD   ERRG7
  3888
  3889 021742                          20$:
  3890 021742                                  ESCAPE TST              ;IF ERROR, BRANCH TO END OF TEST
        021742  104410                                                                                  TRAP    C$ESCAPE
        021744  000004                                                                                  .WORD   L10047-.
  3891
  3892 021746                            ENDSUB
        021746                                                                                  L10051:
        021746  104403                                                                                  TRAP    C$ESUB
  3893
  3894
  3895 021750                          ENDTST
        021750                                                                                  L10047:
        021750  104401                                                                                  TRAP    C$ETST
  3896
  3897
  3898
```

```
                                .SBTTL          TEST 5 - TRANSMIT BUFFER EMPTY

                                ;*******************************************************************
                                ;*              TEST 5 - DPV-11
                                ;* TRANSMIT BUFFER EMPTY
                                ;* VERIFY THAT TBE (TRANSMIT BUFFER EMPTY) IS ASSERTED WHENEVER
                                ;* THE DEVICE IS RESET OR WHENEVER THE TDSR IS AVAILABLE FOR DATA.
                                ;* TBE IS CLEARED AFTER WRITING TO THE TDSR.
                                ;*
                                ;*******************************************************************

021752                          BGNTST
021752                                                                          T5::

                                  BGNSUB
021752                                                                          T5.1:
021752  104402                                                                          TRAP    C$BSUB
021754                                  CALL    $RESET          ;RESET THE DPV
021760                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
021760  104410                                                                          TRAP    C$ESCAPE
021762  000220                                                                          .WORD   L10052-.
021764  005077  160304                  CLR     @TDSR           ;WRITE TO THE TDSR.
021770                                  DELAY   5               ;DELAY 500 MICROSECONDS.  THIS WILL
021770  012727  000005                                                                  MOV     #5,(PC)+
021774  000000                                                                          .WORD   0
021776  013727  002116                                                                  MOV     L$DLY,(PC)+
022002  000000                                                                          .WORD   0
022004  005367  177772                                                                  DEC     -6(PC)
022010  001375                                                                          BNE     .-4
022012  005367  177756                                                                  DEC     -22(PC)
022016  001367                                                                          BNE     .-20
                                                                        ;US TO ENSURE THAT TBE IS NOT
                                                                        ;REASSERTED.  BECAUSE THE TRANSMITTER
                                                                        ;IS IDLE, TBE SHOULD STAY LOW.
022020  032777  000004  160244          BIT     #TBE,@TXCSR     ;IS TBE CLEARED?
022026  001410                          BEQ     10$             ;IF YES - OK
022030  017701  160240                  MOV     @TDSR,R1        ;SAVE THE TRANSMIT DATA/STATUS REG.
022034  042701  000004                  BIC     #TBE,R1         ;PUT EXPECTED RESULT IN R1 FOR MSG.
022040                                  ERRDF   21,EMG7,ERRG7
022040  104455                                                                          TRAP    C$ERDF
022042  000025                                                                          .WORD   21
022044  013671                                                                          .WORD   EMG7
022046  007172                                                                          .WORD   ERRG7
022050                          10$:
022050                            ENDSUB
022050                                                                          L10053:
022050  104403                                                                          TRAP    C$ESUB

022052                            BGNSUB
022052                                                                          T5.2:
022052  104402                                                                          TRAP    C$BSUB
022054                                  CALL    $RESET          ;RESET THE DPV
022060                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
022060  104410                                                                          TRAP    C$ESCAPE
022062  000120                                                                          .WORD   L10052-.
022064  005737  002306                  TST     TURN            ;TURNAROUND?
```

```
022070  001003                          BNE     1$                  ;BR IF EXTERNAL.
022072  052777  000010  160172          BIS     #MM,@TXCSR          ;SET MAINTENANCE MODE.
022100                          1$:
022100  052777  000020  160164          BIS     #TXENA,@TXCSR       ;ENABLE THE TRANSMITTER.
022106  012777  000400  160160          MOV     #TSOM,@TDSR         ;TRANSMIT START OF MESSAGE.
022114                                  WAIT    TBE                 ;WAIT FOR TBE TO BE SET.
                                                                    ;******** MACRO EXPANSION ********
022114  004737  003724                  JSR     PC,$WAIT            ;CALL WAIT ROUTINE -
022120  000004                                  .WORD   TBE         ;WAIT FOR TBE TO BE SET
022122  002272                                  .WORD   TXCSR       ;IN TRANSMITTER  CSR.
                                                                    ;**********************************
022124                                  ESCAPE  TST                 ;IF ERROR, BRANCH TO END OF TEST.
022124  104410                                                                          TRAP    C$ESCAPE
022126  000054                                                                          .WORD   L10052-.
022130  012777  000014  160136          MOV     #14,@TDSR           ;TRANSMIT 1ST CHARACTER.
022136                                  WAIT    TBE                 ;WAIT FOR TBE TO BE SET.
                                                                    ;******** MACRO EXPANSION ********
022136  004737  003724                  JSR     PC,$WAIT            ;CALL WAIT ROUTINE -
022142  000004                                  .WORD   TBE         ;WAIT FOR TBE TO BE SET
022144  002272                                  .WORD   TXCSR       ;IN TRANSMITTER  CSR.
                                                                    ;**********************************
022146                                  ESCAPE  TST                 ;IF ERROR, BRANCH TO END OF TEST.
022146  104410                                                                          TRAP    C$ESCAPE
022150  000032                                                                          .WORD   L10052-.
022152  012701  001000                  MOV     #1000,R1            ;SET UP COUNTER
022156                          5$:
022156  005777  160112                  TST     @TDSR               ;CHECK FOR TRANSMIT ERROR.
022162  100406                          BMI     10$                 ;WHEN SET OK.
022164  005301                          DEC     R1                  ;DECREMENT COUNTER.
022166  001373                          BNE     5$                  ;CONTINUE UNTIL COUNTER 0
022170                                  ERRDF   22,EMG8,ERRG2
022170  104455                                                                          TRAP    C$ERDF
022172  000026                                                                          .WORD   22
022174  013707                                                                          .WORD   EMG8
022176  006700                                                                          .WORD   ERRG2
022200                          10$:
022200                            ENDSUB
022200                                                                          L10054:
022200  104403                                                                          TRAP    C$ESUB

022202                          ENDTST
022202                                                                          L10052:
022202  104401                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 6 - TRANSMIT INTERRUPT

                                        ;*******************************************************************
                                        ;*              TEST 6 - DPV-11
                                        ;* TRANSMIT INTERRUPT
                                        ;* VERIFY THAT A TRANSMIT INTERRUPT IS RECEIVED WHEN TRANSMIT
                                        ;* BUFFER EMPTY (TBE) IS ASSERTED.
                                        ;*
                                        ;*******************************************************************
022204                                  BGNTST
022204                                                                                          T6::

022204                                          CALL    $RESET          ;RESET THE DPV
022210                                          ESCAPE  TST             ;IF ERROR, EXIT THF TEST
022210  104410                                                                                  TRAP    C$ESCAPE
022212  000146                                                                                  .WORD   L10055-.
022214  005037  002424                          CLR     TFLAG           ;CLEAR THE FLAG USED IN THE INTERRUPT ROUTINE.

022220                                          SETVEC  XMTVEC,#XINT,#PRI04
022220  012746  000200                                                                          MOV     #PRI04,-(SP)
022224  012746  017232                                                                          MOV     #XINT,-(SP)
022230  013746  002264                                                                          MOV     XMTVEC,-(SP)
022234  012746  000003                                                                          MOV     #3,-(SP)
022240  104437                                                                                  TRAP    C$SVEC
022242  062706  000010                                                                          ADD     #10,SP
022246                                          SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
022246  012700  000000                                                                          MOV     #PRI00,R0
022252  104441                                                                                  TRAP    C$SPRI
                                                                        ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                        ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                        ;LEVEL 4-7.
                                                                        ;SET UP INTERRUPT VECTOR

022254  052777  000120  160010                  BIS     #TXENA!TXIE,@TXCSR ;SET THE INTERRUPT ENABLE AND ENABLE
                                                                        ;THE TRANSMITTER.
022262  005000                                  CLR     R0              ;TIMER FOR LOOP
022264                                  10$:
022264  005737  002424                          TST     TFLAG           ;WAS THE INTERRUPT RECEIVED?
022270  001006                                  BNE     20$             ;IF YES - OK.
022272  005300                                  DEC     R0              ;DECREMENT TIMER.
022274  001373                                  BNE     10$             ;KEEP CHECKING UNTIL THE TIMER EXPIRES.
022276                                          ERRDF   23,EMG9,ERRG2   ;ERROR MESSAGE XMIT NOT RECEIVED.
022276  104455                                                                                  TRAP    C$ERDF
022300  000027                                                                                  .WORD   23
022302  013723                                                                                  .WORD   EMG9
022304  006700                                                                                  .WORD   ERRG2
022306                                  20$:
022306  005037  002424                          CLR     TFLAG           ;CLEAR THE FLAG
022312  012777  000001  157752                  MOV     #RESET,@TXCSR   ;RESET THE DPV
022320                                          $DELAY  1               ;WAIT FOR 100 MICROSECONDS.

                                                                        ;******** MACRO EXPANSION ********
022320  004737  006604                          JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
022324  000001                                                  .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                        ;*********************************
```

```
022326  005737  002334                    TST     FLAG            ;WAS AN INTERRUPT RECEIVED
022332  001404                            BEQ     30$             ;IF NOT - OK. (RESET SHOULD CLEAR INT ENABLE)
022334                                    ERRDF   24,EMG10,ERRG2  ;ERROR MESSAGE - TRANMSIT INT RECEIVED
022334  104455                                                                    TRAP    C$ERDF
022336  000030                                                                    .WORD   24
022340  013757                                                                    .WORD   EMG10
022342  006700                                                                    .WORD   ERRG2
022344                            30$:
022344                                    SETPRI  #PRI06          ;SET PROCESSOR PRIORITY TO 6 (FOR
022344  012700  000300                                                            MOV     #PRI06,R0
022350  104441                                                                    TRAP    C$SPRI
                                                                  ;LSI 11/03 THIS WILL DISABLE INTERRUPTS)
022352                                    CLRVEC  XMTVEC          ;RESTORE THE XMIT INTERRUPT VECTOR
022352  013700  002264                                                            MOV     XMTVEC,R0
022356  104436                                                                    TRAP    C$CVEC
                                  ENDTST
022360                                                                    L10055:
022360
022360  104401                                                                    TRAP    C$ETST
```

```
                                .SBTTL          TEST 7 - RECEIVER ENABLE

                                ;*****************************************************************
                                ;*              TEST 7 - DPV-11
                                ;* RECEIVER ENABLE, RECEIVER ACTIVE AND RECEIVER DATA READY
                                ;*              MODE: BCP, 8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK
                                ;* ENABLE THE RECEIVER. AFTER TRANSMITTING A CHARACTER WAIT FOR
                                ;* RECEIVER DATA AVAILABLE AND CHECK THAT THE RECEIVER IS ACTIVE.
                                ;* AFTER CLEARING RECEIVER ENABLE, ENSURE THAT THE RECEIVER IS INACTIVE.
                                ;*
                                ;* RECEIVER ENABLE - CONTROLS THE OPERATION OF THE RECEIVER DATA PATH (RDP)
                                ;* RECEIVER ACTIVE - THIS OUTPUT IS ASSERTED WHEN THE RDP PRESENTS THE 1ST
                                ;*                   DATA CHARACTER OF A MESSAGE TO THE USYNRT.  IT REMAINS
                                ;*                   ASSERTED UNTIL THE RDP ENTERS THE IDLE STATE..
                                ;* RECEIVE DATA    - THIS OUTPUT IS SET WHEN THE RDP HAS ASSEMBLED A DATA
                                ;*                   CHARACTER THAT IS READY TO BE PRESENTED.
                                ;*****************************************************************
022362                          BGNTST
022362                                                                                  T7::

022362                                  CALL    $RESET          ;RESET THE DPV
022366                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
022366  104410                                                                          TRAP    C$ESCAPE
022370  000222                                                                          .WORD   L10056-.
022372  012777  040252  157670          MOV     #40252,@PCSAR   ;SET BCP MODE AND SYNCH CHARACTER.
022400  012777  000020  157660          MOV     #RXENA,@RXCSR   ;ENABLE THE RECEIVER.
022406  012777  000030  157656          MOV     #TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER
                                                                ;SELECT THE MAINTENANCE LOOPBACK.
022414  052777  000400  157652          BIS     #TSOM,@TDSR     ;TRANSMIT START OF MESSAGE
022422                                  WAIT    TBE             ;WAIT FOR TBE TO BE SET.

                                                                ;******** MACRO EXPANSION ********
022422  004737  003724                  JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
022426  000004                                  .WORD   TBE     ;WAIT FOR TBE TO BE SET
022430  002272                                  .WORD   TXCSR   ;IN TRANSMITTER  CSR.
                                                                ;*********************************

022432                                  ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
022432  104410                                                                          TRAP    C$ESCAPE
022434  000156                                                                          .WORD   L10056-.
022436  032777  004200  157622          BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
022444  001056                          BNE     20$                     ;IF SET, REPORT ERROR.
022446  052777  000400  157620          BIS     #TSOM,@TDSR     ;RETRANSMIT START OF MESSAGE.
022454                                  WAIT    TBE             ;WAIT FOR TBE TO BE SET.

                                                                ;******** MACRO EXPANSION ********
022454  004737  003724                  JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
022460  000004                                  .WORD   TBE     ;WAIT FOR TBE TO BE SET
022462  002272                                  .WORD   TXCSR   ;IN TRANSMITTER  CSR.
                                                                ;*********************************

022464                                  ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
022464  104410                                                                          TRAP    C$ESCAPE
022466  000124                                                                          .WORD   L10056-.
022470  032777  004200  157570          BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
022476  001041                          BNE     20$                     ;IF SET, REPORT ERROR.
022500  012777  000123  157566          MOV     #123,@TDSR      ;TRANSMIT THE FIRST DATA CHARACTER.
```

```
4050 022506                                WAIT    RDATRY          ;WAIT FOR RECEIVE DATA.

                                                                   ;******** MACRO EXPANSION ********
     022506  004737  003724                JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
     022512  000200                                .WORD   RDATRY  ;WAIT FOR BIT TO BE SET
     022514  002266                                .WORD   RXCSR   ;IN RECEIVER  CSR.
                                                                   ;*********************************

4051 022516                                ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
     022516  104410                                                                                TRAP    C$ESCAPE
     022520  000072                                                                                .WORD   L10056-.
4052 022522  032777  004000  157536        BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
4053 022530  001005                        BNE     10$             ;IF YES - OK.
4054 022532                                ERRDF   25,EMG12,ERRG2
     022532  104455                                                                                TRAP    C$ERDF
     022534  000031                                                                                .WORD   25
     022536  014062                                                                                .WORD   EMG12
     022540  006700                                                                                .WORD   ERRG2
4055 022542  000423                        BR      30$
4056 022544                          10$:
4057 022544  042777  000020  157514        BIC     #RXENA,@RXCSR   ;DISABLE THE RECEIVER
4058 022552                                $DELAY  4               ;DELAY TO ALLOW DISABLE.

                                                                   ;******** MACRO EXPANSION ********
     022552  004737  006604                JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
     022556  000004                                .WORD   4       ;NUMBER OF DELAY LOOPS
                                                                   ;*********************************

4059 022560  032777  004200  157500        BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
4060 022566  001411                        BEQ     30$             ;IF CLEAR OK
4061 022570                                ERRDF   26,EMG13,ERRG2
     022570  104455                                                                                TRAP    C$ERDF
     022572  000032                                                                                .WORD   26
     022574  014106                                                                                .WORD   EMG13
     022576  006700                                                                                .WORD   ERRG2
4062 022600  000404                        BR      30$
4063 022602                          20$:
4064 022602                                ERRDF   27,EMG14,ERRG2
     022602  104455                                                                                TRAP    C$ERDF
     022604  000033                                                                                .WORD   27
     022606  014167                                                                                .WORD   EMG14
     022610  006700                                                                                .WORD   ERRG2
4065 022612                          30$:
4066
4067 022612                          ENDTST
     022612                                                                                L10056:
     022612  104401                                                                                TRAP    C$ETST
4068
4069
4070
```

```
                                        .SBTTL          TEST 8 - RECEIVE DATA INTERRUPT

                                        ;*****************************************************************
                                        ;*              TEST 8 - DPV-11
                                        ;* RECEIVE DATA INTERRUPT
                                        ;*              MODE: BCP, 8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK
                                        ;* ENABLE THE RECEIVER AND SET RECEIVER INTERRUPT. TRANSMIT DATA.
                                        ;* CHECK THAT THE RECEIVE INTERUPT WAS GENERATED. AFTER THE INTERUPT
                                        ;* WAS GENERATED DISABLE THE RECEIVER. CHECK THAT THE RECEIVER BECOMES
                                        ;* INACTIVE.
                                        ;*
                                        ;*****************************************************************
022614                                  BGNTST
022614                                                                                          T8::

022614                                          CALL    $RESET          ;RESET THE DPV
022620                                          ESCAPE  TST             ;IF ERROR, EXIT THE TEST
022620  104410                                                                                  TRAP    C$ESCAPE
022622  000266                                                                                  .WORD   L10057-.
022624  005037  002424                          CLR     TFLAG           ;CLEAR FLAGS USED IN THE INTERRUPT ROUTINES.
022630  005037  002376                          CLR     RFLAG           ;
022634  005037  002360                          CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
022640  012737  000002  002414                  MOV     #2,START        ;SEND 2 START CHARACTERS.

022646                                          SETVEC  XMTVEC,#XINT,#PRI04
022646  012746  000200                                                                          MOV     #PRI04,-(SP)
022652  012746  017232                                                                          MOV     #XINT,-(SP)
022656  013746  002264                                                                          MOV     XMTVEC,-(SP)
022662  012746  000003                                                                          MOV     #3,-(SP)
022666  104437                                                                                  TRAP    C$SVEC
022670  062706  000010                                                                          ADD     #10,SP
022674                                          SETVEC  RCVEC,#RINT,#PRI04
022674  012746  000200                                                                          MOV     #PRI04,-(SP)
022700  012746  016602                                                                          MOV     #RINT,-(SP)
022704  013746  002262                                                                          MOV     RCVEC,-(SP)
022710  012746  000003                                                                          MOV     #3,-(SP)
022714  104437                                                                                  TRAP    C$SVEC
022716  062706  000010                                                                          ADD     #10,SP
022722                                          SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
022722  012700  000000                                                                          MOV     #PRI00,R0
022726  104441                                                                                  TRAP    C$SPRI
                                                                        ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                        ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                        ;LEVEL 4-7.
                                                                        ;SET UP INTERRUPT VECTOR


022730  012777  040252  157332                  MOV     #40252,@PCSAR   ;SET BCP MODE AND SYNCH CHARACTER.
022736  012777  000120  157322                  MOV     #RXENA!RXITEN,@RXCSR ;ENABLE THE RECEIVER AND SET
                                                                        ;SET INTERRUPT ENABLE.
022744  012777  000130  157320                  MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE XMITTER AND INT.
                                                                        ;SELECT THE MAINTENANCE LOOPBACK.
022752  005003                                  CLR     R3              ;CLEAR COUNTER
022754                                  5$:
022754  032737  000001  002376                  BIT     #1,RFLAG        ;WAS DATA RECEIVED
022762  001007                                  BNE     10$             ;IF YES - OK.
```

```
022764  005303                          DEC     R3                  ;DECREMENT COUNTER.
022766  001372                          BNE     5$
022770                                  ERRDF   28,EMG15,ERRG2
                                                                                        TRAP    C$ERDF
022770  104455                                                                          .WORD   28
022772  000034                                                                          .WORD   EMG15
022774  014243                                                                          .WORD   ERRG2
022776  006700
023000  000430                          BR      30$
023002                          10$:
023002  042777  000020  157256          BIC     #RXENA,@RXCSR       ;DISABLE THE RECEIVER
023010  005037  002376                  CLR     RFLAG               ;CLEAR THE FLAG.
023014                                  $DELAY  5                   ;DELAY TO ALLOW DISABLE.

                                                                    ;******** MACRO EXPANSION ********
023014  004737  006604                  JSR     PC,$DLAY            ;CALL DELAY SUBROUTINE
023020  000005                                  .WORD   5           ;NUMBER OF DELAY LOOPS
                                                                    ;*********************************

023022  005737  002376                  TST     RFLAG               ;WAS AN INTERUPT RECEIVED?
023026  001011                          BNE     20$                 ;IF YES - REPORT ERROR.
023030  032777  004200  157230          BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
023036  001411                          BEQ     30$                 ;IF CLEAR OK
023040                                  ERRDF   29,EMG13,ERRG2
                                                                                        TRAP    C$ERDF
023040  104455                                                                          .WORD   29
023042  000035                                                                          .WORD   EMG13
023044  014106                                                                          .WORD   ERRG2
023046  006700
023050  000404                          BR      30$
023052                          20$:
023052                                  ERRDF   30,EMG16,ERRG2
                                                                                        TRAP    C$ERDF
023052  104455                                                                          .WORD   30
023054  000036                                                                          .WORD   EMG16
023056  014276                                                                          .WORD   ERRG2
023060  006700
023062                          30$:
023062                                  CALL    $RESET              ;RESET THE DPV.
023062                                  SETPRI  #PRI06              ;SET THE PROCESSOR PRI TO 6
023066                                                                                  MOV     #PRI06,R0
023066  012700  000300                                                                  TRAP    C$SPRI
023072  104441
                                                                    ;(THIS WILL DISABLE INTERRUPTS)
023074                                  CLRVEC  RCVEC               ;RESTORE THE RECV. VECTOR
                                                                                        MOV     RCVEC,R0
023074  013700  002262                                                                  TRAP    C$CVEC
023100  104436
023102                                  CLRVEC  XMTVEC              ;RESTORE THE XMIT. VECTOR
                                                                                        MOV     XMTVEC,R0
023102  013700  002264                                                                  TRAP    C$CVEC
023106  104436

023110                          ENDTST
023110                                                                          L10057:
023110  104401                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 9 - RECEIVER STATUS

                                ;*******************************************************************
                                ;*              TEST 9 - DPV-11
                                ;* THERE ARE 3 SUBTESTS IN THIS TEST WHICH ARE INTENDED TO CHECK
                                ;* RECEIVER STATUS.
                                ;* SUBTEST 1 -  REOM (RECEIVE END OF MESSAGE)
                                ;*              THIS SUBTEST WILL TRANSMIT A DATA MESSAGE THAT IS
                                ;*              ENDED WITH A TEOM (TRANSMIT END OF MESSAGE).  A
                                ;*              CHECK WILL BE MADE THAT THE RECEIVER GETS THE DATA
                                ;*              AND THAT THE REOM IS RECEIVED WHEN RECEIVE
                                ;*              STATUS IS AVAILABLE.
                                ;*
                                ;* SUBTEST 2 -  RECEIVER OVERRUN
                                ;*              THIS SUBTEST WILL TRANSMIT DATA CORRECTLY.  THE
                                ;*              RECEIVER AFTER BECOMING ACTIVE WILL NOT SERVICE
                                ;*              THE RECEIVE BUFFER CORRECTLY.  THIS SHOULD RESULT IN
                                ;*              A RECEIVE OVERRUN.  THIS SUBTEST WILL ENSURE THAT
                                ;*              WHEN RECEIVE STATUS IS AVAILABLE, THE RECEIVER OVERRUN
                                ;*              IS SET.
                                ;*
                                ;* SUBTEST 3 -  RECEIVER ABORT
                                ;*              THIS SUBTEST WILL TRANSMIT A DATA MESSAGE THAT IS ENDED
                                ;*              WITH A TRANSMIT ABORT.  THE SUBTEST WILL ENSURE THAT
                                ;*              RECEIVE STATUS AVAILABLE IS RECEIVED AND THAT THE
                                ;*              ABORT IS RECEIVED.
                                ;*
                                ;*******************************************************************
023112                          BGNTST
023112                                                                          T9::

023112                          BGNSUB
023112                                                                          T9.1:
023112  104402                                                                          TRAP    C$BSUB
023114                                  CALL    $RESET          ;RESET THE DPV
023120                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
023120  104410                                                                          TRAP    C$ESCAPE
023122  000774                                                                          .WORD   L10060-.
023124  005037  002424                  CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
023130  012737  000001  002414          MOV     #1,START        ;# OF START OF MESSAGES.

023136                                  SETVEC  XMTVEC,#XINT,#PRI04
023136  012746  000200                                                                  MOV     #PRI04,-(SP)
023142  012746  017232                                                                  MOV     #XINT,-(SP)
023146  013746  002264                                                                  MOV     XMTVEC,-(SP)
023152  012746  000003                                                                  MOV     #3,-(SP)
023156  104437                                                                          TRAP    C$SVEC
023160  062706  000010                                                                  ADD     #10,SP
023164                                  SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
023164  012700  000000                                                                  MOV     #PRI00,R0
023170  104441                                                                          TRAP    C$SPRI
                                                                ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                ;LEVEL 4-7.
                                                                ;SET UP INTERRUPT VECTOR

023172  052777  000130  157072          BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
```

```
                                                                                ;MAINTENANCE MODE LOOPBACK.
023200  052777  000020  157060          BIS     #RXENA,@RXCSR   ;ENABLE THE RECEIVER

023206  005003                          CLR     R3              ;INITIALIZE THE COUNTER
023210                          5$:
023210  032777  004000  157050          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
023216  001007                          BNE     10$             ;BR IF YES
023220  005303                          DEC     R3              ;DECREMENT THE COUNTER
023222  001372                          BNE     5$
023224                                  ERRDF   31,EMG12,ERRG2                                  TRAP    C$ERDF
        023224  104455                                                                          .WORD   31
        023226  000037                                                                          .WORD   EMG12
        023230  014062                                                                          .WORD   ERRG2
        023232  006700
023234  000444                          BR      45$
023236                          10$:
023236  005003                          CLR     R3              ;INITIALIZE THE COUNTER.
023240                          12$:
023240  032777  002200  157020          BIT     #RSTARY!RDATRY,@RXCSR   ;IS DATA OR STATUS READY?
023246  001407                          BEQ     15$                     ;BR IF NOT
023250  017737  157014  002400          MOV     @RDSR,RSAVE     ;SAVE THE CHARACTER
023256  032737  001000  002400          BIT     #REOM,RSAVE     ;WAS THE RECEIVE END OF MESSAGE RECEIVED?
023264  001007                          BNE     20$
023266                          15$:
023266  005303                          DEC     R3              ;DECREMENT THE COUNTER
023270  001363                          BNE     12$
023272                                  ERRDF   32,EMG17,ERRG2                                  TRAP    C$ERDF
        023272  104455                                                                          .WORD   32
        023274  000040                                                                          .WORD   EMG17
        023276  014345                                                                          .WORD   ERRG2
        023300  006700
023302  000421                          BR      45$
023304                          20$:
023304  032777  002000  156754          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
023312  001405                          BEQ     25$
023314                                  ERRDF   33,EMG18,ERRG2                                  TRAP    C$ERDF
        023314  104455                                                                          .WORD   33
        023316  000041                                                                          .WORD   EMG18
        023320  014405                                                                          .WORD   ERRG2
        023322  006700
023324  000410                          BR      45$
023326                          25$:
023326  032777  004000  156732          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER INACTIVE?
023334  001404                          BEQ     45$             ;BR IF YES
023336                                  ERRDF   34,EMG11,ERRG2                                  TRAP    C$ERDF
        023336  104455                                                                          .WORD   34
        023340  000042                                                                          .WORD   EMG11
        023342  014031                                                                          .WORD   ERRG2
        023344  006700

023346                          45$:

023346                          ENDSUB                                                  L10061:
        023346                                                                                  TRAP    C$ESUB
        023346  104403

023350                          BGNSUB
```

```
        023350                                                                                  T9.2:
        023350  104402                                                                                  TRAP    C$BSUB
  4224  023352                                  CALL    $RESET          ;RESET THE DPV
  4225  023356                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
        023356  104410                                                                                  TRAP    C$ESCAPE
        023360  000536                                                                                  .WORD   L10060-.
  4226
  4227  023362  005037  002424                  CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
  4228  023366  012737  000001  002414          MOV     #1,START        ;# OF START OF MESSAGES.
  4229
  4230  023374                                  SETVEC  XMTVEC,#XINT,#PRI04
        023374  012746  000200                                                                          MOV     #PRI04,-(SP)
        023400  012746  017232                                                                          MOV     #XINT,-(SP)
        023404  013746  002264                                                                          MOV     XMTVEC,-(SP)
        023410  012746  000003                                                                          MOV     #3,-(SP)
        023414  104437                                                                                  TRAP    C$SVEC
        023416  062706  000010                                                                          ADD     #10,SP
  4231  023422                                  SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
        023422  012700  000000                                                                          MOV     #PRI00,R0
        023426  104441                                                                                  TRAP    C$SPRI
  4232                                                                  ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
  4233                                                                  ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
  4234                                                                  ;LEVEL 4-7.
  4235                                                                  ;SET UP INTERRUPT VECTOR
  4236
  4237  023430  052777  000130  156634          BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
  4238                                                                  ;MAINTENANCE MODE LOOPBACK.
  4239  023436  052777  000020  156622          BIS     #RXENA,@RXCSR   ;ENABLE THE RECEIVER
  4240
  4241  023444  005003                          CLR     R3              ;INITIALIZE THE COUNTER
  4242  023446                          5$:
  4243  023446  032777  004000  156612          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
  4244  023454  001007                          BNE     10$             ;BR IF YES
  4245  023456  005303                          DEC     R3              ;DECREMENT THE COUNTER
  4246  023460  001372                          BNE     5$
  4247  023462                                  ERRDF   35,EMG12,ERRG2
        023462  104455                                                                                  TRAP    C$ERDF
        023464  000043                                                                                  .WORD   35
        023466  014062                                                                                  .WORD   EMG12
        023470  006700                                                                                  .WORD   ERRG2
  4248  023472  000464                          BR      55$
  4249  023474                          10$:
  4250  023474  005003                          CLR     R3              ;INITIALIZE THE COUNTER.
  4251  023476                          12$:
  4252  023476  032777  002000  156562          BIT     #RSTARY,@RXCSR  ;IS THE STATUS READY?
  4253  023504  001007                          BNE     20$
  4254  023506  005303                          DEC     R3              ;DECREMENT THE COUNTER
  4255  023510  001372                          BNE     12$
  4256
  4257  023512                                  ERRDF   36,EMG1,ERRG2   ;TIME OUT
        023512  104455                                                                                  TRAP    C$ERDF
        023514  000044                                                                                  .WORD   36
        023516  013462                                                                                  .WORD   EMG1
        023520  006700                                                                                  .WORD   ERRG2
  4258  023522  000450                          BR      55$
  4259
  4260  023524                          20$:
```

```
023524  032777  004000  156536          BIT     #ROVER,@RDSR     ;WAS THE RECEIVE OVERRUN RECEIVED?
023532  001005                          BNE     40$              ;IF YES OK.
023534                                  ERRDF   37,EMG19,ERRG2
023534  104455                                                                   TRAP    C$ERDF
023536  000045                                                                   .WORD   37
023540  014434                                                                   .WORD   EMG19
023542  006700                                                                   .WORD   ERRG2
023544  000437                          BR      55$
023546                          40$:
023546  032777  002000  156512          BIT     #RSTARY,@RXCSR   ;WAS THE STATUS CLEARED
023554  001405                          BEQ     42$              ;IF YES OK
023556                                  ERRDF   38,EMG18,ERRG2
023556  104455                                                                   TRAP    C$ERDF
023560  000046                                                                   .WORD   38
023562  014405                                                                   .WORD   EMG18
023564  006700                                                                   .WORD   ERRG2
023566  000426                          BR      55$
023570                          42$:
023570  032777  002000  156470          BIT     #RSTARY,@RXCSR   ;IS THE STATUS READY?
023576  001007                          BNE     47$
023600  005303                          DEC     R3               ;DECREMENT THE COUNTER
023602  001372                          BNE     42$

023604                                  ERRDF   39,EMG1,ERRG2    ;TIME OUT
023604  104455                                                                   TRAP    C$ERDF
023606  000047                                                                   .WORD   39
023610  013462                                                                   .WORD   EMG1
023612  006700                                                                   .WORD   ERRG2
023614  000413                          BR      55$


023616                          47$:
023616  042777  000020  156442          BIC     #RXENA,@RXCSR    ;DISABLE THE RECEIVER.

023624  032777  002000  156434          BIT     #RSTARY,@RXCSR   ;IS THE STATUS DROPPED?
023632  001404                          BEQ     55$
023634                          50$:
023634                                  ERRDF   40,EMG18,ERRG2
023634  104455                                                                   TRAP    C$ERDF
023636  000050                                                                   .WORD   40
023640  014405                                                                   .WORD   EMG18
023642  006700                                                                   .WORD   ERRG2
023644                          55$:

023644                            ENDSUB
023644                                                                   L10062:
023644  104403                                                                   TRAP    C$ESUB


023646                            BGNSUB
023646                                                                   T9.3:
023646  104402                                                                   TRAP    C$BSUB
023650                                  CALL    $RESET           ;RESET THE DPV
023654                                  ESCAPE  TST              ;IF ERROR, EXIT THE TEST
```

```
      023654  104410                                                                          TRAP    C$ESCAPE
      023656  000240                                                                          .WORD   L10060-.
 4298 023660  005037  002424                CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
 4299 023664  012737  000001  002414        MOV     #1,START        ;# OF START OF MESSAGES.
 4300 023672  012737  000001  002316        MOV     #1,ABORT        ;SEND AN ABORT
 4301
 4302 023700                                SETVEC  XMTVEC,#XINT,#PRI04
      023700  012746  000200                                                                  MOV     #PRI04,-(SP)
      023704  012746  017232                                                                  MOV     #XINT,-(SP)
      023710  013746  002264                                                                  MOV     XMTVEC,-(SP)
      023714  012746  000003                                                                  MOV     #3,-(SP)
      023720  104437                                                                          TRAP    C$SVEC
      023722  062706  000010                                                                  ADD     #10,SP
 4303 023726                                SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
      023726  012700  000000                                                                  MOV     #PRI00,R0
      023732  104441                                                                          TRAP    C$SPRI
 4304                                                               ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
 4305                                                               ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
 4306                                                               ;LEVEL 4-7.
 4307                                                               ;SET UP INTERRUPT VECTOR
 4308
 4309 023734  052777  000130  156330        BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
 4310                                                                      ;MAINTENANCE MODE LOOPBACK.
 4311 023742  052777  000020  156316        BIS     #RXENA,@RXCSR   ;ENABLE THE RECEIVER
 4312
 4313 023750  005003                        CLR     R3              ;INITIALIZE THE COUNTER
 4314 023752                            5$:
 4315 023752  032777  004000  156306        BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
 4316 023760  001007                        BNE     10$             ;BR IF YES
 4317 023762  005303                        DEC     R3              ;DECREMENT THE COUNTER
 4318 023764  001372                        BNE     5$
 4319 023766                                ERRDF   41,EMG12,ERRG2
      023766  104455                                                                          TRAP    C$ERDF
      023770  000051                                                                          .WORD   41
      023772  014062                                                                          .WORD   EMG12
      023774  006700                                                                          .WORD   ERRG2
 4320 023776  000444                        BR      45$
 4321 024000                            10$:
 4322 024000  005003                        CLR     R3              ;INITIALIZE THE COUNTER.
 4323 024002                            12$:
 4324 024002  032777  002000  156256        BIT     #RSTARY,@RXCSR  ;IS THE STATUS READY?
 4325 024010  001016                        BNE     20$
 4326 024012  032777  000200  156246        BIT     #RDATRY,@RXCSR
 4327 024020  001403                        BEQ     15$
 4328 024022                                $DELAY  5               ;DELAY .5 MSEC.

                                                                    ;******** MACRO EXPANSION ********
      024022  004737  006604                JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
      024026  000005                                .WORD   5       ;NUMBER OF DELAY LOOPS
                                                                    ;*********************************

 4329 024030                            15$:
 4330 024030  005303                        DEC     R3              ;DECREMENT THE COUNTER
 4331 024032  001363                        BNE     12$
 4332 024034                                ERRDF   42,EMG1,ERRG2   ;TIME OUT
      024034  104455                                                                          TRAP    C$ERDF
      024036  000052                                                                          .WORD   42
```

```
        024040  013462                                                                    .WORD   EMG1
        024042  006700                                                                    .WORD   ERRG2
  4333  024044  000421                          BR      45$
  4334
  4335  024046                          20$:
  4336
  4337  024046  032777  002000  156214          BIT     #RABORT,@RDSR   ;WAS THE RECEIVE ABORT RECEIVED?
  4338  024054  001005                          BNE     40$             ;IF YES OK.
  4339  024056                                  ERRDF   43,EMG20,ERRG2
        024056  104455                                                                    TRAP    C$ERDF
        024060  000053                                                                    .WORD   43
        024062  014465                                                                    .WORD   EMG20
        024064  006700                                                                    .WORD   ERRG2
  4340  024066  000410                          BR      45$
  4341  024070                          40$:
  4342  024070  032777  002000  156170          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
  4343  024076  001404                          BEQ     45$
  4344
  4345  024100                                  ERRDF   44,EMG18,ERRG2
        024100  104455                                                                    TRAP    C$ERDF
        024102  000054                                                                    .WORD   44
        024104  014405                                                                    .WORD   EMG18
        024106  006700                                                                    .WORD   ERRG2
  4346  024110                          45$:
  4347  024110  005037  002316                  CLR     ABORT           ;CLEAR THE ABORT FLAG.
  4348  024114                            ENDSUB
        024114                                                                    L10063:
        024114  104403                                                                    TRAP    C$ESUB
  4349
  4350
  4351
  4352  024116                          ENDTST
        024116                                                                    L10060:
        024116  104401                                                                    TRAP    C$ETST
  4353
  4354
```

```
                                .SBTTL          TEST 10 - RECEIVE STATUS INTERRUPT

                                ;*******************************************************************
                                ;*              TEST 10 - DPV-11
                                ;* THIS TEST WILL ENSURE THAT INTERRUPTS MAY BE GENERATED WHEN
                                ;* RECEIVE STATUS IS AVAILABLE. EACH OF THE FOLLOWING SUBTESTS
                                ;* WILL GENERATE THE STATUS AS FOLLOWS:
                                ;* SUBTEST 1 -  REOM
                                ;* SUBTEST 2 -  RECEIVER OVERRUN
                                ;* SUBTEST 3 -  RECEIVER ABORT
                                ;*
                                ;*******************************************************************
024120                          BGNTST
024120                                                                          T10::

024120                            BGNSUB
024120                                                                          T10.1:
024120  104402                                                                          TRAP    C$BSUB
024122                                  CALL    $RESET          ;RESET THE DPV
024126                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
024126  104410                                                                          TRAP    C$ESCAPE
024130  001102                                                                          .WORD   L10064-.
024132  005037  002376                  CLR     RFLAG           ;CLEAR RECEIVE INTERRUPT
024136  005037  002424                  CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
024142  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
024146  012737  000001  002414          MOV     #1,START        ;# OF START OF MESSAGES.

024154                                  SETVEC  XMTVEC,#XINT,#PRI04
024154  012746  000200                                                                  MOV     #PRI04,-(SP)
024160  012746  017232                                                                  MOV     #XINT,-(SP)
024164  013746  002264                                                                  MOV     XMTVEC,-(SP)
024170  012746  000003                                                                  MOV     #3,-(SP)
024174  104437                                                                          TRAP    C$SVEC
024176  062706  000010                                                                  ADD     #10,SP
024202                                  SETVEC  RCVEC,#RINT,#PRI04
024202  012746  000200                                                                  MOV     #PRI04,-(SP)
024206  012746  016602                                                                  MOV     #RINT,-(SP)
024212  013746  002262                                                                  MOV     RCVEC,-(SP)
024216  012746  000003                                                                  MOV     #3,-(SP)
024222  104437                                                                          TRAP    C$SVEC
024224  062706  000010                                                                  ADD     #10,SP
024230                                  SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
024230  012700  000000                                                                  MOV     #PRI00,R0
024234  104441                                                                          TRAP    C$SPRI
                                                                ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                ;LEVEL 4-7.
                                                                ;SET UP INTERRUPT VECTOR

024236  052777  000130  156026          BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
                                                                      ;MAINTENANCE MODE LOOPBACK.
024244  052777  000120  156014          BIS     #RXITEN!RXENA,@RXCSR  ;ENABLE THE RECEIVER

024252  005003                          CLR     R3              ;INITIALIZE THE COUNTER
024254                          5$:
024254  032777  004000  156004          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
```

```
024262  001007                          BNE     10$             ;BR IF YES
024264  005303                          DEC     R3              ;DECREMENT THE COUNTER
024266  001372                          BNE     5$
024270                                  ERRDF   45,EMG12,ERRG2
                                                                                        TRAP    C$ERDF
024270  104455                                                                          .WORD   45
024272  000055                                                                          .WORD   EMG12
024274  014062                                                                          .WORD   ERRG2
024276  006700
024300  000434                          BR      45$
024302                          10$:
024302  005003                          CLR     R3              ;INITIALIZE THE COUNTER.
024304                          12$:
024304  032737  000002  002376          BIT     #2,RFLAG        ;WAS STATUS RECEIVED?
024312  001007                          BNE     20$
024314  005303                          DEC     R3              ;DECREMENT THE COUNTER
024316  001372                          BNE     12$
024320                                  ERRDF   46,EMG21,ERRG2
                                                                                        TRAP    C$ERDF
024320  104455                                                                          .WORD   46
024322  000056                                                                          .WORD   EMG21
024324  014514                                                                          .WORD   ERRG2
024326  006700
024330  000420                          BR      45$

024332                          20$:
024332  032737  001000  002400          BIT     #REOM,RSAVE     ;WAS THE RECEIVE END OF MESSAGE RECEIVED?
024340  001004                          BNE     40$             ;IF YES OK.
024342                                  ERRDF   47,EMG17,ERRG2
                                                                                        TRAP    C$ERDF
024342  104455                                                                          .WORD   47
024344  000057                                                                          .WORD   EMG17
024346  014345                                                                          .WORD   ERRG2
024350  006700
024352                          40$:
024352  032777  002000  155706          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
024360  001404                          BEQ     45$
024362                                  ERRDF   48,EMG18,ERRG2
                                                                                        TRAP    C$ERDF
024362  104455                                                                          .WORD   48
024364  000060                                                                          .WORD   EMG18
024366  014405                                                                          .WORD   ERRG2
024370  006700
024372                          45$:
024372                                  SETPRI  #PRI06          ;SET PROCESSOR PRI TO 6
                                                                                        MOV     #PRI06,R0
024372  012700  000300                                                                  TRAP    C$SPRI
024376  104441                                                  ;(DISABLE INTERRUPT)
024400                                  CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
                                                                                        MOV     RCVEC,R0
024400  013700  002262                                                                  TRAP    C$CVEC
024404  104436
024406                                  CLRVEC  XMTVEC          ;RESORE THE VECTOR.
                                                                                        MOV     XMTVEC,R0
024406  013700  002264                                                                  TRAP    C$CVEC
024412  104436

024414                          ENDSUB
                                                                                L10065:
024414                                                                                  TRAP    C$ESUB
024414  104403

024416                          BGNSUB
                                                                                T10.2:
024416
```

```
        024416  104402                                                                    TRAP    C$BSUB
 4426   024420                          CALL    $RESET          ;RESET THE DPV
 4427   024424                          ESCAPE  TST             ;IF ERROR, EXIT THE TEST
        024424  104410                                                                    TRAP    C$ESCAPE
        024426  000604                                                                    .WORD   L10064-.
 4428
 4429   024430  005037  002376          CLR     RFLAG           ;CLEAR RECEIVE INTERRUPT
 4430   024434  005037  002424          CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
 4431   024440  005037  002360          CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
 4432   024444  012737  000001  002414  MOV     #1,START        ;# OF START OF MESSAGES.
 4433   024452  012737  000001  002370  MOV     #1,OVER         ;FLAG TO CREATE RECEIVE OVERRUN.
 4434
 4435   024460                          SETVEC  XMTVEC,#XINT,#PRI04
        024460  012746  000200                                                            MOV     #PRI04,-(SP)
        024464  012746  017232                                                            MOV     #XINT,-(SP)
        024470  013746  002264                                                            MOV     XMTVEC,-(SP)
        024474  012746  000003                                                            MOV     #3,-(SP)
        024500  104437                                                                    TRAP    C$SVEC
        024502  062706  000010                                                            ADD     #10,SP
 4436   024506                          SETVEC  RCVEC,#RINT,#PRI04
        024506  012746  000200                                                            MOV     #PRI04,-(SP)
        024512  012746  016602                                                            MOV     #RINT,-(SP)
        024516  013746  002262                                                            MOV     RCVEC,-(SP)
        024522  012746  000003                                                            MOV     #3,-(SP)
        024526  104437                                                                    TRAP    C$SVEC
        024530  062706  000010                                                            ADD     #10,SP
 4437   024534                          SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
        024534  012700  000000                                                            MOV     #PRI00,R0
        024540  104441                                                                    TRAP    C$SPRI
 4438                                                            ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
 4439                                                            ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
 4440                                                            ;LEVEL 4-7.
 4441                                                            ;SET UP INTERRUPT VECTOR
 4442
 4443   024542  052777  000130  155522  BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
 4444                                                            ;MAINTENANCE MODE LOOPBACK.
 4445   024550  052777  000120  155510  BIS     #RXITEN!RXENA,@RXCSR  ;ENABLE THE RECEIVER
 4446
 4447   024556  005003                  CLR     R3              ;INITIALIZE THE COUNTER
 4448   024560                  5$:
 4449   024560  032777  004000  155500  BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
 4450   024566  001007                  BNE     10$             ;BR IF YES
 4451   024570  005303                  DEC     R3              ;DECREMENT THE COUNTER
 4452   024572  001372                  BNE     5$
 4453   024574                          ERRDF   49,EMG12,ERRG2
        024574  104455                                                                    TRAP    C$ERDF
        024576  000061                                                                    .WORD   49
        024600  014062                                                                    .WORD   EMG12
        024602  006700                                                                    .WORD   ERRG2
 4454   024604  000434                  BR      45$
 4455   024606                  10$:
 4456   024606  005003                  CLR     R3              ;INITIALIZE THE COUNTER.
 4457   024610                  12$:
 4458   024610  032737  000002  002376  BIT     #2,RFLAG        ;WAS STATUS RECEIVED?
 4459   024616  001007                  BNE     20$
 4460   024620  005303                  DEC     R3              ;DECREMENT THE COUNTER
 4461   024622  001372                  BNE     12$
```

```
024624                                  ERRDF   50,EMG21,ERRG2
024624  104455                                                                  TRAP    C$ERDF
024626  000062                                                                  .WORD   50
024630  014514                                                                  .WORD   EMG21
024632  006700                                                                  .WORD   ERRG2
024634  000420                          BR      45$
                                 20$:
024636                                  BIT     #ROVER,RSAVE    ;WAS THE RECEIVE OVERRUN RECEIVED?
024636  032737  004000  002400          BNE     40$             ;IF YES OK.
024644  001004                          ERRDF   51,EMG19,ERRG2
024646                                                                          TRAP    C$ERDF
024646  104455                                                                  .WORD   51
024650  000063                                                                  .WORD   EMG19
024652  014434                                                                  .WORD   ERRG2
024654  006700                                                                  .WORD   ERRG2
024656                           40$:
024656  032777  002000  155402          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
024664  001404                          BEQ     45$
024666                                  ERRDF   52,EMG18,ERRG2
024666  104455                                                                  TRAP    C$ERDF
024670  000064                                                                  .WORD   52
024672  014405                                                                  .WORD   EMG18
024674  006700                                                                  .WORD   ERRG2
024676                           45$:
024676                                  SETPRI  #PRI06          ;SET PROCESSOR PRI TO 6
024676  012700  000300                                                          MOV     #PRI06,R0
024702  104441                                                                  TRAP    C$SPRI
                                                                ;(DISABLE INTERRUPT)
024704                                  CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
024704  013700  002262                                                          MOV     RCVEC,R0
024710  104436                                                                  TRAP    C$CVEC
024712                                  CLRVEC  XMTVEC
024712  013700  002264                                                          MOV     XMTVEC,R0
024716  104436                                                                  TRAP    C$CVEC
024720  005037  002370                  CLR     OVER            ;CLEAR OVERRUN FLAG.

024724                           ENDSUB
024724                                                                  L10066:
024724  104403                                                                  TRAP    C$ESUB


024726                           BGNSUB
024726                                                                  T10.3:
024726  104402                                                                  TRAP    C$BSUB
024730                                  CALL    $RESET          ;RESET THE DPV
024734                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
024734  104410                                                                  TRAP    C$ESCAPE
024736  000274                                                                  .WORD   L10064-.

024740  005037  002376                  CLR     RFLAG           ;CLEAR RECEIVE INTERRUPT
024744  005037  002424                  CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
024750  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
024754  012737  000001  002414          MOV     #1,START        ;# OF START OF MESSAGES.
024762  012737  000001  002316          MOV     #1,ABORT        ;FLAG TO SEND ABORT
```

```
4495 024770                                 SETVEC  XMTVEC,#XINT,#PRI04
     024770  012746  000200                                                 MOV     #PRI04,-(SP)
     024774  012746  017232                                                 MOV     #XINT,-(SP)
     025000  013746  002264                                                 MOV     XMTVEC,-(SP)
     025004  012746  000003                                                 MOV     #3,-(SP)
     025010  104437                                                         TRAP    C$SVEC
     025012  062706  000010                                                 ADD     #10,SP
4496 025016                                 SETVEC  RCVEC,#RINT,#PRI04
     025016  012746  000200                                                 MOV     #PRI04,-(SP)
     025022  012746  016602                                                 MOV     #RINT,-(SP)
     025026  013746  002262                                                 MOV     RCVEC,-(SP)
     025032  012746  000003                                                 MOV     #3,-(SP)
     025036  104437                                                         TRAP    C$SVEC
     025040  062706  000010                                                 ADD     #10,SP
4497 025044                                 SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
     025044  012700  000000                                                 MOV     #PRI00,R0
     025050  104441                                                         TRAP    C$SPRI
4498                                                            ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
4499                                                            ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
4500                                                            ;LEVEL 4-7.
4501                                                            ;SET UP INTERRUPT VECTOR
4502
4503 025052  052777  000130  155212         BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
4504                                                                  ;MAINTENANCE MODE LOOPBACK.
4505 025060  052777  000120  155200         BIS     #RXITEN!RXENA,@RXCSR  ;ENABLE THE RECEIVER
4506
4507 025066  005003                         CLR     R3              ;INITIALIZE THE COUNTER
4508 025070                         5$:
4509 025070  032777  004000  155170         BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
4510 025076  001007                         BNE     10$             ;BR IF YES
4511 025100  005303                         DEC     R3              ;DECREMENT THE COUNTER
4512 025102  001372                         BNE     5$
4513 025104                                 ERRDF   53,EMG12,ERRG2
     025104  104455                                                         TRAP    C$ERDF
     025106  000065                                                         .WORD   53
     025110  014062                                                         .WORD   EMG12
     025112  006700                                                         .WORD   ERRG2
4514 025114  000435                         BR      45$
4515 025116                         10$:
4516 025116  005003                         CLR     R3              ;INITIALIZE THE COUNTER.
4517 025120                         12$:
4518 025120  032737  000002  002376         BIT     #2,RFLAG        ;WAS STATUS RECEIVED?
4519 025126  001007                         BNE     20$
4520 025130  005303                         DEC     R3              ;DECREMENT THE COUNTER
4521 025132  001372                         BNE     12$
4522 025134                                 ERRDF   54,EMG21,ERRG2
     025134  104455                                                         TRAP    C$ERDF
     025136  000066                                                         .WORD   54
     025140  014514                                                         .WORD   EMG21
     025142  006700                                                         .WORD   ERRG2
4523 025144  000421                         BR      45$
4524
4525 025146                         20$:
4526 025146  032737  002000  002400         BIT     #RABORT,RSAVE   ;WAS THE RECEIVE ABORT RECEIVED?
4527 025154  001005                         BNE     40$             ;IF YES OK.
4528 025156                                 ERRDF   55,EMG20,ERRG2
     025156  104455                                                         TRAP    C$ERDF
```

```
        025160  000067                                                                    .WORD   55
        025162  014465                                                                    .WORD   EMG20
        025164  006700                                                                    .WORD   ERRG2
  4529  025166  000410                    BR      45$
  4530  025170                    40$:
  4531  025170  032777  002000  155070    BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
  4532  025176  001404                    BEQ     45$
  4533
  4534  025200                            ERRDF   56,EMG18,ERRG2
        025200  104455                                                                    TRAP    C$ERDF
        025202  000070                                                                    .WORD   56
        025204  014405                                                                    .WORD   EMG18
        025206  006700                                                                    .WORD   ERRG2
  4535  025210                    45$:
  4536  025210                            SETPRI  #PRI06          ;SET PROCESSOR PRI TO 6
        025210  012700  000300                                                            MOV     #PRI06,R0
        025214  104441                                                                    TRAP    C$SPRI
  4537                                                            ;(DISABLE INTERRUPT)
  4538  025216                            CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
        025216  013700  002262                                                            MOV     RCVEC,R0
        025222  104436                                                                    TRAP    C$CVEC
  4539  025224  005037  002316            CLR     ABORT           ;CLEAR THE ABORT FLAG.
  4540
  4541
  4542  025230                    ENDSUB
        025230                                                                    L10067:
        025230  104403                                                                    TRAP    C$ESUB
  4543
  4544
  4545  025232                    ENDTST
        025232                                                                    L10064:
        025232  104401                                                                    TRAP    C$ETST
  4546
  4547
  4548
  4549
  4550
  4551
  4552
```

```
                                        .SBTTL          TEST 11 - RECEIVE AND TRANSMIT INTERRUPT

                                        ;*******************************************************************
                                        ;*              TEST 11 - DPV-11
                                        ;* RECEIVE AND TRANSMIT INTERRUPT
                                        ;* TRANSMIT AND RECEIVE DATA USING INTERRUPT ROUTINES. THIS TEST
                                        ;* WILL TRANSMIT 4 DATA CHARACTERS. AFTER ENSURING THAT A TRANSMIT
                                        ;* INTERRUPT WAS COMPLETED, THE TEST WILL CHECK TO MAKE SURE THAT AT
                                        ;* LEAST 1 RECEIVE INTERRUPT WAS GENERATED.
                                        ;*
                                        ;*******************************************************************
 025234                                 BGNTST
 025234                                                                                          T11::

 025234                                         CALL    $RESET          ;RESET THE DPV
 025240                                         ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 025240  104410                                                                                  TRAP    C$ESCAPE
 025242  000234                                                                                  .WORD   L10070-.
 025244  005037  002424                         CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
 025250  005037  002376                         CLR     RFLAG
 025254  005037  002360                         CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
 025260                                         SETVEC  RCVEC,#RINT,#PRI04
 025260  012746  000200                                                                          MOV     #PRI04,-(SP)
 025264  012746  016602                                                                          MOV     #RINT,-(SP)
 025270  013746  002262                                                                          MOV     RCVEC,-(SP)
 025274  012746  000003                                                                          MOV     #3,-(SP)
 025300  104437                                                                                  TRAP    C$SVEC
 025302  062706  000010                                                                          ADD     #10,SP
 025306                                         SETVEC  XMTVEC,#XINT,#PRI04
 025306  012746  000200                                                                          MOV     #PRI04,-(SP)
 025312  012746  017232                                                                          MOV     #XINT,-(SP)
 025316  013746  002264                                                                          MOV     XMTVEC,-(SP)
 025322  012746  000003                                                                          MOV     #3,-(SP)
 025326  104437                                                                                  TRAP    C$SVEC
 025330  062706  000010                                                                          ADD     #10,SP
 025334                                         SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
 025334  012700  000000                                                                          MOV     #PRI00,R0
 025340  104441                                                                                  TRAP    C$SPRI
                                                                        ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                        ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                        ;LEVEL 4-7.
                                                                        ;SET UP INTERRUPT VECTOR


 025342  012777  043652  154720                 MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
 025350  012737  000002  002414                 MOV     #2,START        ;# OF STARTS TO SEND.
 025356  012777  000120  154702                 MOV     #RXITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND SET
                                                                        ;SET INTERRUPT ENABLE.
 025364  012777  000130  154700                 MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
                                                                        ;SELECT THE MAINTENANCE LOOPBACK.
 025372  005001                                 CLR     R1              ;LOOP COUNTER
 025374                                 10$:
 025374  022737  000004  002326                 CMP     #4,DATA         ;ARE THE 4 DATA CHARACTERS RECEIVED?
 025402  001412                                 BEQ     20$             ;IF YES - CHECK RECEIVE INTERRUPT.
 025404  005301                                 DEC     R1              ;DECREMENT COUNTER
 025406  001372                                 BNE     10$
```

```
4594 025410  005737  002424                    TST     TFLAG           ;WERE ANY XMIT INTERRUPTS RECEIVED
4595 025414  001005                            BNE     20$             ;IF YES, KEEP CHECKING
4596 025416                                    ERRDF   57,EMG9,ERRG2
     025416  104455                                                                        TRAP    C$ERDF
     025420  000071                                                                        .WORD   57
     025422  013723                                                                        .WORD   EMG9
     025424  006700                                                                        .WORD   ERRG2
4597 025426  000410                            BR      30$
4598
4599 025430                            20$:
4600 025430  032737  000001  002376            BIT     #1,RFLAG        ;WAS ANY DATA RECEIVED?
4601 025436  001004                            BNE     30$             ;IF YES - OK.
4602 025440                                    ERRDF   58,EMG15,ERRG2
     025440  104455                                                                        TRAP    C$ERDF
     025442  000072                                                                        .WORD   58
     025444  014243                                                                        .WORD   EMG15
     025446  006700                                                                        .WORD   ERRG2
4603
4604 025450                            30$:
4605 025450                                    CALL    $RESET          ;RESET THE DPV
4606 025454                                    SETPRI  #PRI06          ;SET THE PROCESSOR PRI TO 6
     025454  012700  000300                                                                MOV     #PRI06,R0
     025460  104441                                                                        TRAP    C$SPRI
4607                                                                   ;(THIS WILL DISABLE INTERRUPTS)
4608 025462                                    CLRVEC  RCVEC           ;RESTORE THE RECV. VECTOR
     025462  013700  002262                                                                MOV     RCVEC,R0
     025466  104436                                                                        TRAP    C$CVEC
4609 025470                                    CLRVEC  XMTVEC          ;RESTORE THE XMIT. VECTOR
     025470  013700  002264                                                                MOV     XMTVEC,R0
     025474  104436                                                                        TRAP    C$CVEC
4610
4611
4612
4613 025476                            ENDTST                                  L10070:
     025476                                                                                TRAP    C$ETST
     025476  104401
4614
4615
```

```
                                        .SBTTL          TEST 12 - MODEM STATUS

                                        ;*****************************************************************
                                        ;*              TEST 12 - DPV-11
                                        ;* MODEM STATUS
                                        ;* IF A PROPER TURNAROUND (H3259 OR H3260) IS ON, THIS TEST WILL
                                        ;* CHECK THAT THE FOLLOWING MODEM SIGNALS ARE TURNED AROUND
                                        ;* 1. RTS (REQUEST TO SEND)     TURNED AROUND TO CTS (CLEAR TO SEND)
                                        ;*                                            & RR  (RECEIVER READY)
                                        ;* 2. DTR (DATA TERMINAL READY) TURNED AROUND TO IC  (INCOMING CALL OR RING)
                                        ;* 3. SF  (SELECT FREQUENCY)    TURNED AROUND TO SQ  (SIGNAL QUALITY)
                                        ;* 4. LL  (LOCAL LOOPBACK)      TURNED AROUND TO DM  (DATA MODE)
                                        ;*
                                        ;*****************************************************************
 025500                                 BGNTST
 025500                                                                                  T12::
 025500                                         CALL    $TURN           ;CHECK THE TURNAROUND.
 025504  103530                                 BCS     40$             ;SKIP TEST IF NO TURNAROUND.
 025506                                 5$:
 025506                                         CALL    $RESET          ;RESET THE DPV
 025512                                         ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 025512  104410                                                                          TRAP    C$ESCAPE
 025514  000252                                                                          .WORD   L10071-.
 025516  012702  000004                         MOV     #RTS,R2         ;SAVE RTS IN REGISTER (FOR ERROR REPORT).
 025522  010277  154540                         MOV     R2,@RXCSR       ;SET RTS
 025526                                         $DELAY  1               ;DELAY 100 MICROSECONDS

                                                                        ;******** MACRO EXPANSION ********
 025526  004737  006604                         JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
 025532  000001                                                 .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                        ;*********************************

 025534  032777  020000  154524                 BIT     #CTS,@RXCSR     ;IS CTS ON?
 025542  001445                                 BEQ     10$             ;IF NOT - REPORT.
 025544  032777  010000  154514                 BIT     #RR,@RXCSR      ;IS RR (CD) ON
 025552  001441                                 BEQ     10$             ;IF NOT - ERROR.
 025554  012702  000002                         MOV     #DTR,R2         ;SAVE DTR IN REGISTER (FOR ERROR REPORT).
 025560  010277  154502                         MOV     R2,@RXCSR       ;SET DTR.
 025564                                         $DELAY  1               ;DELAY 100 MICROSECONDS

                                                                        ;******** MACRO EXPANSION ********
 025564  004737  006604                         JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
 025570  000001                                                 .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                        ;*********************************

 025572  032777  040000  154466                 BIT     #IC,@RXCSR      ;IS RING (IC) SET?
 025600  001426                                 BEQ     10$             ;IF NOT - ERROR.
 025602  012702  000001                         MOV     #SF,R2          ;SAVE SF IN REGISTER (FOR ERROR REPORT).
 025606  010277  154454                         MOV     R2,@RXCSR       ;SET REMOTE LOOP/ SEC FREQ
 025612                                         $DELAY  1               ;DELAY 100 MICROSECONDS

                                                                        ;******** MACRO EXPANSION ********
 025612  004737  006604                         JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
 025616  000001                                                 .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                        ;*********************************

 025620  032777  000040  154444                 BIT     #SQ,@TXCSR      ;IS SIGNAL QUALITY SET?
```

```
025626  001413                          BEQ     10$             ;IF NOT - ERROR.
025630  012702  000010                  MOV     #LL,R2          ;SAVE LL IN REGISTER (FOR ERROR REPORT).
025634  010277  154426                  MOV     R2,@RXCSR       ;SET LOCAL LOOP
025640                                  $DELAY  1               ;DELAY 100 MICROSECONDS

                                                                ;******** MACRO EXPANSION ********
025640  004737  006604                  JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
025644  000001                                  .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                ;**********************************

025646  032777  001000  154412          BIT     #DM,@RXCSR      ;IS DATA MODE SET?
025654  001004                          BNE     20$

025656                          10$:
025656                                  ERRDF   59,EMG22,ERRG13
025656  104455                                                                          TRAP    C$ERDF
025660  000073                                                                          .WORD   59
025662  014556                                                                          .WORD   EMG22
025664  010272                                                                          .WORD   ERRG13

025666                          20$:
                                                                ;CLEAR ALL THOSE BITS
025666  042777  000017  154372          BIC     #RTS!DTR!SF!LL,@RXCSR
025674                                  $DELAY  1               ;DELAY 100 MICRO SECONDS

                                                                ;******** MACRO EXPANSION ********
025674  004737  006604                  JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
025700  000001                                  .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                ;**********************************

025702  012702  000004                  MOV     #RTS,R2         ;CHECK RTS.
025706  030277  154354                  BIT     R2,@RXCSR       ;IS IT SET?
025712  001021                          BNE     30$             ;IF YES, ERROR.
025714  012702  000002                  MOV     #DTR,R2         ;CHECK DTR.
025720  030277  154342                  BIT     R2,@RXCSR       ;IS IT SET?
025724  001014                          BNE     30$             ;IF YES, ERROR.
025726  012777  000001  154332          MOV     #SF,@RXCSR      ;CHECK SF.
025734  030277  154326                  BIT     R2,@RXCSR       ;IS IT SET?
025740  001006                          BNE     30$             ;IF YES, ERROR.
025742  012777  000010  154316          MOV     #LL,@RXCSR      ;CHECK LL
025750  030277  154312                  BIT     R2,@RXCSR       ;IS IT SET?
025754  001404                          BEQ     40$             ;IF NOT, OK
025756                          30$:
025756                                  ERRDF   60,EMG22,ERRG15
025756  104455                                                                          TRAP    C$ERDF
025760  000074                                                                          .WORD   60
025762  014556                                                                          .WORD   EMG22
025764  011044                                                                          .WORD   ERRG15
025766                          40$:
025766                          ENDTST
025766                                                                          L10071:
025766  104401                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 13 - MODEM STATUS INTERRUPT

                                ;*******************************************************************
                                ;*              TEST 13 - DPV-11
                                ;* MODEM STATUS INTERRUPT
                                ;* IF A PROPER TURNAROUND (H3259 OR H3260) IS ON, THIS TEST WILL CHECK
                                ;* THAT THE FOLLOWING SUBTESTS WORK CORRECTLY.
                                ;* SUBTEST 1 -  SET DTR (DATA TERMINAL READY), LOCAL LOOP (LL), RTS (REQUEST
                                ;*              TO SEND) WITH ONLY RECEIVE INTERRUPT ENABLED. ENSURE THAT AN
                                ;*              INTERRUPT IS NOT RECEIVED.
                                ;* SUBTEST 2 -  SET DTR, LL AND RTS WITH ONLY DATA SET INTERRUPT ENABLED.
                                ;*              ENSURE THAT AN INTERRUPT IS NOT RECEIVED.
                                ;* SUBTEST 3 -  SET DTR, LL AND RTS WITHOUT ANY INTERRUPTS ENABLED.  ENSURE
                                ;*              THAT AN INTERRUPT IS NOT RECEIVED.
                                ;* SUBTEST 4 -  SET RTS WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
                                ;*              THAT AN INTERRUPT IS RECEIVED.
                                ;* SUBTEST 5 -  SET DTR WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
                                ;*              THAT AN INTERRUPT IS RECEIVED.
                                ;* SUBTEST 6 -  SET LL WITH RECEIVE AND DATA SET INTERRUPT ENABLED.  ENSURE
                                ;*              THAT AN INTERRUPT IS RECEIVED.
                                ;*
                                ;*******************************************************************
 025770                         BGNTST
 025770                                                                          T13::
 025770                                 CALL    $TURN           ;CHECK THE TURNAROUND.
 025774  103002                         BCC     1$              ;PROCEED IF TURNAROUND.
 025776                                 EXIT    TST
 025776  104432                                                                          TRAP    C$EXIT
 026000  000676                                                                          .WORD   L10072-.
 026002                         1$:
 026002                                 SETVEC  RCVEC,#RINT,#PRI04
 026002  012746  000200                                                                  MOV     #PRI04,-(SP)
 026006  012746  016602                                                                  MOV     #RINT,-(SP)
 026012  013746  002262                                                                  MOV     RCVEC,-(SP)
 026016  012746  000003                                                                  MOV     #3,-(SP)
 026022  104437                                                                          TRAP    C$SVEC
 026024  062706  000010                                                                  ADD     #10,SP
 026030                                 SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
 026030  012700  000000                                                                  MOV     #PRI00,R0
 026034  104441                                                                          TRAP    C$SPRI
                                                                ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                ;LEVEL 4-7.
                                                                ;SET UP INTERRUPT VECTOR

 026036                         BGNSUB
 026036                                                                          T13.1:
 026036  104402                                                                          TRAP    C$BSUB
 026040                                 CALL    $RESET          ;RESET THE DPV
 026044                                 ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 026044  104410                                                                          TRAP    C$ESCAPE
 026046  000630                                                                          .WORD   L10072-.
 026050  005037  002376                 CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
 026054  005037  002360                 CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
```

```
                                                                                ;ENABLE RCV INT AND SET RTS, DTR AND L. LOOP
026060  012777  000116  154200          MOV     #RXITEN!LL!DTR!RTS,@RXCSR

026066                          10$:
026066                                  $DELAY  10              ;WAIT 1 MS

                                                                ;******** MACRO EXPANSION ********
026066  004737  006604                  JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
026072  000010                                  .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                ;**********************************

026074  005737  002360                  TST     MCFLAG          ;WAS AN MODEM CONTROL INTERRUPT RECEIVED?
026100  001404                          BEQ     30$             ;IF NOT OK.
026102                                  ERRDF   61,EMG23,ERRG2
026102  104455                                                                          TRAP    C$ERDF
026104  000075                                                                          .WORD   61
026106  014603                                                                          .WORD   EMG23
026110  006700                                                                          .WORD   ERRG2

026112                          30$:

026112                            ENDSUB
026112                                                                          L10073:
026112  104403                                                                          TRAP    C$ESUB

026114                            BGNSUB
026114                                                                          T13.2:
026114  104402                                                                          TRAP    C$BSUB
026116                                  CALL    $RESET          ;RESET THE DPV
026122                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
026122  104410                                                                          TRAP    C$ESCAPE
026124  000552                                                                          .WORD   L10072-.
026126  005037  002376                  CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
026132  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.

                                                                ;ENABLE DS. INT, SET RTS, DTR AND LL
026136  012777  000056  154122          MOV     #DSITEN!LL!RTS!DTR,@RXCSR

026144                          10$:
026144                                  $DELAY  10              ;WAIT 1 MS

                                                                ;******** MACRO EXPANSION ********
026144  004737  006604                  JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
026150  000010                                  .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                ;**********************************

026152  005737  002360                  TST     MCFLAG          ;WAS AN MODEM CONTROL INTERRUPT RECEIVED?
026156  001404                          BEQ     30$             ;IF NOT OK.
026160                                  ERRDF   62,EMG23,ERRG2
026160  104455                                                                          TRAP    C$ERDF
026162  000076                                                                          .WORD   62
026164  014603                                                                          .WORD   EMG23
026166  006700                                                                          .WORD   ERRG2

026170                          30$:
```

```
026170                          ENDSUB
026170                                                                  L10074:
026170  104403                                                                  TRAP    C$ESUB
026172                          BGNSUB
026172                                                                  T13.3:
026172  104402                                                                  TRAP    C$BSUB
026174                                  CALL    $RESET          ;RESET THE DPV
026200                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
026200  104410                                                                  TRAP    C$ESCAPE
026202  000474                                                                  .WORD   L10072-.
026204  005037  002376                  CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
026210  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
                                                                ;SET LOCAL LOOP, DTR AND RTS.
026214  012777  000016  154044          MOV     #LL!RTS!DTR,@RXCSR
026222                          10$:
026222                                  $DELAY  10              ;WAIT 1 MS
                                                                ;******** MACRO EXPANSION ********
026222  004737  006604                  JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
026226  000010                                  .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                ;**********************************

026230  005737  002360                  TST     MCFLAG          ;WAS AN INTERRUPT RECEIVED?
026234  001404                          BEQ     30$             ;IF NOT OK.
026236                                  ERRDF   63,EMG23,ERRG2
026236  104455                                                                  TRAP    C$ERDF
026240  000077                                                                  .WORD   63
026242  014603                                                                  .WORD   EMG23
026244  006700                                                                  .WORD   ERRG2

026246                          30$:

026246                          ENDSUB
026246                                                                  L10075:
026246  104403                                                                  TRAP    C$ESUB

026250                          BGNSUB
026250                                                                  T13.4:
026250  104402                                                                  TRAP    C$BSUB
026252                                  CALL    $RESET          ;RESET THE DPV
026256                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
026256  104410                                                                  TRAP    C$ESCAPE
026260  000416                                                                  .WORD   L10072-.
026262  005037  002376                  CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
026266  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
                                                                ;ENABLE INTERRUPTS AND SET RTS.
026272  012777  000144  153766          MOV     #RXITEN!DSITEN!RTS,@RXCSR

026300                          10$:
026300                                  $DELAY  10              ;WAIT 1 MS
```

```
                                                                        ;******** MACRO EXPANSION ********
     026300  004737  006604                JSR     PC,$DLAY           ;CALL DELAY SUBROUTINE
     026304  000010                                .WORD   10         ;NUMBER OF DELAY LOOPS
                                                                        ;**********************************

4797 026306  005737  002360                TST     MCFLAG             ;WAS AN INTERRUPT RECEIVED?
4798 026312  001015                        BNE     20$                ;IF YES - CHECK FOR MULTIPLE INTERRUPTS.
4799 026314                                ERRDF   64,EMG24,ERRG2
     026314  104455                                                                          TRAP    C$ERDF
     026316  000100                                                                          .WORD   64
     026320  014661                                                                          .WORD   EMG24
     026322  006700                                                                          .WORD   ERRG2
4800 026324                                PRINTB  #FMG26
     026324  012746  012715                                                                  MOV     #FMG26,-(SP)
     026330  012746  000001                                                                  MOV     #1,-(SP)
     026334  010600                                                                          MOV     SP,R0
     026336  104414                                                                          TRAP    C$PNTB
     026340  062706  000004                                                                  ADD     #4,SP
4801 026344  000410                        BR      30$
4802 026346                        20$:
4803 026346  022737  000001  002360        CMP     #1,MCFLAG          ;WAS ONLY 1 RECEIVED?
4804 026354  001404                        BEQ     30$                ;IF YES - OK
4805 026356                                ERRDF   65,EMG40           ;REPORT MULTIPLE INTERRUPTS
     026356  104455                                                                          TRAP    C$ERDF
     026360  000101                                                                          .WORD   65
     026362  015321                                                                          .WORD   EMG40
     026364  000000                                                                          .WORD   0
4806 026366                        30$:
4807
4808 026366                          ENDSUB
     026366                                                                     L10076:
     026366  104403                                                                          TRAP    C$ESUB
4809
4810
4811 026370                          BGNSUB
     026370                                                                     T13.5:
     026370  104402                                                                          TRAP    C$BSUB
4812 026372                                CALL    $RESET             ;RESET THE DPV
4813 026376                                ESCAPE  TST                ;IF ERROR, EXIT THE TEST
     026376  104410                                                                          TRAP    C$ESCAPE
     026400  000276                                                                          .WORD   L10072-.
4814 026402  005037  002376                CLR     RFLAG              ;CLEAR THE FLAG USED IN THE ISR
4815 026406  005037  002360                CLR     MCFLAG             ;CLEAR MODEM CONTROL FLAG.
4816
4817                                                                   ;ENABLE INTERRUPTS AND SET DTR.
4818 026412  012777  000142  153646        MOV     #RXITEN!DSITEN!DTR,@RXCSR
4819
4820 026420                        10$:
4821 026420                                $DELAY  10                 ;WAIT 1 MS

                                                                        ;******** MACRO EXPANSION ********
     026420  004737  006604                JSR     PC,$DLAY           ;CALL DELAY SUBROUTINE
     026424  000010                                .WORD   10         ;NUMBER OF DELAY LOOPS
                                                                        ;**********************************

4822 026426  005737  002360                TST     MCFLAG             ;WAS AN INTERRUPT RECEIVED?
4823 026432  001015                        BNE     20$                ;IF YES - CHECK FOR MULTIPLE INTERRUPTS.
```

```
 4824 026434                                ERRDF   66,EMG24,ERRG2
      026434  104455                                                                    TRAP    C$ERDF
      026436  000102                                                                    .WORD   66
      026440  014661                                                                    .WORD   EMG24
      026442  006700                                                                    .WORD   ERRG2
 4825 026444                                PRINTB  #FMG26                             MOV     #FMG26,-(SP)
      026444  012746  012715                                                            MOV     #1,-(SP)
      026450  012746  000001                                                            MOV     SP,R0
      026454  010600                                                                    TRAP    C$PNTB
      026456  104414                                                                    ADD     #4,SP
      026460  062706  000004
 4826 026464  000410                        BR      30$
 4827 026466                        20$:
 4828 026466  022737  000001  002360        CMP     #1,MCFLAG       ;WAS ONLY 1 RECEIVED?
 4829 026474  001404                        BEQ     30$             ;IF YES - OK
 4830 026476                                ERRDF   67,EMG40        ;REPORT MULTIPLE INTERRUPTS
      026476  104455                                                                    TRAP    C$ERDF
      026500  000103                                                                    .WORD   67
      026502  015321                                                                    .WORD   EMG40
      026504  000000                                                                    .WORD   0
 4831 026506                        30$:
 4832
 4833 026506                          ENDSUB
      026506                                                                L10077:
      026506  104403                                                                    TRAP    C$ESUB
 4834
 4835
 4836 026510                          BGNSUB
      026510                                                                T13.6:
      026510  104402                                                                    TRAP    C$BSUB
 4837 026512                                CALL    $RESET          ;RESET THE DPV
 4838 026516                                ESCAPE  TST             ;IF ERROR, EXIT THE TEST
      026516  104410                                                                    TRAP    C$ESCAPE
      026520  000156                                                                    .WORD   L10072-.
 4839 026522  005037  002376                CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
 4840 026526  005037  002360                CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
 4841
 4842                                                               ;ENABLE INTERRUPTS AND SET LL.
 4843 026532  012777  000150  153526        MOV     #RXITEN!DSITEN!LL,@RXCSR
 4844
 4845 026540                        10$:
 4846 026540                                $DELAY  10              ;WAIT 1 MS
                                                                    ;******** MACRO EXPANSION ********
      026540  004737  006604                JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
      026544  000010                                .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                    ;*********************************

 4847 026546  005737  002360                TST     MCFLAG          ;WAS AN INTERRUPT RECEIVED?
 4848 026552  001025                        BNE     20$             ;IF YES - CHECK FOR MULTIPLE INTERRUPTS.
 4849 026554                                ERRDF   68,EMG24,ERRG2
      026554  104455                                                                    TRAP    C$ERDF
      026556  000104                                                                    .WORD   68
      026560  014661                                                                    .WORD   EMG24
      026562  006700                                                                    .WORD   ERRG2
 4850 026564                                PRINTB  #FMG26                             MOV     #FMG26,-(SP)
      026564  012746  012715
```

```
        026570  012746  000001                                                          MOV     #1,-(SP)
        026574  010600                                                                  MOV     SP,R0
        026576  104414                                                                  TRAP    C$PNTB
        026600  062706  000004                                                          ADD     #4,SP
   4851 026604                          PRINTB  #FMG29
        026604  012746  013221                                                          MOV     #FMG29,-(SP)
        026610  012746  000001                                                          MOV     #1,-(SP)
        026614  010600                                                                  MOV     SP,R0
        026616  104414                                                                  TRAP    C$PNTB
        026620  062706  000004                                                          ADD     #4,SP
   4852 026624  000410                  BR      30$
   4853 026626                      20$:
   4854 026626  022737  000001  002360  CMP     #1,MCFLAG       ;WAS ONLY 1 RECEIVED?
   4855 026634  001404                  BEQ     30$             ;IF YES - OK
   4856 026636                          ERRDF   69,EMG40        ;REPORT MULTIPLE INTERRUPTS
        026636  104455                                                                  TRAP    C$ERDF
        026640  000105                                                                  .WORD   69
        026642  015321                                                                  .WORD   EMG40
        026644  000000                                                                  .WORD   0
   4857 026646                      30$:
   4858
   4859 026646                        ENDSUB
        026646                                                                  L10100:
        026646  104403                                                                  TRAP    C$ESUB
   4860
   4861
   4862
   4863 026650                          CALL    $RESET          ;RESET THE DPV
   4864 026654                          SETPRI  #PRI06          ;SET THE PROCESSOR PRI TO 6
        026654  012700  000300                                                          MOV     #PRI06,R0
        026660  104441                                                                  TRAP    C$SPRI
   4865                                                         ;(THIS WILL DISABLE INTERRUPTS)
   4866 026662                          CLRVEC  RCVEC           ;RESTORE THE RECV. VECTOR
        026662  013700  002262                                                          MOV     RCVEC,R0
        026666  104436                                                                  TRAP    C$CVEC
   4867 026670                          CLRVEC  XMTVEC          ;RESTORE THE XMIT. VECTOR
        026670  013700  002264                                                          MOV     XMTVEC,R0
        026674  104436                                                                  TRAP    C$CVEC
   4868
   4869
   4870 026676                      ENDTST
        026676                                                                  L10072:
        026676  104401                                                                  TRAP    C$ETST
   4871
   4872
   4873
```

```
                                .SBTTL          TEST 14 - RECEIVE AND MODEM STATUS INTERRUPTS

                                ;*******************************************************************
                                ;*              TEST 14 - DPV-11
                                ;* RECEIVE AND MODEM STATUS INTERRUPTS
                                ;* CHANGE THE MODEM STATUS WHILE HANDLING A RECEIVE INTERRUPT.
                                ;* ENSURE THAT THE MODEM STATUS INTERRUPT IS RECEIVED.
                                ;* SUBTEST 1 -  CHANGE RTS DURING THE RECEIVE INTERRUPT.  ENSURE THAT
                                ;*              THE DATA SET INTERRUPT WAS RECEIVED.
                                ;* SUBTEST 2 -  CHANGE DTR DURING THE RECEIVE INTERRUPT.  ENSURE THAT
                                ;*              THE DATA SET INTERRUPT WAS RECEIVED.
                                ;* SUBTEST 3 -  CHANGE LL DURING THE RECEIVE INTERRUPT.  ENSURE THAT
                                ;*              THE DATA SET INTERRUPT WAS RECEIVED.
                                ;*
                                ;*******************************************************************
026700                          BGNTST
026700                                                                          T14::
026700                                  CALL    $TURN           ;CHECK THE TURNAROUND.
026704  103002                          BCC     1$              ;PROCEED, IF TURNAROUND ON.
026706                                  EXIT    TST             ;IF NO TURNAROUND, EXIT.
                                                                                TRAP    C$EXIT
026706  104432                                                                  .WORD   L10101-.
026710  001072
026712                          1$:
026712                            BGNSUB
026712                                                                          T14.1:
                                                                                TRAP    C$BSUB
026712  104402
026714                                  CALL    $RESET          ;RESET THE DPV
026720                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                                TRAP    C$ESCAPE
026720  104410                                                                  .WORD   L10101-.
026722  001060
026724  005037  002424                  CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
026730  005037  002376                  CLR     RFLAG
026734  005037  002360                  CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
026740  012737  000004  002432          MOV     #RTS,TOGGLE     ;TOGGLE RTS

026746                                  SETVEC  RCVEC,#RINT,#PRI04
                                                                                MOV     #PRI04,-(SP)
026746  012746  000200                                                          MOV     #RINT,-(SP)
026752  012746  016602                                                          MOV     RCVEC,-(SP)
026756  013746  002262                                                          MOV     #3,-(SP)
026762  012746  000003                                                          TRAP    C$SVEC
026766  104437                                                                  ADD     #10,SP
026770  062706  000010
026774                                  SETVEC  XMTVEC,#XINT,#PRI04
                                                                                MOV     #PRI04,-(SP)
026774  012746  000200                                                          MOV     #XINT,-(SP)
027000  012746  017232                                                          MOV     XMTVEC,-(SP)
027004  013746  002264                                                          MOV     #3,-(SP)
027010  012746  000003                                                          TRAP    C$SVEC
027014  104437                                                                  ADD     #10,SP
027016  062706  000010
027022                                  SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
                                                                                MOV     #PRI00,R0
027022  012700  000000                                                          TRAP    C$SPRI
027026  104441
                                                        ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                        ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                        ;LEVEL 4-7.
                                                        ;SET UP INTERRUPT VECTOR
```

```
027030  012777  043652  153232          MOV     #43652,@PCSAR    ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
027036  012737  000002  002414          MOV     #2,START         ;# OF START CHARACTERS.
027044  012777  000160  153214          MOV     #RXITEN!DSITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND INT.
027052  012777  000130  153212          MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
                                                                       ;SELECT THE MAINTENANCE LOOPBACK.
027060  005001                          CLR     R1               ;LOOP COUNTER
027062                          10$:
027062  005737  002360                  TST     MCFLAG           ;WAS A MODEM CHANGE INTERRUPT RECEIVED?
027066  001017                          BNE     20$              ;IF YES, EXIT.
027070  005301                          DEC     R1               ;DECREMENT COUNTER
027072  001373                          BNE     10$

027074                                  ERRDF   70,EMG24,ERRG2
027074  104455                                                                          TRAP    C$ERDF
027076  000106                                                                          .WORD   70
027100  014661                                                                          .WORD   EMG24
027102  006700                                                                          .WORD   ERRG2

027104                                  PRINTB  #FMG26           ;NOTIFY THAT INTERRUPT MAY BE DISABLED BY
027104  012746  012715                                                                  MOV     #FMG26,-(SP)
027110  012746  000001                                                                  MOV     #1,-(SP)
027114  010600                                                                          MOV     SP,R0
027116  104414                                                                          TRAP    C$PNTB
027120  062706  000004                                                                  ADD     #4,SP

                                                                 ;REMOVING THE WIRE WRAP.
027124  000410                          BR      30$
027126                          20$:
027126  022737  000001  002360          CMP     #1,MCFLAG        ;WAS ONLY 1 RECEIVED?
027134  001404                          BEQ     30$              ;IF YES - OK
027136                                  ERRDF   71,EMG40         ;REPORT MULTIPLE INTERRUPTS
027136  104455                                                                          TRAP    C$ERDF
027140  000107                                                                          .WORD   71
027142  015321                                                                          .WORD   EMG40
027144  000000                                                                          .WORD   0
027146                          30$:
027146                                  CALL    $RESET           ;RESET THE DPV
027152                                  SETPRI  #PRI06           ;SET THE PROCESSOR PRIORITY TO 6
027152  012700  000300                                                                  MOV     #PRI06,R0
027156  104441                                                                          TRAP    C$SPRI

                                                                 ;(THIS WILL DISABLE INTERRUPTS)
027160                                  CLRVEC  RCVEC            ;RESTORE THE RECV. VECTOR
027160  013700  002262                                                                  MOV     RCVEC,R0
027164  104436                                                                          TRAP    C$CVEC
027166                                  CLRVEC  XMTVEC           ;RESTORE THE XMIT. VECTOR
027166  013700  002264                                                                  MOV     XMTVEC,R0
027172  104436                                                                          TRAP    C$CVEC
027174                                  ESCAPE  TST              ;IF ERROR, ESCAPE
027174  104410                                                                          TRAP    C$ESCAPE
027176  000604                                                                          .WORD   L10101-.

027200                          ENDSUB
027200                                                                          L10102:
027200  104403                                                                          TRAP    C$ESUB

027202                          BGNSUB
027202                                                                          T14.2:
```

```
        027202  104402                                                                  TRAP    C$BSUB
 4944   027204                          CALL    $RESET          ;RESET THE DPV
 4945   027210                          ESCAPE  TST             ;IF ERROR, EXIT THE TEST
        027210  104410                                                                  TRAP    C$ESCAPE
        027212  000570                                                                  .WORD   L10101-.
 4946   027214  005037  002424          CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
 4947   027220  005037  002376          CLR     RFLAG
 4948   027224  005037  002360          CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
 4949   027230  012737  000002  002432  MOV     #DTR,TOGGLE     ;TOGGLE DTR.
 4950
 4951   027236                          SETVEC  RCVEC,#RINT,#PRI04
        027236  012746  000200                                                          MOV     #PRI04,-(SP)
        027242  012746  016602                                                          MOV     #RINT,-(SP)
        027246  013746  002262                                                          MOV     RCVEC,-(SP)
        027252  012746  000003                                                          MOV     #3,-(SP)
        027256  104437                                                                  TRAP    C$SVEC
        027260  062706  000010                                                          ADD     #10,SP
 4952   027264                          SETVEC  XMTVEC,#XINT,#PRI04
        027264  012746  000200                                                          MOV     #PRI04,-(SP)
        027270  012746  017232                                                          MOV     #XINT,-(SP)
        027274  013746  002264                                                          MOV     XMTVEC,-(SP)
        027300  012746  000003                                                          MOV     #3,-(SP)
        027304  104437                                                                  TRAP    C$SVEC
        027306  062706  000010                                                          ADD     #10,SP
 4953   027312                          SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
        027312  012700  000000                                                          MOV     #PRI00,R0
        027316  104441                                                                  TRAP    C$SPRI
 4954                                                            ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
 4955                                                            ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
 4956                                                            ;LEVEL 4-7.
 4957                                                            ;SET UP INTERRUPT VECTOR
 4958
 4959
 4960   027320  012777  043652  152742  MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
 4961   027326  012737  000002  002414  MOV     #2,START        ;# OF START CHARACTERS.
 4962   027334  012777  000160  152724  MOV     #RXITEN!DSITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND INT.
 4963   027342  012777  000130  152722  MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
 4964                                                                   ;SELECT THE MAINTENANCE LOOPBACK.
 4965   027350  005001                  CLR     R1              ;LOOP COUNTER
 4966   027352                  10$:
 4967   027352  005737  002360          TST     MCFLAG          ;WAS A MODEM CHANGE INTERRUPT RECEIVED?
 4968   027356  001017                  BNE     20$             ;IF YES, EXIT.
 4969   027360  005301                  DEC     R1              ;DECREMENT COUNTER
 4970   027362  001373                  BNE     10$
 4971
 4972   027364                          ERRDF   72,EMG24,ERRG2
        027364  104455                                                                  TRAP    C$ERDF
        027366  000110                                                                  .WORD   72
        027370  014661                                                                  .WORD   EMG24
        027372  006700                                                                  .WORD   ERRG2
 4973
 4974   027374                          PRINTB  #FMG26          ;NOTIFY THAT INTERRUPT MAY BE DISABLED BY
        027374  012746  012715                                                          MOV     #FMG26,-(SP)
        027400  012746  000001                                                          MOV     #1,-(SP)
        027404  010600                                                                  MOV     SP,R0
        027406  104414                                                                  TRAP    C$PNTB
        027410  062706  000004                                                          ADD     #4,SP
```

```
                                                                        ;REMOVING THE WIRE WRAP.
027414  000410                          BR      30$
027416                          20$:
027416  022737  000001  002360          CMP     #1,MCFLAG               ;WAS ONLY 1 RECEIVED?
027424  001404                          BEQ     30$                     ;IF YES - OK
027426                                  ERRDF   73,EMG40                ;REPORT MULTIPLE INTERRUPTS
                                                                                        TRAP    C$ERDF
027426  104455                                                                          .WORD   73
027430  000111                                                                          .WORD   EMG40
027432  015321                                                                          .WORD   0
027434  000000                                                                          .WORD   0
027436                          30$:
027436                                  CALL    $RESET                  ;RESET THE DPV
027442                                  SETPRI  #PRI06                  ;SET THE PROCESSOR PRI TO 6
                                                                                        MOV     #PRI06,R0
027442  012700  000300                                                                  TRAP    C$SPRI
027446  104441
                                                                        ;(THIS WILL DISABLE INTERRUPTS)
027450                                  CLRVEC  RCVEC                   ;RESTORE THE RECV. VECTOR
                                                                                        MOV     RCVEC,R0
027450  013700  002262                                                                  TRAP    C$CVEC
027454  104436
027456                                  CLRVEC  XMTVEC                  ;RESTORE THE XMIT. VECTOR
                                                                                        MOV     XMTVEC,R0
027456  013700  002264                                                                  TRAP    C$CVEC
027462  104436
027464                                  ESCAPE  TST                     ;IF ERROR, ESCAPE
                                                                                        TRAP    C$ESCAPE
027464  104410                                                                          .WORD   L10101-.
027466  000314
                                ENDSUB
027470                                                                          L10103:
027470                                                                                  TRAP    C$ESUB
027470  104403
                                BGNSUB
027472                                                                          T14.3:
027472                                                                                  TRAP    C$BSUB
027472  104402
027474                                  CALL    $RESET                  ;RESET THE DPV
027500                                  ESCAPE  TST                     ;IF ERROR, EXIT THE TEST
                                                                                        TRAP    C$ESCAPE
027500  104410                                                                          .WORD   L10101-.
027502  000300
027504  005037  002424                  CLR     TFLAG                   ;CLEAR THE FLAGS USED IN THE ISRS.
027510  005037  002376                  CLR     RFLAG
027514  005037  002360                  CLR     MCFLAG                  ;CLEAR MODEM CONTROL FLAG.
027520  012737  000010  002432          MOV     #LL,TOGGLE              ;TOGGLE LL

027526                                  SETVEC  RCVEC,#RINT,#PRI04
                                                                                        MOV     #PRI04,-(SP)
027526  012746  000200                                                                  MOV     #RINT,-(SP)
027532  012746  016602                                                                  MOV     RCVEC,-(SP)
027536  013746  002262                                                                  MOV     #3,-(SP)
027542  012746  000003                                                                  TRAP    C$SVEC
027546  104437                                                                          ADD     #10,SP
027550  062706  000010
027554                                  SETVEC  XMTVEC,#XINT,#PRI04
                                                                                        MOV     #PRI04,-(SP)
027554  012746  000200                                                                  MOV     #XINT,-(SP)
027560  012746  017232                                                                  MOV     XMTVEC,-(SP)
027564  013746  002264                                                                  MOV     #3,-(SP)
027570  012746  000003                                                                  TRAP    C$SVEC
027574  104437                                                                          ADD     #10,SP
027576  062706  000010
027602                                  SETPRI  #PRI00                  ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
```

```
        027602  012700  000000                                                                  MOV     #PRI00,R0
        027606  104441                                                                          TRAP    C$SPRI
 5002                                                          ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
 5003                                                          ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
 5004                                                          ;LEVEL 4-7.
 5005                                                          ;SET UP INTERRUPT VECTOR
 5006
 5007
 5008 027610  012777  043652  152452          MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
 5009 027616  012737  000002  002414          MOV     #2,START        ;# OF START CHARACTERS.
 5010 027624  012777  000160  152434          MOV     #RXITEN!DSITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND INT.
 5011 027632  012777  000130  152432          MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
 5012                                                                  ;SELECT THE MAINTENANCE LOOPBACK.
 5013 027640  005001                          CLR     R1              ;LOOP COUNTER
 5014 027642                          10$:
 5015 027642  005737  002360                  TST     MCFLAG          ;WAS A MODEM CHANGE INTERRUPT RECEIVED?
 5016 027646  001027                          BNE     20$             ;IF YES, EXIT.
 5017 027650  005301                          DEC     R1              ;DECREMENT COUNTER
 5018 027652  001373                          BNE     10$
 5019
 5020 027654                                  ERRDF   74,EMG24,ERRG2
        027654  104455                                                                          TRAP    C$ERDF
        027656  000112                                                                          .WORD   74
        027660  014661                                                                          .WORD   EMG24
        027662  006700                                                                          .WORD   ERRG2
 5021
 5022 027664                                  PRINTB  #FMG26          ;NOTIFY THAT INTERRUPT MAY BE DISABLED BY
        027664  012746  012715                                                                  MOV     #FMG26,-(SP)
        027670  012746  000001                                                                  MOV     #1,-(SP)
        027674  010600                                                                          MOV     SP,R0
        027676  104414                                                                          TRAP    C$PNTB
        027700  062706  000004                                                                  ADD     #4,SP
 5023                                                          ;REMOVING THE WIRE WRAP.
 5024 027704                                  PRINTB  #FMG29
        027704  012746  013221                                                                  MOV     #FMG29,-(SP)
        027710  012746  000001                                                                  MOV     #1,-(SP)
        027714  010600                                                                          MOV     SP,R0
        027716  104414                                                                          TRAP    C$PNTB
        027720  062706  000004                                                                  ADD     #4,SP
 5025 027724  000410                          BR      30$
 5026 027726                          20$:
 5027 027726  022737  000001  002360          CMP     #1,MCFLAG       ;WAS ONLY 1 RECEIVED?
 5028 027734  001404                          BEQ     30$             ;IF YES - OK
 5029 027736                                  ERRDF   75,EMG40        ;REPORT MULTIPLE INTERRUPTS
        027736  104455                                                                          TRAP    C$ERDF
        027740  000113                                                                          .WORD   75
        027742  015321                                                                          .WORD   EMG40
        027744  000000                                                                          .WORD   0
 5030 027746                          30$:
 5031 027746                                  CALL    $RESET          ;RESET THE DPV
 5032 027752                                  SETPRI  #PRI06          ;SET THE PROCESSOR PRI TO 6
        027752  012700  000300                                                                  MOV     #PRI06,R0
        027756  104441                                                                          TRAP    C$SPRI
 5033                                                          ;(THIS WILL DISABLE INTERRUPTS)
 5034 027760                                  CLRVEC  RCVEC           ;RESTORE THE RECV. VECTOR
        027760  013700  002262                                                                  MOV     RCVEC,R0
        027764  104436                                                                          TRAP    C$CVEC
```

```
 5035 027766                                    CLRVEC  XMTVEC          ;RESTORE THE XMIT. VECTOR
      027766  013700  002264                                                                    MOV     XMTVEC,R0
      027772  104436                                                                            TRAP    C$CVEC
 5036 027774                                    ESCAPE  TST             ;IF ERROR, ESCAPE
      027774  104410                                                                            TRAP    C$ESCAPE
      027776  000004                                                                            .WORD   L10101-.
 5037
 5038 030000                            ENDSUB                                          L10104:
      030000                                                                            TRAP    C$ESUB
      030000  104403
 5039
 5040 030002                            ENDTST                                          L10101:
      030002                                                                            TRAP    C$ETST
      030002  104401
 5041
```

```
                                .SBTTL          TEST 15 - SECONDARY & ALL PARTIES ADDRESSING

                                ;*******************************************************************
                                ;*              TEST 15 - DPV-11
                                ;* SUBTEST 1 - SECONDARY ADDRESS
                                ;*      SEGMENT 1 -     SELECT SECONDARY ADDRESS AND SEND THE CORRECT
                                ;*                      ADDRESS.  CHECK THE DATA IS PROPERLY RECEIVED.
                                ;*      SEGMENT 2 -     SELECT SECONDARY ADDRESS AND SEND A MESSAGE WITHOUT
                                ;*                      SENDING USING THE SECONDARY ADDRESS.  CHECK THAT A
                                ;*                      TIME OUT IS RECEIVED.
                                ;*
                                ;* SUBTEST 2 - ALL PARTIES ADDRESSING
                                ;*      SEGMENT 1 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
                                ;*                      MESSAGE USING THE ALL PARTIES ADDRESS.  ENSURE THAT
                                ;*                      THE MESSAGE IS CORRECTLY RECEIVED.
                                ;*      SEGMENT 2 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
                                ;*                      MESSAGE WITHOUT ALL PARTIES OR SECONDARY ADDRESS.
                                ;*                      CHECK THAT A TIME OUT IS RECEIVED.
                                ;*      SEGMENT 3 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
                                ;*                      MESSAGE WITH A SECONDARY ADDRESS.  CHECK THAT A
                                ;*                      TIME OUT IS RECEIVED.
                                ;*
                                ;*******************************************************************
 030004                         BGNTST
 030004                                                                                  T15::

 030004                           BGNSUB
 030004                                                                                  T15.1:
 030004  104402                                                                                   TRAP    C$BSUB
 030006                             BGNSEG
 030006  104404                                                                                   TRAP    C$BSEG
 030010                                 CALL    $RESET          ;RESET THE DPV
 030014                                 ESCAPE  TST             ;IF ERROR, BR TO THE END.
 030014  104410                                                                                   TRAP    C$ESCAPE
 030016  000674                                                                                   .WORD   L10105-.
 030020  012737  100000  002362         MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
 030026  012737  000000  002344         MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
 030034  052737  010120  002344         BIS     #SECADR!120,IPCSAR ;SECONDARY ADDRESS
 030042  012737  000001  002414         MOV     #1,START        ;SEND 1 FLAG
 030050  012737  000002  002336         MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 030056  012737  000003  002352         MOV     #3,LENGTH       ;CHARACTER LENGTH OF 3 BITS.
 030064  012737  000400  002434         MOV     #TSOM,TSTART    ;START OF MESSAGE.
 030072  012737  001000  002422         MOV     #TEOM,TEND      ;END OF MESSAGE
 030100  012737  002502  002470         MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 030106  012737  000012  002472         MOV     #10.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
 030114  013777  002344  152146         MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 030122  112737  000143  002342         MOVB    #143,IPCR       ;SET UP CHARACTER LENGTH


 030130                                 CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 030134  012737  000001  002356         MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
 030142  005037  002332                 CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
 030146                                 CALL    $DATA           ;
 030152                                 ESCAPE  TST             ;IF ERROR - EXIT
 030152  104410                                                                                   TRAP    C$ESCAPE
 030154  000536                                                                                   .WORD   L10105-.
```

```
                                                CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
030156
030162                                          ESCAPE  TST             ;IF ERROR - EXIT
030162  104410                                                                                  TRAP    C$ESCAPE
030164  000526                                                                                  .WORD   L10105-.
030166                                  ENDSEG
030166                                                                                  10000$:
030166  104405                                                                                  TRAP    C$ESEG
030170                                  BGNSEG
030170  104404                                                                                  TRAP    C$BSEG
030172                                          CALL    $RESET          ;RESET THE DPV
030176                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
030176  104410                                                                                  TRAP    C$ESCAPE
030200  000512                                                                                  .WORD   L10105-.
030202  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
030210  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
                                                                        ;
030216  013777  002344  152044                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
030224  112737  000143  002342                  MOVB    #143,IPCR       ;SET UP CHARACTER LENGTH

030232  012737  000001  002430                  MOV     #1,TIMER        ;CHANGE TIMEOUT VALUE
030240  012737  000001  002332                  MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
030246  105037  002673                          CLRB    XMTBUF          ;CLEAR SECONDARY ADDRESS FROM XMIT BUFFER.
030252                                          CALL    $DATA           ;
030256  013737  002412  002430                  MOV     SAVTIM,TIMER    ;RESTORE THE TIMER
030264  005737  002426                          TST     TIMEO           ;DID THE RECEIVER TIME OUT?
030270  001004                                  BNE     1$              ;IF YES - OK.
030272                                          ERRDF   76,EMG35
030272  104455                                                                                  TRAP    C$ERDF
030274  000114                                                                                  .WORD   76
030276  015135                                                                                  .WORD   EMG35
030300  000000                                                                                  .WORD   0
030302                                  1$:
030302                                      ENDSEG
030302                                                                                  10001$:
030302  104405                                                                                  TRAP    C$ESEG
030304                                  ENDSUB
030304                                                                                  L10106:
030304  104403                                                                                  TRAP    C$ESUB


030306                                  BGNSUB
030306                                                                                  T15.2:
030306  104402                                                                                  TRAP    C$BSUB
030310                                      BGNSEG
030310  104404                                                                                  TRAP    C$BSEG
030312                                          CALL    $RESET          ;RESET THE DPV
030316                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
030316  104410                                                                                  TRAP    C$ESCAPE
030320  000372                                                                                  .WORD   L10105-.
030322  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
030330  012737  000400  002344                  MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
030336  052737  110231  002344                  BIS     #APA!SECADR!231,IPCSAR  ;ALL PARTIES ADDRESS AND
                                                                                ;SECONDARY ADDRESS
030344  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
030352  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
```

```
030360  012737  000004  002352          MOV     #4,LENGTH         ;CHARACTER LENGTH OF 5 BITS.
030366  012737  000400  002434          MOV     #TSOM,TSTART      ;START OF MESSAGE.
030374  012737  001000  002422          MOV     #TEOM,TEND        ;END OF MESSAGE
030402  012737  002502  002470          MOV     #$CCITT,XTYPE     ;USE CCITT DATA PATTERN
030410  012737  000012  002472          MOV     #10.,XCOUNT       ;# OF CHARACTERS TO TRANSMIT
                                                                  ;
030416  013777  002344  151644          MOV     IPCSAR,@PCSAR     ;SET UP PARAMETERS AND ADDRESS
030424  112737  000204  002342          MOVB    #204,IPCR         ;SET UP CHARACTER LENGTH


030432                                  CALL    $BUFRS            ;SET UP TRANSMIT AND RECEIVE BUFFERS.
030436  012737  000001  002356          MOV     #1,MAINT          ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
030444  005037  002332                  CLR     EXERR             ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
030450                                  CALL    $DATA             ;
030454                                  ESCAPE  TST               ;IF ERROR - EXIT
030454  104410                                                                                  TRAP    C$ESCAPE
030456  000234                                                                                  .WORD   L10105-.

030460                                  CALL    $CHECK            ;CHECK THAT THE DATA WAS CORRECT.
030464                                  ESCAPE  TST               ;IF ERROR - EXIT
030464  104410                                                                                  TRAP    C$ESCAPE
030466  000224                                                                                  .WORD   L10105-.
030470                          ENDSEG
030470                                                                                  10000$:
030470  104405                                                                                  TRAP    C$ESEG

030472                          BGNSEG
030472  104404                                                                                  TRAP    C$BSEG
030474                                  CALL    $RESET            ;RESET THE DPV
030500                                  ESCAPE  TST               ;IF ERROR, BR TO THE END.
030500  104410                                                                                  TRAP    C$ESCAPE
030502  000210                                                                                  .WORD   L10105-.
030504  012737  000001  002414          MOV     #1,START          ;SEND 1 FLAG
030512  012737  000002  002336          MOV     #2,HEADER         ;SEND 2 HEADER CHARACTERS
                                                                  ;
030520  013777  002344  151542          MOV     IPCSAR,@PCSAR     ;SET UP PARAMETERS AND ADDRESS
030526  112737  000204  002342          MOVB    #204,IPCR         ;SET UP CHARACTER LENGTH

030534  012737  000001  002430          MOV     #1,TIMER          ;CHANGE TIME OUT VALUE
030542  012737  000001  002332          MOV     #1,EXERR          ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
030550  105037  002673                  CLRB    XMTBUF            ;CLEAR SECONDARY ADDRESS FROM XMIT BUFFER.
030554                                  CALL    $DATA             ;
030560  013737  002412  002430          MOV     SAVTIM,TIMER      ;RESTORE THE TIME OUT VALUE.
030566  005737  002426                  TST     TIMEO             ;DID THE RECEIVER TIME OUT?
030572  001006                          BNE     1$                ;IF YES - OK.
030574                                  ERRDF   77,EMG35
030574  104455                                                                                  TRAP    C$ERDF
030576  000115                                                                                  .WORD   77
030600  015135                                                                                  .WORD   EMG35
030602  000000                                                                                  .WORD   0
030604                                  ESCAPE  TST
030604  104410                                                                                  TRAP    C$ESCAPE
030606  000104                                                                                  .WORD   L10105-.
030610                          1$:
030610                          ENDSEG
030610                                                                                  10001$:
030610  104405                                                                                  TRAP    C$ESEG
```

```
 5170
 5171 030612                                BGNSEG                                                          TRAP    C$BSEG
      030612  104404
 5172 030614                                    CALL    $RESET          ;RESET THE DPV
 5173 030620                                    ESCAPE  TST             ;IF ERROR, BR TO THE END.
      030620  104410                                                                                         TRAP    C$ESCAPE
      030622  000070                                                                                         .WORD   L10105-.
 5174 030624  012737  000001  002414            MOV     #1,START        ;SEND 1 FLAG
 5175 030632  012737  000002  002336            MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 5176                                                                   ;
 5177 030640  013777  002344  151422            MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 5178 030646  112737  000204  002342            MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH
 5179
 5180 030654  112737  000231  002673            MOVB    #231,XMTBUF     ;CHANGE FIRST XMIT CHARACTER.
 5181 030662  005037  002332                    CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
 5182 030666                                    CALL    $DATA           ;
 5183 030672                                    ESCAPE  TST             ;IF ERROR - EXIT
      030672  104410                                                                                         TRAP    C$ESCAPE
      030674  000016                                                                                         .WORD   L10105-.
 5184
 5185 030676                                    CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
 5186 030702                                    ESCAPE  TST             ;IF ERROR - EXIT
      030702  104410                                                                                         TRAP    C$ESCAPE
      030704  000006                                                                                         .WORD   L10105-.
 5187 030706                                ENDSEG
      030706                                                                                     10002$:
      030706  104405                                                                                         TRAP    C$ESEG
 5188 030710                            ENDSUB
      030710                                                                                     L10107:
      030710  104403                                                                                         TRAP    C$ESUB
 5189
 5190
 5191 030712                        ENDTST
      030712                                                                                     L10105:
      030712  104401                                                                                         TRAP    C$ETST
```

```
                                .SBTTL          TEST 16 - ABORT TEST

                                ;*****************************************************************
                                ;*              TEST 16 - DPV-11
                                ;* ABORT TEST
                                ;* SUBTEST 1 -  ABORT WITH IDLE CLEAR. ABORT CHARACTERS TRANSMITTED WHEN
                                ;*              THE ABORT BIT IS ASSERTED.
                                ;*              SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
                                ;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;* SUBTEST 2 -  ABORT WITH IDLE SET. FLAGS TRANSMITTED WHEN THE ABORT BIT
                                ;*              IS ASSERTED.
                                ;*              SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, IDLE SET,
                                ;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;*****************************************************************
030714                          BGNTST
030714                                                                                  T16::
030714                            BGNSUB
030714                                                                                  T16.1:
030714  104402                                                                                  TRAP    C$BSUB
030716                                  CALL    $RESET          ;RESET THE DPV
030722                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
030722  104410                                                                                  TRAP    C$ESCAPE
030724  000312                                                                                  .WORD   L10110-.
030726  012737  100000  002362          MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
030734  012737  000000  002344          MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
030742  012737  000001  002414          MOV     #1,START        ;SEND 1 FLAG
030750  012737  000002  002336          MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
030756  012737  000005  002352          MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
030764  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
030772  012737  002000  002422          MOV     #TXABO,TEND     ;END OF MESSAGE
031000  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
031006  012737  000014  002472          MOV     #12.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
031014  013777  002344  151246          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
031022  112737  000245  002342          MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH


031030                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
031034  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
031042  012737  000001  002332          MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
031050                                  CALL    $DATA           ;
031054  032737  002000  002350          BIT     #RABORT,IRDSR   ;WAS AN ABORT RECEIVED?
031062  001004                          BNE     20$             ;IF YES - OK.
031064                                  ERRDF   78,EMG32        ;ABORT NOT RECEIVED.
031064  104455                                                                                  TRAP    C$ERDF
031066  000116                                                                                  .WORD   78
031070  015023                                                                                  .WORD   EMG32
031072  000000                                                                                  .WORD   0
031074                          20$:
031074                            ENDSUB
031074                                                                                  L10111:
031074  104403                                                                                  TRAP    C$ESUB

031076                            BGNSUB
031076                                                                                  T16.2:
```

```
        031076  104402                                                                    TRAP    C$BSUB
 5238   031100                          CALL    $RESET          ;RESET THE DPV
 5239   031104                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
        031104  104410                                                                    TRAP    C$ESCAPE
        031106  000130                                                                    .WORD   L10110-.
 5240   031110  012737  001000  002344  MOV     #NONE1,IPCSAR   ;NO ERROR CHECKING.
 5241   031116  052737  004000  002344  BIS     #IDLE,IPCSAR    ;SET THE IDLE BIT.
 5242   031124  012737  000001  002414  MOV     #1,START        ;SEND 1 FLAG
 5243   031132  012737  000002  002336  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 5244   031140  012737  002502  002470  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 5245   031146  012737  000014  002472  MOV     #12.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
 5246                                                           ;
 5247   031154  013777  002344  151106  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 5248   031162  112737  000245  002342  MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH
 5249
 5250
 5251   031170                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 5252   031174  012737  000001  002356  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
 5253   031202  012737  000001  002332  MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
 5254   031210                          CALL    $DATA           ;
 5255   031214  032737  002000  002350  BIT     #RABORT,IRDSR   ;WAS AN ABORT RECEIVED?
 5256   031222  001404                  BEQ     20$             ;IF NOT - OK.
 5257   031224                          ERRDF   79,EMG33        ;ABORT NOT RECEIVED.
        031224  104455                                                                    TRAP    C$ERDF
        031226  000117                                                                    .WORD   79
        031230  015046                                                                    .WORD   EMG33
        031232  000000                                                                    .WORD   0
 5258   031234                  20$:
 5259   031234                    ENDSUB
        031234                                                                    L10112:
        031234  104403                                                                    TRAP    C$ESUB
 5260
 5261   031236                  ENDTST
        031236                                                                    L10110:
        031236  104401                                                                    TRAP    C$ETST
```

```
                                        .SBTTL          TEST 17 - EXTENDED CONTROL AND ADDRESSING

                                        ;*****************************************************************
                                        ;*              TEST 17 - DPV-11
                                        ;* EXTENDED CONTROL AND ADDRESSING TEST
                                        ;* CHECK THAT THE RECEIVER CAN RECOGNIZE EXTENDED ADDRESSING AND CONTROL
                                        ;* CHARACTERS.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
                                        ;*                        3 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK,
                                        ;*                        EXTENDED CONTROL AND ADDRESSING SELECTED
                                        ;*
                                        ;*****************************************************************
031240                                  BGNTST
031240                                                                                          T17::

031240                                          CALL    $RESET          ;RESET THE DPV
031244                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
031244  104410                                                                                  TRAP    C$ESCAPE
031246  000142                                                                                  .WORD   L10113-.
031250  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
031256  012737  000000  002344                  MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
031264  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
031272  012737  000004  002336                  MOV     #4,HEADER       ;SEND 2 HEADER CHARACTERS
031300  012737  000003  002352                  MOV     #3,LENGTH       ;CHARACTER LENGTH OF 3 BITS.
031306  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
031314  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
031322  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
031330  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
031336  013777  002344  150724                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
031344  112737  000173  002342                  MOVB    #173,IPCR       ;SET UP CHARACTER LENGTH AND EXTENDED
                                                                        ;ADDRESS AND CONTROL BITS.
031352  112777  000030  150722                  MOVB    #30,@PCR        ;SET THE EXTENDED ADDRESS AND CONTROL BITS.

031360                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
031364  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
031372  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
031376                                          CALL    $DATA           ;
031402  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

031404                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
031410                                  20$:

031410                                  ENDTST                                                  L10113:
031410                                                                                                  TRAP    C$ETST
031410  104401
```

```
                                .SBTTL          TEST 18 - TRANSMIT GO AHEAD

                                ;*******************************************************************
                                ;*              TEST 18 - DPV-11
                                ;* TRANSMIT GO AHEAD
                                ;* TERMINATE A MESSAGE USING TRANSMIT GO AHEAD.  CHECK THAT THE RECEIVE
                                ;* ABORT BIT IS SET WHEN THE END OF MESSAGE IS RECEIVED.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1, LOOP SET,
                                ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;*******************************************************************
031412                          BGNTST
031412                                                                                  T18::

031412                                  CALL    $RESET          ;RESET THE DPV
031416                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
031416  104410                                                                          TRAP    C$ESCAPE
031420  000200                                                                          .WORD   L10114-.
031422  012737  100000  002362          MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
031430  012737  000000  002344          MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
031436  052737  020000  002344          BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE GO AHEAD
031444  012737  000001  002414          MOV     #1,START        ;SEND 1 FLAG
031452  012737  000002  002336          MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
031460  012737  000005  002352          MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
031466  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
031474  012737  005000  002422          MOV     #TGA!TEOM,TEND  ;TRANSMIT GO AHEAD AT THE END OF MESSAGE
031502  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
031510  012737  000012  002472          MOV     #10.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
031516  013777  002344  150544          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
031524  112737  000245  002342          MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH

031532                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
031536  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
031544  012737  000001  002332          MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
031552                                  CALL    $DATA           ;
031556  103420                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

031560                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
031564                                  ESCAPE  TST             ;IF ERROR - EXIT
031564  104410                                                                          TRAP    C$ESCAPE
031566  000032                                                                          .WORD   L10114-.

031570  032737  001000  002350          BIT     #REOM,IRDSR     ;WAS END OF MESSAGE RECEIVED?
031576  001404                          BEQ     10$             ;IF NOT ERROR
031600  032737  002000  002350          BIT     #RABORT,IRDSR   ;WAS AN GO AHEAD RECEIVED?
031606  001004                          BNE     20$             ;IF YES - OK.
031610                          10$:
031610                                  ERRDF   80,EMG33        ;GO AHEAD NOT RECEIVED
031610  104455                                                                          TRAP    C$ERDF
031612  000120                                                                          .WORD   80
031614  015046                                                                          .WORD   EMG33
031616  000000                                                                          .WORD   0
031620                          20$:
```

```
5357 031620                          ENDTST
     031620                                                          L10114:
     031620  104401                                                          TRAP    CSETST
5358
5359
```

```
                                        .SBTTL          TEST 19 - ASSEMBLED BIT COUNT

                                        ;*******************************************************************
                                        ;*              TEST 19 - DPV-11
                                        ;* ASSEMBLED BIT COUNT
                                        ;* TRANSMIT VARIOUS BIT LENGTHS WHILE RECEIVING AN 8 BIT CHARACTER.
                                        ;* ENSURE THAT THE ASSEMBLED BIT COUNT (ABC) IS CORRECT UPON THE END
                                        ;* OF MESSAGE.
                                        ;*      SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, VARIOUS BIT
                                        ;*                        LENGTH CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*******************************************************************
031622                                  BGNTST
031622                                                                                          T19::

031622  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
031630  012737  003400  002344                  MOV     #NOERR,IPCSAR   ;NO ERROR CHECKING

031636  012737  000007  002352                  MOV     #7,LENGTH       ;CHARACTER LENGTH.

031644  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
031652  012737  001000  002422                  MOV     #TEOM,TEND      ;ABORT MESSAGE
031660  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
031666  012737  000001  002472                  MOV     #1,XCOUNT       ;# OF CHARACTERS TO TRANSMIT
031674                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
031700  012737  000001  002352                  MOV     #1,LENGTH       ;CHANGE THE LENGTH
031706                                  7$:                             ;
031706                                          CALL    $RESET          ;RESET THE DPV
031712                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
031712  104410                                                                          TRAP    C$ESCAPE
031714  000132                                                                          .WORD   L10115-.
031716  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
031724  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
031732  013777  002344  150330                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
031740  013701  002352                          MOV     LENGTH,R1       ;GET CHARACTER LENGTH
031744  116137  032050  002342                  MOVB    CHLEN(R1),IPCR  ;SET UP CHARACTER LENGTH.


031752  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
031760  012737  000001  002332                  MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
031766                                          CALL    $DATA           ;
031772                                          ESCAPE  TST             ;IF ERROR - EXIT
031772  104410                                                                          TRAP    C$ESCAPE
031774  000052                                                                          .WORD   L10115-.


031776  013701  002352                          MOV     LENGTH,R1       ;GET CHARACTER LENGTH
032002  142737  000217  002351                  BICB    #217,IRDSR+1    ;CLEAR ALL BUT ABC FROM LAST RDSR.
032010  126137  032061  002351                  CMPB    ABC(R1),IRDSR+1 ;IS THE ABC THE EXPECTED VALUE?
032016  001405                                  BEQ     10$
032020                                          ERRDF   81,EMG36
032020  104455                                                                          TRAP    C$ERDF
032022  000121                                                                          .WORD   81
032024  015174                                                                          .WORD   EMG36
032026  000000                                                                          .WORD   0
032030  000406                                  BR      20$
032032                                  10$:
```

```
032032  005237  002352                    INC     LENGTH          ;THE NEXT CHARACTER LENGTH
032036  022737  000011  002352            CMP     #9.,LENGTH      ;8 BITS?
032044  001320                            BNE     7$              ;IF NOT - CONTINUE

032046                          20$:

032046                          ENDTST                                                  L10115:
032046                                                                                          TRAP    C$ETST
032046  104401

032050     000     040     100  CHLEN:  .BYTE   0,40,100,140,200,240,300,340,0
032061     000     020     040  ABC:    .BYTE   0,20,40,60,100,120,140,160,0
                                        .EVEN
```

```
                                        .SBTTL          TEST 20 - SPECIAL SPACE SEQUENCING

                                        ;*****************************************************************
                                        ;*              TEST 20 - DPV-11
                                        ;* SPECIAL SPACE SEQUENCE
                                        ;* START A MESSAGE USING A SPECIAL SPACE SEQUENCE.  CHECK THAT THE
                                        ;* MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
                                        ;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
                                        ;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
                                        ;*
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
                                        ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
 032072                                 BGNTST
 032072                                                                                         T20::

 032072                                         CALL    $RESET          ;RESET THE DPV
 032076                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 032076  104410                                                                                 TRAP    C$ESCAPE
 032100  000136                                                                                 .WORD   L10116-.
 032102  012737  100000  002362                 MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
 032110  012737  000000  002344                 MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
 032116  012737  000002  002414                 MOV     #2,START        ;SEND 1 FLAG
 032124  012737  000002  002336                 MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 032132  012737  000005  002352                 MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
 032140  012737  000003  002434                 MOV     #3,TSTART       ;SET TSOM AND TEOM IN BYTE MODE.
 032146  012737  001000  002422                 MOV     #TEOM,TEND      ;END OF MESSAGE
 032154  012737  002502  002470                 MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 032162  012737  000100  002472                 MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
 032170  013777  002344  150072                 MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 032176  112737  000245  002342                 MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH
                                                                        ;
                                                                        ;
 032204                                         CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 032210  012737  000001  002356                 MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
 032216  005037  002332                         CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
 032222                                         CALL    $DATA           ;
 032226                                         ESCAPE  TST             ;IF ERROR, ESCAPE TEST
 032226  104410                                                                                 TRAP    C$ESCAPE
 032230  000006                                                                                 .WORD   L10116-.

 032232                                         CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
 032236                                 20$:

                                        ENDTST
 032236                                                                                         L10116:
 032236                                                                                                 TRAP    C$ETST
 032236  104401
```

```
                                        .SBTTL          TEST 21 - SYNCH CHARACTER

                                        ;*****************************************************************
                                        ;*              TEST 21 - DPV-11
                                        ;* SYNCH CHARACTER
                                        ;* CHECK THAT A SYNCH CHARACTER OF 271 CAN BE USED TO COMMENCE A MESSAGE.
                                        ;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
                                        ;*                        7 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
032240                                  BGNTST
032240                                                                                          T21::

032240                                          CALL    $RESET          ;RESET THE DPV
032244                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
032244  104410                                                                                  TRAP    C$ESCAPE
032246  000154                                                                                  .WORD   L10117-.
032250  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
032254  012737  002400  002344                  MOV     #VRCE,IPCSAR    ;SET VRC EVEN
032262  112737  000271  002344                  MOVB    #271,IPCSAR     ;SYNCH CHARACTER
032270  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
032276  012737  000002  002414                  MOV     #2,START        ;SEND 2 FLAGS
032304  012737  000001  002336                  MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
032312  012737  000007  002352                  MOV     #7,LENGTH       ;CHARACTER LENGTH OF 7 BITS.
032320  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
032326  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
032334  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
032342  012737  000017  002472                  MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
032350  112737  000347  002342                  MOVB    #347,IPCR       ;CHARACTER LENGTH
032356  013777  002344  147704                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
032364  113777  002342  147710                  MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH

032372                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
032376  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
032404  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
032410                                          CALL    $DATA           ;
032414  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

032416                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
032422                                  20$:

032422                                  ENDTST
032422                                                                                          L10117:
032422  104401                                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 22 - SYNCH FROM TRANSMIT DATA PATH

                                        ;*******************************************************************
                                        ;*              TEST 22 - DPV-11
                                        ;* SYNCH FROM TRANSMIT DATA PATH
                                        ;* TRANSMIT A MESSAGE USING THE SYNCH FROM THE TRANSMIT DATA PATH.
                                        ;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE SET
                                        ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*******************************************************************
032424                                  BGNTST
032424                                                                                          T22::

032424                                          CALL    $RESET          ;RESET THE DPV
032430                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
032430  104410                                                                                  TRAP    C$ESCAPE
032432  000154                                                                                  .WORD   L10120-.
032434  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
032440  012737  002000  002344                  MOV     #VRCO,IPCSAR    ;VRC ODD
032446  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
032454  052737  004000  002344                  BIS     #IDLE,IPCSAR    ;SET THE IDLE BIT
032462  012737  000002  002414                  MOV     #2,START        ;SEND 2 SYNCHS
032470  012737  000001  002336                  MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
032476  012737  000005  002352                  MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
032504  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
032512  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
032520  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
032526  012737  000021  002472                  MOV     #17.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;

032534  112737  000245  002342                  MOVB    #245,IPCR       ;CHARACTER LENGTH
032542  113777  002342  147532                  MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH
032550  013777  002344  147512                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


032556                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
032562  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
032570  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
032574                                          CALL    $DATA           ;
032600  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

032602                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
032606                                  20$:


032606                                  ENDTST
032606                                                                                          L10120:
032606  104401                                                                                          TRAP    C$ETST


```

```
                                        .SBTTL          TEST 23 - STRIP SYNCHS

                                        ;*******************************************************************
                                        ;*              TEST 23 - DPV-11
                                        ;* STRIP SYNCHS
                                        ;* SEND MORE THAN 2 SYNCHS WITH THE STRIP SYNCH BIT SET. CHECK THAT
                                        ;* THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, STRIP SYNCH SET
                                        ;*                        6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*******************************************************************
032610                                  BGNTST
032610                                                                                          T23::

032610                                          CALL    $RESET          ;RESET THE DPV
032614                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
032614  104410                                                                                  TRAP    C$ESCAPE
032616  000154                                                                                  .WORD   L10121-.
032620  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
032624  012737  002000  002344                  MOV     #VRCO,IPCSAR    ;VRC ODD
032632  052737  020014  002344                  BIS     #SSYNCH!14,IPCSAR ;SYNCH + STRIP SYNCHS
032640  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
032646  012737  000010  002414                  MOV     #8.,START       ;SEND 8 SYNCHS
032654  012737  000001  002336                  MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
032662  012737  000006  002352                  MOV     #6,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
032670  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
032676  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
032704  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
032712  012737  000015  002472                  MOV     #13.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
032720  112737  000306  002342                  MOVB    #306,IPCR       ;CHARACTER LENGTH
032726  113777  002342  147346                  MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH
032734  013777  002344  147326                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


032742                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
032746  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
032754  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
032760                                          CALL    $DATA           ;
032764  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

032766                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
032772                                  20$:


032772                                  ENDTST
032772                                                                                          L10121:
032772  104401                                                                                          TRAP    C$ETST


```

```
                                        .SBTTL          TEST 24 - CRC-CCITT PRESET TO ONES

                                        ;*****************************************************************
                                        ;*              TEST 24 - DPV-11
                                        ;* CRC-CCITT PRESET TO ONES.
                                        ;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
                                        ;* SET WHEN AN ABORT IS RECEIVED.  IN BOP MODE THIS BIT IS SET WHEN THE
                                        ;* CRC IS IN ERROR.  THE ERROR CHECK BIT SHOULD BE ZERO WHEN REOM=1,
                                        ;* IF THE CRC WERE CORRECTLY RECEIVED. BY FORCING AN ABORT WE INTENTIONALLY
                                        ;* LOOK AT THE ERROR BIT WHEN IT SHOULD BE IN AN ERROR STATE.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1, LOOP SET,
                                        ;*                        4 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
 032774                                 BGNTST
 032774                                                                                  T24::

 032774                                         CALL    $RESET          ;RESET THE DPV
 033000                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 033000  104410                                                                                  TRAP    C$ESCAPE
 033002  000160                                                                                  .WORD   L10122-.
 033004  012737  100000  002362                 MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
 033012  012737  000000  002344                 MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
 033020  052737  020000  002344                 BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE GO AHEAD.
 033026  012737  000001  002414                 MOV     #1,START        ;SEND 1 FLAG
 033034  012737  000002  002336                 MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 033042  012737  000004  002352                 MOV     #4,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
 033050  012737  000400  002434                 MOV     #TSOM,TSTART    ;START MESSAGE
 033056  012737  002000  002422                 MOV     #TXABO,TEND     ;ABORT MESSAGE
 033064  012737  002502  002470                 MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 033072  012737  000100  002472                 MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
 033100  013777  002344  147162                 MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 033106  112737  000204  002342                 MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH

 033114                                         CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 033120  012737  000001  002356                 MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
 033126  012737  000001  002332                 MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
 033134                                         CALL    $DATA           ;
 033140                                         ESCAPE  TST             ;IF ERROR - EXIT TEST
 033140  104410                                                                                  TRAP    C$ESCAPE
 033142  000020                                                                                  .WORD   L10122-.
 033144  005737  002350                         TST     IRDSR           ;IS THE ERR BIT SET
 033150  100404                                 BMI     20$             ;IF YES - OK
 033152                                         ERRDF   82,EMG38
 033152  104455                                                                                  TRAP    C$ERDF
 033154  000122                                                                                  .WORD   82
 033156  015240                                                                                  .WORD   EMG38
 033160  000000                                                                                  .WORD   0
 033162                                 20$:

 033162                                 ENDTST
 033162                                                                                  L10122:
 033162  104401                                                                                  TRAP    C$ETST
```

```
                                        .SBTTL          TEST 25 - CRC-CCITT PRESET TO ZERO

                                        ;*****************************************************************
                                        ;*              TEST 25 - DPV-11
                                        ;* CRC-CCITT PRESET TO ZERO.
                                        ;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
                                        ;* SET WHEN AN ABORT IS RECEIVED.  IN BOP MODE THIS BIT IS SET WHEN THE
                                        ;* CRC IS IN ERROR.  THE ERROR CHECK BIT SHOULD BE ZERO WHEN REOM=1,
                                        ;* IF THE CRC WERE CORRECTLY RECEIVED. BY FORCING AN ABORT WE INTENTIONALLY
                                        ;* LOOK AT THE ERROR BIT WHEN IT SHOULD BE IN AN ERROR STATE.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 0, LOOP SET,
                                        ;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
 033164                                 BGNTST
 033164                                                                                         T25::

 033164                                         CALL    $RESET          ;RESET THE DPV
 033170                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 033170  104410                                                                                 TRAP    C$ESCAPE
 033172  000156                                                                                 .WORD   L10123-.
 033174  012737  100000  002362                 MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
 033202  012737  000400  002344                 MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
 033210  052737  020000  002344                 BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE GO AHEAD.
 033216  012737  000001  002414                 MOV     #1,START        ;SEND 1 FLAG
 033224  012737  000002  002336                 MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 033232  012737  000010  002352                 MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
 033240  012737  000400  002434                 MOV     #TSOM,TSTART    ;START MESSAGE
 033246  012737  002000  002422                 MOV     #TXABO,TEND     ;ABORT MESSAGE
 033254  012737  002502  002470                 MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 033262  012737  000100  002472                 MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
 033270  013777  002344  146772                 MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 033276  105037  002342                         CLRB    IPCR            ;SET UP CHARACTER LENGTH


 033302                                         CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 033306  012737  000001  002356                 MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
 033314  012737  000001  002332                 MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
 033322                                         CALL    $DATA           ;
 033326                                         ESCAPE  TST             ;IF ERROR - EXIT TEST
 033326  104410                                                                                 TRAP    C$ESCAPE
 033330  000020                                                                                 .WORD   L10123-.
 033332  005737  002350                         TST     IRDSR           ;IS THE ERR BIT SET
 033336  100404                                 BMI     20$             ;IF YES - OK
 033340                                         ERRDF   83,EMG38
 033340  104455                                                                                 TRAP    C$ERDF
 033342  000123                                                                                 .WORD   83
 033344  015240                                                                                 .WORD   EMG38
 033346  000000                                                                                 .WORD   0
 033350                                 20$:


 033350                                 ENDTST
 033350                                                                                 L10123:
 033350  104401                                                                                 TRAP    C$ETST
```

5706

```
                                .SBTTL          TEST 26 - CRC-16 PRESET TO 0

                                ;*******************************************************************
                                ;*                  TEST 26 - DPV-11
                                ;* CRC-16 PRESET TO 0
                                ;*
                                ;* SUBTEST 1 - CRC-16 ERROR
                                ;* CHECK TO ENSURE THAT THE ERROR CHECK BIT (BIT 15 OF RDSR) IS
                                ;* CLEAR IF THE RECEIVER IS SHUTDOWN BEFORE THE CRC IS RECEIVED.
                                ;* IN BCP MODE THIS BIT IS CLEAR WHEN THE CRC IS IN ERROR.
                                ;* THE ERROR CHECK BIT SHOULD BE SET WHEN THE LAST CHARACTER IS RECEIVED,
                                ;* IF THE CRC WERE GOOD.
                                ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO 0, LOOP SET,
                                ;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                ;*
                                ;* SUBTEST 2 -  CRC-16 CHECK
                                ;* CHECK THAT THE CORRECT CRC-16 IS RECEIVED FOR THE DATA MESSAGE.
                                ;* THE CRC FOR THIS DATA MESSAGE WAS PREDETERMINED.
                                ;*
                                ;*******************************************************************
033352                          BGNTST
033352                                                                          T26::

                                  BGNSUB
033352                                                                          T26.1:
033352                                                                                  TRAP    C$BSUB
033352  104402
                                        CALL    $RESET          ;RESET THE DPV
033354
033360                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
033360  104410                                                                          TRAP    C$ESCAPE
033362  000404                                                                          .WORD   L10124-.
033364  005037  002362                  CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
033370  012737  001400  002344          MOV     #CRC16,IPCSAR   ;SET CRC 16
033376  112737  000271  002344          MOVB    #271,IPCSAR     ;SYNCH CHARACTER
033404  052737  040000  002344          BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
033412  012737  000002  002414          MOV     #2,START        ;SEND 2 SYNCHS
033420  012737  000001  002336          MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
033426  012737  000010  002352          MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
033434  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
033442  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
033450  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
033456  012737  000017  002472          MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
033464  105037  002342                  CLRB    IPCR            ;CHARACTER LENGTH.
033470  013777  002344  146572          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS

033476                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
033502  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
033510  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
033514  005337  002474                  DEC     ECOUNT          ;CHANGE THE END COUNT
033520                                  CALL    $DATA           ;
033524                                  ESCAPE  TST             ;IF ERROR - EXIT TEST
033524  104410                                                                          TRAP    C$ESCAPE
033526  000240                                                                          .WORD   L10124-.
033530  005737  002350                  TST     IRDSR           ;IS THE ERR BIT SET
033534  100004                          BPL     20$             ;IF YES - OK
033536                                  ERRDF   84,EMG38
```

```
        033536  104455                                                                    TRAP    C$ERDF
        033540  000124                                                                    .WORD   84
        033542  015240                                                                    .WORD   EMG38
        033544  000000                                                                    .WORD   0
  5758  033546                          20$:
  5759  033546                            ENDSUB
        033546                                                                  L10125:
        033546  104403                                                                    TRAP    C$ESUB
  5760
  5761  033550                          BGNSUB
        033550                                                                  T26.2:
        033550  104402                                                                    TRAP    C$BSUB
  5762  033552                                  CALL    $RESET          ;RESET THE DPV
  5763  033556                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
        033556  104410                                                                    TRAP    C$ESCAPE
        033560  000206                                                                    .WORD   L10124-.
  5764  033562  005037  002362                  CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
  5765  033566  012737  001400  002344          MOV     #CRC16,IPCSAR   ;SET VRC EVEN
  5766  033574  112737  000271  002344          MOVB    #271,IPCSAR     ;SYNCH CHARACTER
  5767  033602  052737  040000  002344          BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
  5768  033610  012737  000002  002414          MOV     #2,START        ;SEND 2 SYNCHS
  5769  033616  012737  000001  002336          MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
  5770  033624  012737  000010  002352          MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
  5771  033632  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
  5772  033640  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
  5773  033646  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
  5774  033654  012737  000017  002472          MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
  5775                                                                  ;
  5776  033662  013777  002344  146400          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
  5777  033670  105037  002342                  CLRB    IPCR            ;SET UP CHARACTER LENGTH
  5778
  5779  033674                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
  5780
  5781  033700  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
  5782  033706  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
  5783
  5784  033712  062737  000002  002474          ADD     #2,ECOUNT       ;CHANGE END COUNT TO GET CRC
  5785
  5786  033720                                  CALL    $DATA           ;
  5787  033724                                  ESCAPE  TST             ;IF ERROR - EXIT TEST
        033724  104410                                                                    TRAP    C$ESCAPE
        033726  000040                                                                    .WORD   L10124-.
  5788  033730  012701  003273                  MOV     #RCVBUF,R1      ;ADDRESS OF RECEIVE BUFFER
  5789  033734  063701  002472                  ADD     XCOUNT,R1       ;CALCULATE ADDRESS OF CRC
  5790  033740  122127  000332                  CMPB    (R1)+,#CRCLO    ;CHECK LO BYTE OF THE CRC
  5791  033744  001003                          BNE     10$             ;IF ERROR - REPORT
  5792  033746  122127  000266                  CMPB    (R1)+,#CRCHI    ;CHECK HI BYTE OF THE CRC
  5793  033752  001404                          BEQ     20$             ;IF NOT ERROR - OK
  5794  033754                          10$:
  5795  033754                                  ERRDF   85,EMG37        ;CRC ERROR.
        033754  104455                                                                    TRAP    C$ERDF
        033756  000125                                                                    .WORD   85
        033760  015226                                                                    .WORD   EMG37
        033762  000000                                                                    .WORD   0
  5796  033764                          20$:
  5797  033764                            ENDSUB
        033764                                                                  L10126:
```

```
        033764  104403                                                          TRAP    C$ESUB
  5798
  5799  033766                          ENDTST
        033766                                                          L10124:
        033766  104401                                                          TRAP    C$ETST
  5800
  5801
  5802
```

```
                                        .SBTTL          TEST 27 - VRC ODD PARITY ERROR

                                        ;*****************************************************************
                                        ;*              TEST 27 - DPV-11
                                        ;* VRC ODD PARITY ERROR
                                        ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
                                        ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, XMIT=7 &
                                        ;*                        RCV=6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
033770                                  BGNTST
033770                                                                                          T27::

                                                CALL    $RESET          ;RESET THE DPV
033770                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
033774                                                                                                  TRAP    C$ESCAPE
033774  104410                                                                                          .WORD   L10127-.
033776  000160
034000  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
034004  012737  002000  002344                  MOV     #VRCO,IPCSAR    ;SET VRC ODD
034012  112737  000271  002344                  MOVB    #271,IPCSAR     ;SYNCH CHARACTER
034020  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
034026  012737  000002  002414                  MOV     #2,START        ;SEND 2 SYNCHS
034034  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
034042  012737  000010  002352                  MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
034050  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
034056  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
034064  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
034072  012737  000017  002472                  MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
034100  112737  000346  002342                  MOVB    #346,IPCR       ;SET UP A XMIT CHARACTER = 7
                                                                        ;AND A RECEIVE CHARACTER = 6
034106  013777  002344  146154                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


034114                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
034120  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
034126  012737  000001  002332                  MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
034134                                          CALL    $DATA           ;
034140  005737  002350                          TST     IRDSR           ;IS THE ERROR BIT SET (BIT 15)?
034144  100404                                  BMI     20$             ;IF SET OK
034146                                          ERRDF   86,EMG39
                                                                                                        TRAP    C$ERDF
034146  104455                                                                                          .WORD   86
034150  000126                                                                                          .WORD   EMG39
034152  015267                                                                                          .WORD   0
034154  000000                                                                                          .WORD   0
034156                                  20$:


034156                                  ENDTST
034156                                                                                          L10127:
034156  104401                                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 28 - VRC EVEN PARITY ERROR

                                        ;*****************************************************************
                                        ;*              TEST 28 - DPV-11
                                        ;* VRC EVEN PARITY ERROR
                                        ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
                                        ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY, XMIT=5 &
                                        ;*                        RCV=4 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
034160                                  BGNTST
034160                                                                                          T28::

034160                                          CALL    $RESET          ;RESET THE DPV
034164                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
034164  104410                                                                                  TRAP    C$ESCAPE
034166  000160                                                                                  .WORD   L10130-.
034170  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
034174  012737  002400  002344                  MOV     #VRCE,IPCSAR    ;SET VRC EVEN
034202  112737  000271  002344                  MOVB    #271,IPCSAR     ;SYNCH CHARACTER
034210  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
034216  012737  000002  002414                  MOV     #2,START        ;SEND 2 SYNCHS
034224  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
034232  012737  000010  002352                  MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
034240  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
034246  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
034254  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
034262  012737  000017  002472                  MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
034270  112737  000244  002342                  MOVB    #244,IPCR       ;SET UP A XMIT CHARACTER = 5
                                                                        ;AND A RECEIVE CHARACTER = 4
034276  013777  002344  145764                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS

034304                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
034310  012737  000001  002356                  MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
034316  012737  000001  002332                  MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
034324                                          CALL    $DATA           ;
034330  005737  002350                          TST     IRDSR           ;IS THE ERROR BIT SET (BIT 15)?
034334  100404                                  BMI     20$             ;IF SET OK
034336                                          ERRDF   87,EMG39
034336  104455                                                                                  TRAP    C$ERDF
034340  000127                                                                                  .WORD   87
034342  015267                                                                                  .WORD   EMG39
034344  000000                                                                                  .WORD   0
034346                                  20$:

034346                                  ENDTST
034346                                                                                          L10130:
034346  104401                                                                                  TRAP    C$ETST
```

```
                                        .SBTTL          TEST 29 - DATA TEST

                                        ;*****************************************************************
                                        ;*              TEST 29 - DPV-11
                                        ;* DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE WITHOUT THE USE OF INTERRUPT
                                        ;* SERVICE ROUTINES. CHECK THAT THE DATA IS  CORRECT.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                        ;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
                                        ;*
                                        ;*****************************************************************
034350                                  BGNTST
034350                                                                                          T29::
034350                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
034354  103573                                  BCS     50$             ;IF NOT, SKIP THE TEST.
034356                                          CALL    $RESET          ;RESET THE DPV
034362                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
034362  104410                                                                          TRAP    C$ESCAPE
034364  000360                                                                          .WORD   L10131-.
034366  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT MODE IS BOP.
034374  005037  002344                          CLR     IPCSAR          ;IMAGE OF PCSAR = 0.
034400  012737  000000  002344                  MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
034406  012737  000010  002352                  MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS
034414  012737  002602  002470                  MOV     #ALPHA,XTYPE    ;USE ALPHANUMERIC DATA PATTERN
034422  012737  000045  002472                  MOV     #ACOUNT,XCOUNT  ;# OF CHARACTERS TO TRANSMIT
                                                                        ;

034430                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.

034434  012701  003273                          MOV     #RCVBUF,R1      ;RECEIVE BUFFER
034440  012702  002673                          MOV     #XMTBUF,R2      ;TRANSMIT BUFFER
034444  013703  002472                          MOV     XCOUNT,R3       ;TRANSMIT COUNT
034450  005037  002500                          CLR     RCOUNT          ;CLEAR THE RECEIVE COUNTER.
034454  013704  002430                          MOV     TIMER,R4        ;SET UP THE TIMER.

034460  013777  002402  145600                  MOV     RXINI,@RXCSR    ;ENABLE THE RECEIVER
034466  013777  002436  145576                  MOV     TXINI,@TXCSR    ;ENABLE THE RECEIVER

034474  012777  000400  145572                  MOV     #TSOM,@TDSR     ;TRANSMIT START OF MESSAGE
034502                                  9$:
034502  012705  002000                          MOV     #2000,R5        ;INNER TIMER LOOP COUNTER.
034506                                  10$:
034506  005777  145562                          TST     @TDSR           ;IS THERE A TRANSMIT ERROR?
034512  100005                                  BPL     12$             ;IF NOT PROCEED.
034514                                          ERRDF   88,EMG30        ;TRANSMIT UNDERRUN.
034514  104455                                                                          TRAP    C$ERDF
034516  000130                                                                          .WORD   88
034520  014766                                                                          .WORD   EMG30
034522  000000                                                                          .WORD   0
034524  000507                                  BR      50$
034526                                  12$:

034526  032777  000004  145536                  BIT     #TBE,@TXCSR     ;IS TRANSMIT BUFFER EMPTY?
034534  001056                                  BNE     20$             ;IF YES - SEND A CHARACTER.
```

```
034536  005305                          DEC     R5              ;DECREMENT LOOP COUNTER
034540  001010                          BNE     15$             ;IF NOT ZERO OK.
034542                                  BREAK                   ;BREAK FOR SUPERVISOR INTERRUPT.
                                                                                        TRAP    C$BRK
034542  104422
034544  005304                          DEC     R4              ;IS OUTER LOOP 0?
034546  001355                          BNE     9$              ;IF NOT, RESET INNER LOOP COUNTER
                                                                ;OTHERWISE, REPORT ERROR
034550                          13$:
034550                                  ERRDF   89,EMG1
                                                                                        TRAP    C$ERDF
034550  104455                                                                          .WORD   89
034552  000131                                                                          .WORD   EMG1
034554  013462                                                                          .WORD   0
034556  000000                                                                          .WORD   0
034560  000471                          BR      50$
034562                          15$:
034562  032777  002200  145476          BIT     #RSTARY!RDATRY,@RXCSR ;IS STATUS OR DATA READY?
034570  001746                          BEQ     10$             ;IF NOT CHECK TBE
034572  017737  145470  002346          MOV     @RXCSR,IRXCSR   ;SAVE RXCSR
034600  017737  145464  002350          MOV     @RDSR,IRDSR     ;SAVE RDSR
034606  032737  000200  002346          BIT     #RDATRY,IRXCSR  ;IS DATA READY?
034614  001404                          BEQ     17$
034616  113721  002350                  MOVB    IRDSR,(R1)+     ;SAVE THE DATA
034622  005237  002500                  INC     RCOUNT          ;INCREMENT COUNT
034626                          17$:
034626  032737  002000  002346          BIT     #RSTARY,IRXCSR  ;IS STATUS READY?
034634  001724                          BEQ     10$             ;IF NOT CHECK TBE
034636  032737  106000  002350          BIT     #ERR!ROVER!RABORT,IRDSR ;ANY ERRORS?
034644  001005                          BNE     18$             ;IF YES, REPORT.
034646  032737  001000  002350          BIT     #REOM,IRDSR     ;END OF MESSAGE.
034654  001031                          BNE     30$
034656  000713                          BR      10$
034660                          18$:
034660                                  ERRDF   90,EMG31
                                                                                        TRAP    C$ERDF
034660  104455                                                                          .WORD   90
034662  000132                                                                          .WORD   EMG31
034664  015004                                                                          .WORD   0
034666  000000                                                                          .WORD   0
034670  000425                          BR      50$
034672                          20$:
034672  032777  000400  145374          BIT     #TSOM,@TDSR     ;IS START OF MESSAGE SENT.
034700  001405                          BEQ     25$             ;IF NOT, CONTINUE.
034702  005037  002476                  CLR     XMITD           ;CLEAR XMIT COUNTER
034706  042777  000400  145360          BIC     #TSOM,@TDSR     ;CLEAR START OF MESSAGE.
034714                          25$:
034714  112277  145354                  MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
034720  005237  002476                  INC     XMITD           ;COUNT CHARACTER ACTUALLY TRANSMITTED.
034724  005303                          DEC     R3              ;DECREMENT COUNTER
034726  001315                          BNE     15$             ;IF NOT DONE LOOP
034730  052777  001000  145336          BIS     #TEOM,@TDSR     ;SEND END OF MESSAGE.
034736  000711                          BR      15$
034740                          30$:
034740                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
```

```
 5998
 5999 034744                          50$:
 6000
 6001 034744                          ENDTST
      034744                                                          L10131:
      034744  104401                                                        TRAP    C$ETST
 6002
 6003
 6004
 6005
 6006
 6007
```

```
                                        .SBTTL          TEST 30 - BOP DATA TEST

                                        ;*******************************************************************
                                        ;*              TEST 30 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
                                        ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*******************************************************************
034746                                  BGNTST
034746                                                                                          T30::
034746                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
034752  103462                                  BCS     50$             ;IF NOT, SKIP THE TEST.
034754                                          CALL    $RESET          ;RESET THE DPV
034760                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
034760  104410                                                                          TRAP    C$ESCAPE
034762  000136                                                                          .WORD   L10132-.
034764  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
034772  012737  000400  002344                  MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
035000  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
035006  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
035014  012737  000006  002352                  MOV     #6,LENGTH       ;CHARACTER LENGTH OF 6 BITS.
035022  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
035030  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
035036  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
035044  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
035052  013777  002344  145210                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
035060  112737  000306  002342                  MOVB    #306,IPCR       ;SET UP CHARACTER LENGTH


035066                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
035072  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
035076  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
035102                                          CALL    $DATA           ;
035106  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

035110                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
035114                                  20$:
035114                                          CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
035120                                  50$:

035120                                  ENDTST
035120                                                                                          L10132:
035120  104401                                                                                          TRAP    C$ETST

```

```
                                        .SBTTL          TEST 31 - BOP DATA TEST

                                        ;*****************************************************************
                                        ;*              TEST 31 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                        ;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*****************************************************************
035122                                  BGNTST
035122                                                                                          T31::
035122                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
035126  103465                                  BCS     50$             ;IF NOT, SKIP THE TEST.
035130                                          CALL    $RESET          ;RESET THE DPV
035134                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
035134  104410                                                                          TRAP    C$ESCAPE
035136  000144                                                                          .WORD   L10133-.
035140  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
035146  012737  000000  002344                  MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
035154  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
035162  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
035170  012737  000005  002352                  MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
035176  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
035204  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
035212  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
035220  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
035226  013777  002344  145034                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
035234  112737  000245  002342                  MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH


035242                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
035246  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
035252  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
035256  012737  000001  002340                  MOV     #1,HIGH         ;FLAG TO USE HIGH SPEED INT. SERVICE ROUTINE.
035264                                          CALL    $DATA           ;
035270  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

035272                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
035276                                  20$:
035276  005037  002340                          CLR     HIGH            ;CLEAR FLAG FOR HIGH SPEED ISRS.
035302                                  50$:

035302                                  ENDTST
035302                                                                                          L10133:
035302  104401                                                                                          TRAP    C$ETST


```

```
                                        .SBTTL          TEST 32 - BOP DATA TEST

                                        ;*******************************************************************
                                        ;*              TEST 32 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
                                        ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*******************************************************************
035304                                  BGNTST
035304                                                                                          T32::
035304                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
035310  103470                                  BCS     50$             ;IF NOT, SKIP THE TEST.
035312                                          CALL    $RESET          ;RESET THE DPV
035316                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
035316  104410                                                                          TRAP    C$ESCAPE
035320  000152                                                                          .WORD   L10134-.
035322  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
035330  012737  000400  002344                  MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
035336  052737  010000  002344                  BIS     #SECADR,IPCSAR  ;SET SECONDARY ADDRESS.
035344  112737  000123  002344                  MOVB    #123,IPCSAR     ;SECONDARY ADDRESS.
035352  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
035360  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
035366  012737  000007  002352                  MOV     #7,LENGTH       ;CHARACTER LENGTH OF 7 BITS.
035374  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
035402  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
035410  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
035416  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
035424  013777  002344  144636                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
035432  112737  000347  002342                  MOVB    #347,IPCR       ;SET UP CHARACTER LENGTH


035440                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
035444  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
035450  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
035454                                          CALL    $DATA           ;
035460  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

035462                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
035466                                  20$:
035466                                          CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
035472                                  50$:

035472                                  ENDTST
035472                                                                                          L10134:
035472  104401                                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 33 - BOP DATA TEST
                                        ;*****************************************************************
                                        ;*              TEST 33 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                        ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*****************************************************************
035474                                  BGNTST
035474                                                                                          T33::
035474                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
035500  103461                                  BCS     50$             ;IF NOT, SKIP THE TEST.
035502                                          CALL    $RESET          ;RESET THE DPV
035506                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
035506  104410                                                                          TRAP    C$ESCAPE
035510  000134                                                                          .WORD   L10135-.
035512  012737  100000  002362                  MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
035520  012737  000000  002344                  MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
035526  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
035534  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
035542  012737  000010  002352                  MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
035550  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE.
035556  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
035564  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
035572  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
035600  013777  002344  144462                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
035606  105037  002342                          CLRB    IPCR            ;SET UP CHARACTER LENGTH


035612                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
035616  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
035622  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
035626                                          CALL    $DATA           ;
035632  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

035634                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
035640                                  20$:
035640                                          CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
035644                                  50$:

035644                                  ENDTST
035644                                                                                          L10135:
035644  104401                                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 34 - BOP DATA TEST

                                        ;*****************************************************************
                                        ;*              TEST 34 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
                                        ;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                        ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*****************************************************************
 035646                                 BGNTST
 035646                                                                                  T34::
 035646                                         CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
 035652  103462                                 BCS     50$             ;IF NOT, SKIP THE TEST.
 035654                                         CALL    $RESET          ;RESET THE DPV
 035660                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 035660  104410                                                                          TRAP    C$ESCAPE
 035662  000136                                                                          .WORD   L10136-.
 035664  012737  100000  002362                 MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
 035672  012737  000000  002344                 MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
 035700  012737  000002  002414                 MOV     #2,START        ;SEND 1 FLAG
 035706  012737  000002  002336                 MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
 035714  012737  000006  002352                 MOV     #6,LENGTH       ;CHARACTER LENGTH OF 6 BITS.
 035722  012737  000003  002434                 MOV     #3,TSTART       ;SET TSOM AND TEOM IN BYTE MODE.
 035730  012737  001000  002422                 MOV     #TEOM,TEND      ;END OF MESSAGE
 035736  012737  002502  002470                 MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 035744  012737  000100  002472                 MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
 035752  013777  002344  144310                 MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 035760  112737  000306  002342                 MOVB    #306,IPCR       ;SET UP CHARACTER LENGTH


 035766                                         CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 035772  005037  002356                         CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
 035776  005037  002332                         CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
 036002                                         CALL    $DATA           ;
 036006  103402                                 BCS     20$             ;IF ERROR SKIP DATA CHECK.

 036010                                         CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
 036014                                 20$:
 036014                                         CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
 036020                                 50$:
 036020                                 ENDTST
 036020                                                                          L10136:
 036020  104401                                                                          TRAP    C$ETST

```

```
                                .SBTTL          TEST 35 - BOP DATA TEST

                                ;*******************************************************************
                                ;*              TEST 35 - DPV-11
                                ;* BOP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZEROS,
                                ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*******************************************************************
036022                          BGNTST
036022                                                                          T35::
036022                                  CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
036026  103465                          BCS     50$             ;IF NOT, SKIP THE TEST.
036030                                  CALL    $RESET          ;RESET THE DPV
036034                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
036034  104410                                                                  TRAP    C$ESCAPE
036036  000144                                                                  .WORD   L10137-.
036040  012737  100000  002362          MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
036046  012737  000400  002344          MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
036054  012737  100000  002344          MOV     #APA,IPCSAR     ;ALL PARTIES ADDRESS.
036062  012737  000001  002414          MOV     #1,START        ;SEND 1 FLAG
036070  012737  000002  002336          MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
036076  012737  000007  002352          MOV     #7,LENGTH       ;CHARACTER LENGTH OF 7 BITS.
036104  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE
036112  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
036120  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
036126  012737  000100  002472          MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
036134  013777  002344  144126          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
036142  112737  000347  002342          MOVB    #347,IPCR       ;SET UP CHARACTER LENGTH

036150                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
036154  005037  002356                  CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
036160  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
036164                                  CALL    $DATA           ;
036170  103402                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

036172                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
036176                          20$:
036176                                  CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
036202                          50$:

036202                          ENDTST                                          L10137:
036202                                                                                  TRAP    C$ETST
036202  104401
```

```
                                .SBTTL          TEST 36 - BOP DATA TEST

                                ;*******************************************************************
                                ;*              TEST 36 - DPV-11
                                ;* BOP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO, LOOP SET,
                                ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*******************************************************************
036204                          BGNTST
036204                                                                                  T36::
036204                                  CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
036210  103465                          BCS     50$             ;IF NOT, SKIP THE TEST.
036212                                  CALL    $RESET          ;RESET THE DPV
036216                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
036216  104410                                                                          TRAP    C$ESCAPE
036220  000144                                                                          .WORD   L10140-.
036222  012737  100000  002362          MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
036230  012737  000400  002344          MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
036236  052737  020000  002344          BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE THE GO AHEAD.
036244  012737  000001  002414          MOV     #1,START        ;SEND 1 FLAG
036252  012737  000002  002336          MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
036260  012737  000010  002352          MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
036266  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE
036274  012737  005000  002422          MOV     #TGA!TEOM,TEND  ;TRANSMIT GO AHEAD AT END OF MESSAGE.
036302  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
036310  012737  000100  002472          MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
036316  013777  002344  143744          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
036324  105037  002342                  CLRB    IPCR            ;SET UP CHARACTER LENGTH


036330                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
036334  005037  002356                  CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
036340  012737  000001  002332          MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
036346                                  CALL    $DATA           ;
036352  103402                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

036354                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
036360                          20$:
036360                                  CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
036364                          50$:

036364                          ENDTST
036364                                                                          L10140:
036364  104401                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 37 - BCP DATA TEST

                                ;*******************************************************************
                                ;*              TEST 37 - DPV-11
                                ;* BCP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE BIT SET
                                ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*******************************************************************
036366                          BGNTST
036366                                                                          T37::
036366                                  CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
036372  103475                          BCS     50$             ;IF NOT, SKIP THE TEST.
036374                                  CALL    $RESET          ;RESET THE DPV
036400                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
036400  104410                                                                  TRAP    C$ESCAPE
036402  000164                                                                  .WORD   L10141-.
036404  005037  002362                  CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
036410  012737  000024  002344          MOV     #24,IPCSAR      ;LOAD SYNCH IN PCSAR (FOR RECEIVER ONLY)
036416  052737  002000  002344          BIS     #VRCO,IPCSAR    ;SET ODD VRC
036424  052737  040000  002344          BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
036432  052737  004000  002344          BIS     #IDLE,IPCSAR    ;TRANSMIT SYNCH FROM TDSR
036440  012737  000002  002414          MOV     #2,START        ;SEND 2 SYNCHS
036446  012737  000001  002336          MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
036454  012737  000006  002352          MOV     #6,LENGTH       ;CHARACTER LENGTH OF 6 BITS.
036462  012737  000424  002434          MOV     #TSOM!24,TSTART ;START OF MESSAGE AND SYNCH CHARACTER.
036470  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
036476  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
036504  012737  000100  002472          MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
036512  112737  000306  002342          MOVB    #306,IPCR       ;SET UP CHARACTER LENGTH
036520  113777  002342  143554          MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH
036526  013777  002344  143534          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


036534                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
036540  005037  002356                  CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
036544  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
036550                                  CALL    $DATA           ;
036554  103402                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

036556                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
036562                          20$:
036562                                  CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
036566                          50$:

036566                          ENDTST
036566                                                                          L10141:
036566  104401                                                                          TRAP    C$ETST
```

```
                                        .SBTTL          TEST 38 - BCP DATA TEST

                                        ;*******************************************************************
                                        ;*              TEST 38 - DPV-11
                                        ;* BCP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
                                        ;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*******************************************************************
036570                                  BGNTST
036570                                                                                          T38::
036570                                          CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
036574  103475                                  BCS     50$             ;IF NOT, SKIP THE TEST.
036576                                          CALL    $RESET          ;RESET THE DPV
036602                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
036602  104410                                                                          TRAP    C$ESCAPE
036604  000164                                                                          .WORD   L10142-.
036606  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
036612  012737  002400  002344                  MOV     #VRCE,IPCSAR    ;SET EVEN VRC
036620  052737  040000  002344                  BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
036626  112737  000105  002344                  MOVB    #105,IPCSAR     ;SYNCH.
036634  012737  000002  002414                  MOV     #2,START        ;SEND 2 SYNCHS
036642  012737  000001  002336                  MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
036650  012737  000005  002352                  MOV     #5,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
036656  012737  000400  002434                  MOV     #TSOM,TSTART    ;START OF MESSAGE
036664  012737  001000  002422                  MOV     #TEOM,TEND      ;END OF MESSAGE
036672  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
036700  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                        ;
036706  112737  000245  002342                  MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH
036714  113777  002342  143360                  MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH
036722  013777  002344  143340                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


036730                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
036734  012737  000001  002340                  MOV     #1,HIGH         ;FLAG TO USE HIGH SPEED INT. SERVICE ROUTINE.
036742  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
036746  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
036752                                          CALL    $DATA           ;
036756  103402                                  BCS     20$             ;IF ERROR SKIP DATA CHECK.

036760                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
036764                                  20$:
036764  005037  002340                          CLR     HIGH            ;CLEAR FLAG TO USE HIGH SPEED ISRS.
036770                                  50$:

036770                                  ENDTST
036770                                                                                          L10142:
036770  104401                                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 39 - BCP DATA TEST

                                ;*******************************************************************
                                ;*              TEST 39 - DPV-11
                                ;* BCP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES, STRIP SYNCHS,
                                ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*******************************************************************
036772                          BGNTST
036772                                                                          T39::
036772                                  CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
036776  103475                          BCS     50$             ;IF NOT, SKIP THE TEST.
037000                                  CALL    $RESET          ;RESET THE DPV
037004                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
037004  104410                                                                  TRAP    C$ESCAPE
037006  000164                                                                  .WORD   L10143-.
037010  005037  002362                  CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
037014  012737  001400  002344          MOV     #CRC16,IPCSAR   ;SET CRC 16
037022  052737  040000  002344          BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
037030  052737  020000  002344          BIS     #SSYNCH,IPCSAR  ;STRIP SYNCH.
037036  112737  000217  002344          MOVB    #217,IPCSAR     ;SYNCH
037044  012737  000005  002414          MOV     #5,START        ;SEND 5 SYNCHS
037052  012737  000001  002336          MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
037060  012737  000007  002352          MOV     #7,LENGTH       ;CHARACTER LENGTH OF 7 BITS.
037066  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE
037074  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
037102  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
037110  012737  000100  002472          MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
037116  112737  000347  002342          MOVB    #347,IPCR       ;CHARACTER LENGTH
037124  113777  002342  143150          MOVB    IPCR,@PCR       ;SET UP CHARACTER LENGTH
037132  013777  002344  143130          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


037140                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
037144  005037  002356                  CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
037150  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
037154                                  CALL    $DATA           ;
037160  103402                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

037162                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
037166                          20$:
037166                                  CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
037172                          50$:

037172                          ENDTST
037172                                                                          L10143:
037172  104401                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 40 - BCP DATA TEST

                                ;*******************************************************************
                                ;*              TEST 40 - DPV-11
                                ;* BCP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                ;* DATA IS CORRECTLY RECEIVED.
                                ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES,
                                ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*******************************************************************
037174                          BGNTST
037174                                                                                  T40::
037174                                  CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
037200  103463                          BCS     50$             ;IF NOT, SKIP THE TEST.
037202                                  CALL    $RESET          ;RESET THE DPV
037206                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
037206  104410                                                                          TRAP    C$ESCAPE
037210  000140                                                                          .WORD   L10144-.
037212  005037  002362                  CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
037216  012737  001400  002344          MOV     #CRC16,IPCSAR   ;SET CRC16
037224  052737  040000  002344          BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
037232  012737  000002  002414          MOV     #2,START        ;SEND 2 SYNCHS
037240  012737  000001  002336          MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
037246  012737  000010  002352          MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
037254  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE
037262  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
037270  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
037276  012737  000100  002472          MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
037304  105037  002342                  CLRB    IPCR            ;CHARACTER LENGTH
037310  013777  002344  142752          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS


037316                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
037322  005037  002356                  CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
037326  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
037332                                  CALL    $DATA           ;
037336  103402                          BCS     20$             ;IF ERROR SKIP DATA CHECK.

037340                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
037344                          20$:
037344                                  CALL    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
037350                          50$:

037350                          ENDTST
037350                                                                          L10144:
037350  104401                                                                          TRAP    C$ETST
```

```
                                .SBTTL          TEST 41 - DDCMP DATA TEST

                                ;*****************************************************************
                                ;*              TEST 41 - DPV-11
                                ;* DDCMP DATA TEST
                                ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE USING THE
                                ;* DDCMP MESSAGE FORMAT.  CHECK THAT THE DATA IS CORRECTLY RECEIVED
                                ;* AND THAT THE CRC CHARACTERS ARE RECEIVED IN THE PROPER DDCMP
                                ;* ORDER.
                                ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES, STRIP SYNCHS
                                ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                ;*
                                ;*****************************************************************
 037352                         BGNTST
 037352                                                                          T41::
 037352                                 CALL    $SPEED          ;CAN THE CPU SUPPORT THE LOOPBACK?
 037356  103521                         BCS     50$             ;IF NOT, SKIP THE TEST.
 037360                                 CALL    $RESET          ;RESET THE DPV
 037364                                 ESCAPE  TST             ;IF ERROR, BR TO THE END.
 037364  104410                                                                  TRAP    C$ESCAPE
 037366  000234                                                                  .WORD   L10145-.
 037370  012737  000006  002414         MOV     #6,START        ;SEND 6 SYNCHS
 037376  005037  002336                 CLR     HEADER          ;CLEAR DDCMP HEADER FLAG
                                                                ;
 037402  012777  061626  142660         MOV     #SSYNCH!PROTO!CRC16!SYN,@PCSAR  ;SET BCP PROTOCOL AND CRC16.
                                                                                ;STRIP SYNCH AND SYNCH CHAR.
 037410  012701  003273                 MOV     #RCVBUF,R1      ;RECEIVE BUFFER
 037414  012703  000014                 MOV     #14,R3          ;BUFFER COUNT
 037420                         1$:
 037420  005021                         CLR     (R1)+           ;CLEAR THE BUFFER
 037422  005303                         DEC     R3              ;DECREMENT COUNT
 037424  001375                         BNE     1$              ;CONTINUE UNTIL DONE.


 037426  012701  003273                 MOV     #RCVBUF,R1      ;RECEIVE BUFFER.
 037432  012702  002650                 MOV     #DDCMP,R2       ;TRANSMIT BUFFER ADDRESS
 037436  012703  000006                 MOV     #DDCMP1,R3      ;TRANSMIT COUNT
 037442  005037  002376                 CLR     RFLAG           ;CLEAR RECEIVE FLAG.
 037446  005037  002360                 CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.

 037452                                 SETVEC  XMTVEC,#XDDCMP,#PRI04   ;TRANSMIT VECTOR
 037452  012746  000200                                                          MOV     #PRI04,-(SP)
 037456  012746  017620                                                          MOV     #XDDCMP,-(SP)
 037462  013746  002264                                                          MOV     XMTVEC,-(SP)
 037466  012746  000003                                                          MOV     #3,-(SP)
 037472  104437                                                                  TRAP    C$SVEC
 037474  062706  000010                                                          ADD     #10,SP
 037500                                 SETVEC  RCVEC,#RDATA,#PRI04     ;RECEIVE VECTOR.
 037500  012746  000200                                                          MOV     #PRI04,-(SP)
 037504  012746  016732                                                          MOV     #RDATA,-(SP)
 037510  013746  002262                                                          MOV     RCVEC,-(SP)
 037514  012746  000003                                                          MOV     #3,-(SP)
 037520  104437                                                                  TRAP    C$SVEC
 037522  062706  000010                                                          ADD     #10,SP
 037526                                 SETPRI  #PRI00          ;ENABLE INTERRUPTS
 037526  012700  000000                                                          MOV     #PRI00,R0
 037532  104441                                                                  TRAP    C$SPRI
```

```
6560
6561 037534  005037  002332                    CLR     EXERR                ;NO ERROR EXPECTED.
6562 037540  012737  000027  002474             MOV     #DDCMP1+DDCMP2+4,ECOUNT ;DETERMINE END COUNT
6563 037546                                     CALL    $DATA1               ;
6564 037552                                     ESCAPE  TST                  ;IF ERROR, BR TO END
     037552  104410                                                                                  TRAP    C$ESCAPE
     037554  000046                                                                                  .WORD   L10145-.
6565
6566 037556  012701  003273                     MOV     #RCVBUF,R1           ;RECEIVE BUFFER.
6567 037562  012702  002650                     MOV     #DDCMP,R2            ;TRANSMIT BUFFER ADDRESS
6568 037566  012703  000006                     MOV     #DDCMP1,R3           ;TRANSMIT COUNT
6569
6570 037572                                     CALL    $CHK1                ;CHECK THE DATA RECEIVED
6571 037576                                     ESCAPE  TST                  ;IF ERROR, BR TO END
     037576  104410                                                                                  TRAP    C$ESCAPE
     037600  000022                                                                                  .WORD   L10145-.
6572 037602  062701  000002                     ADD     #2,R1                ;INCREMENT THE RECEIVE BUFFER BY 2
6573                                                                         ;IN ORDER TO COMPENSATE FOR CRC
6574 037606  012703  000015                     MOV     #DDCMP2,R3           ;MESSAGE COUNT
6575 037612                                     CALL    $CHK1                ;CHECK THE DATA RECEIVED
6576 037616                                     ESCAPE  TST                  ;IF ERROR, BR TO END
     037616  104410                                                                                  TRAP    C$ESCAPE
     037620  000002                                                                                  .WORD   L10145-.
6577 037622                             50$:
6578
6579
6580 037622                             ENDTST
     037622                                                                                  L10145:
     037622  104401                                                                                  TRAP    C$ETST
6581
6582
```

```
                                        .SBTTL          TEST 42 - HIGH SPEED BCP DATA TEST

                                        ;*****************************************************************
                                        ;*              TEST 42 - DPV-11
                                        ;* BCP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES,
                                        ;*                        5 OR 8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*****************************************************************
037624                                  BGNTST
037624                                                                                          T42::
037624                                          CALL    $RESET          ;RESET THE DPV
037630                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
037630  104410                                                                                  TRAP    C$ESCAPE
037632  000200                                                                                  .WORD   L10146-.
                                                                        ;SET CRC16 AND BCP PROTOCOL.
037634  012737  041413  002344                  MOV     #CRC16!PROTO!13,IPCSAR ;CRC16 AND BCP MODE.
037642  012737  000002  002414                  MOV     #2,START        ;SEND 2 SYNCHS

037650  005037  002362                          CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
037654  012737  002502  002470                  MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
037662  012737  000100  002472                  MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
037670  005737  002324                          TST     CPU             ;IS THIS A LSI 11/23?
037674  001412                                  BEQ     5$              ;BRANCH IF NOT.
037676  012737  000005  002352                  MOV     #5.,LENGTH      ;CHARACTER LENGTH OF 5 BITS.
037704  112777  000245  142370                  MOVB    #245,@PCR       ;SET UP CHARACTER LENGTH.
037712  112737  000245  002342                  MOVB    #245,IPCR       ;REMEMBER CHARACTER LENGTH.
037720  000405                                  BR      7$
037722                                  5$:
037722  012737  000010  002352                  MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
037730  105037  002342                          CLRB    IPCR            ;SET UP CHARACTER LENGTH.
037734                                  7$:
037734  013777  002344  142326                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
037742                                          CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
037746  005037  002356                          CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
037752  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
037756  012737  000001  002340                  MOV     #1,HIGH         ;FLAG THAT THIS IS A HIGH SPEED TEST.
037764                                          CALL    $DATA           ;DO THE DATA TRANSFER.
037770  103014                                  BCC     10$             ;IF NO ERROR, PROCEED.
037772  005737  002324                          TST     CPU             ;WAS THIS A LSI 11/23?
037776  001013                                  BNE     20$             ;IF YES - SKIP THE PROMPT.
040000                                          PRINTX  #FMG28          ;PROMPT USER: IF THIS IS A LSI11 (M7264)
040000  012746  013100                                                                          MOV     #FMG28,-(SP)
040004  012746  000001                                                                          MOV     #1,-(SP)
040010  010600                                                                                  MOV     SP,R0
040012  104415                                                                                  TRAP    C$PNTX
040014  062706  000004                                                                          ADD     #4,SP
                                                                        ;WITH MEMORY REFRESH, CAN'T RUN.
040020  000402                                  BR      20$
040022                                  10$:
040022                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
040026                                  20$:
040026  005037  002340                          CLR     HIGH            ;CLEAR HIGH SPEED TEST FLAG.
040032                                  ENDTST
040032                                                                                          L10146:
```

```
        040032  104401                                                    TRAP    C$ETST
   6632
   6633
   6634
```

```
                                        .SBTTL          TEST 43 - HIGH SPEED BOP DATA TEST

                                        ;*******************************************************************
                                        ;*              TEST 43 - DPV-11
                                        ;* BOP DATA TEST
                                        ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
                                        ;* DATA IS CORRECTLY RECEIVED.
                                        ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
                                        ;*                        5 OR 8 BIT CHARACTERS, USER SELECTED LOOPBACK.
                                        ;*
                                        ;*******************************************************************
 040034                                 BGNTST
 040034                                                                                         T43::
 040034                                         CALL    $RESET          ;RESET THE DPV
 040040                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 040040  104410                                                                                 TRAP    C$ESCAPE
 040042  000202                                                                                 .WORD   L10147-.
 040044  012737  000000  002344                 MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT
 040052  012737  000002  002414                 MOV     #2,START        ;SEND 2 SYNCHS

 040060  012737  100000  002362                 MOV     #BOP,MODE       ;FLAG THAT THIS A BOP MODE TEST.

 040066  012737  000002  002414                 MOV     #2,START        ;SEND 2 SYNCHS
 040074  012737  002502  002470                 MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
 040102  012737  000100  002472                 MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
 040110  005737  002324                         TST     CPU             ;IS THIS A LSI 11/23?
 040114  001407                                 BEQ     5$              ;BRANCH IF NOT
 040116  012737  000005  002352                 MOV     #5.,LENGTH      ;CHARACTER LENGTH OF 5 BITS.
 040124  112737  000245  002342                 MOVB    #245,IPCR       ;SET UP CHARACTER LENGTH
 040132  000405                                 BR      7$
 040134                                 5$:
 040134  012737  000010  002352                 MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 7 BITS.
 040142  105037  002342                         CLRB    IPCR            ;SET UP CHARACTER LENGTH.
 040146                                 7$:
 040146  013777  002344  142114                 MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
 040154                                         CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
 040160  005037  002356                         CLR     MAINT           ;CLEAR FLAG TO INDICATE NO MAINTENACE LOOPBACK
 040164  005037  002332                         CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
 040170  012737  000001  002340                 MOV     #1,HIGH         ;FLAG THAT THIS IS A HIGH SPEED TEST.
 040176                                         CALL    $DATA           ;DO THE DATA TRANSFER.
 040202  103014                                 BCC     10$             ;IF NO ERROR, PROCEED.
 040204  005737  002324                         TST     CPU             ;WAS THIS A LSI 11/23?
 040210  001013                                 BNE     20$             ;IF YES - SKIP THE PROMPT.
 040212                                         PRINTX  #FMG28          ;PROMPT USER: IF THIS IS A LSI11 (M7264)
 040212  012746  013100                                                                         MOV     #FMG28,-(SP)
 040216  012746  000001                                                                         MOV     #1,-(SP)
 040222  010600                                                                                 MOV     SP,R0
 040224  104415                                                                                 TRAP    C$PNTX
 040226  062706  000004                                                                         ADD     #4,SP
                                                                         ;WITH MEMORY REFRESH, CAN'T RUN.
 040232  000402                                 BR      20$
 040234                                 10$:
 040234                                         CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
 040240                                 20$:
 040240  005037  002340                         CLR     HIGH            ;CLEAR HIGH SPEED TEST FLAG.
 040244                                 ENDTST
```

```
        040244
        040244  104401                                          L10147:
                                                                        TRAP    C$ETST
   6685
   6686
   6687
   6688
   6689
```

```
                                .SBTTL  HARDWARE PARAMETER CODING SECTION


                                ;*********************************************************************
                                ;  THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
                                ;  THAT ARE USED BY THER 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.
                                ;*********************************************************************

 040246                                 BGNHRD
 040246  000015                                                                  .WORD L10150-L$HARD/2
 040250                                                                  L$HARD::

 040250                                 GPRMA   P1,0,0,160000,177776,YES
 040250  000031                                                                  .WORD   T$CODE
 040252  040302                                                                  .WORD   P1
 040254  160000                                                                  .WORD   T$LOLIM
 040256  177776                                                                  .WORD   T$HILIM
 040260                                 GPRMA   P2,2,0,0,776,YES
 040260  001031                                                                  .WORD   T$CODE
 040262  040314                                                                  .WORD   P2
 040264  000000                                                                  .WORD   T$LOLIM
 040266  000776                                                                  .WORD   T$HILIM
 040270                                 GPRMD   P3,4,0,7,0,4,YES
 040270  002032                                                                  .WORD   T$CODE
 040272  040325                                                                  .WORD   P3
 040274  000007                                                                  .WORD   7
 040276  000000                                                                  .WORD   T$LOLIM
 040300  000004                                                                  .WORD   T$HILIM


 040302                                 ENDHRD
                                                                                 .EVEN
 040302                                                                  L10150:

 040302     101     104     104  P1:     .ASCIZ  /ADDRESS: /
 040314     126     105     103  P2:     .ASCIZ  /VECTOR: /
 040325     114     117     117  P3:     .ASCII  /LOOPBACK -/<CR><LF>
 040341     040     040     060          .ASCII  /  0 = INTERNAL, 1 = RS423, 2 = RS422/<CR><LF>
 040407     040     040     063          .ASCIZ  /  3 = LOCAL MODEM LOOP, 4 = REMOTE MODEM LOOP/
                                         .EVEN
```

```
                                .SBTTL PATCH AREA
                                ;***************************** PATCH AREA ************************************
040466                          PATCH:
        040526                          .=.+40
040526  000240                          NOP
040530  000240                          NOP
040532  000240                          NOP
                                ;*****************************************************************************

                                ENDMOD

040534                                  LASTAD
                                                                                        .EVEN
040534  000000                                                                          .WORD   0
040536  000000                                                                          .WORD   0
040540                          L$LAST::
        000001                  .END
```

CNDPVAO DPV11 FUNC DIAG MACRO M1200 14-DEC-82 16:44 PAGE 107-1
SYMBOL TABLE

```
ABC      032061
ABORT    002316
ACOUNT=  000045
ADR    = 000020 G
ALL    = 000000
ALPHA    002602
APA    = 100000
ASSEMB=  000010
BITS     002320
BIT0   = 000001 G
BIT00  = 000001 G
BIT01  = 000002 G
BIT02  = 000004 G
BIT03  = 000010 G
BIT04  = 000020 G
BIT05  = 000040 G
BIT06  = 000100 G
BIT07  = 000200 G
BIT08  = 000400 G
BIT09  = 001000 G
BIT1   = 000002 G
BIT10  = 002000 G
BIT11  = 004000 G
BIT12  = 010000 G
BIT13  = 020000 G
BIT14  = 040000 G
BIT15  = 100000 G
BIT2   = 000004 G
BIT3   = 000010 G
BIT4   = 000020 G
BIT5   = 000040 G
BIT6   = 000100 G
BIT7   = 000200 G
BIT8   = 000400 G
BIT9   = 001000 G
BOE    = 000400 G
BOP    = 100000
CCITT0=  000400
CCITT1=  000000
CHLEN    032050
COUNTE   002322
CPU      002324
CR     = 000015
CRCHI  = 000266
CRCLO  = 000332
CRC16  = 001400
CSR0     002266
CSR1     002276
CSR2     002270
CSR3     002300
CSR4     002272
CSR5     002302
CSR6     002274
CSR7     002304
CTS    = 020000
C$AU   = 000052
C$AUTO=  000061
C$BRK  = 000022
C$BSEG=  000004
C$BSUB=  000002
C$CEFG=  000045
C$CLCK=  000062
C$CLEA=  000012
C$CLOS=  000035
C$CLP1=  000006
C$CVEC=  000036
C$DCLN=  000044
C$DODU=  000051
C$DRPT=  000024
C$DU   = 000053
C$EDIT=  000003
C$ERDF=  000055
C$ERHR=  000056
C$ERRO=  000060
C$ERSF=  000054
C$ERSO=  000057
C$ESCA=  000010
C$ESEG=  000005
C$ESUB=  000003
C$ETST=  000001
C$EXIT=  000032
C$GETB=  000026
C$GETW=  000027
C$GMAN=  000043
C$GPHR=  000042
C$GPLO=  000030
C$GPRI=  000040
C$INIT=  000011
C$INLP=  000020
C$MANI=  000050
C$MEM  = 000031
C$MSG  = 000023
C$OPEN=  000034
C$PNTB=  000014
C$PNTF=  000017
C$PNTS=  000016
C$PNTX=  000015
C$QIO  = 000377
C$RDBU=  000007
C$REFG=  000047
C$RESE=  000033
C$REVI=  000003
C$RFLA=  000021
C$RPT  = 000025
C$SEFG=  000046
C$SPRI=  000041
C$SVEC=  000037
C$TPRI=  000013
DATA     002326
DDCMP    002650
DDCMP1=  000006
DDCMP2=  000015
DDMSG    002656
DFPTBL   002254 G
DIAGMC=  000000
DM     = 001000
DSCNG  = 100000
DSITEN=  000040
DTR    = 000002
ECOUNT   002474
EF.CON=  000036 G
EF.NEW=  000035 G
EF.PWR=  000034 G
EF.RES=  000037 G
EF.STA=  000040 G
EMG0     013372
EMG1     013462
EMG10    013757
EMG11    014031
EMG12    014062
EMG13    014106
EMG14    014167
EMG15    014243
EMG16    014276
EMG17    014345
EMG18    014405
EMG19    014434
EMG2     013473
EMG20    014465
EMG21    014514
EMG22    014556
EMG23    014603
EMG24    014661
EMG25    014725
EMG26    014753
EMG3     013540
EMG30    014766
EMG31    015004
EMG32    015023
EMG33    015046
EMG34    015074
EMG35    015135
EMG36    015174
EMG37    015226
EMG38    015240
EMG39    015267
EMG4     013554
EMG40    015321
EMG5     013601
EMG6     013634
EMG7     013671
EMG8     013707
EMG9     013723
EMT0     020240
END      016310
ERR    = 100000
ERRG1    006652 G
ERRG10   007472 G
ERRG11   007572 G
ERRG12   010214 G
ERRG13   010272 G
ERRG14   010760 G
ERRG15   011044 G
ERRG2    006700 G
ERRG3    007014 G
ERRG4    007072 G
ERRG7    007172 G
ERRG8    007272 G
ERRG9    007372 G
ERROR    002330
EVL    = 000004 G
EXADD  = 000020
EXCON  = 000010
EXERR    002332
E$END  = 002100
E$LOAD=  000035
FINIT1   016312
FINIT2   016405
FIVE   = 050000
FLAG     002334
FMDROP   020000
FMG0     011070
FMG1     011166
FMG10    011574
FMG11    011640
FMG12    011704
FMG13    011750
FMG14    012014
FMG15    012071
FMG16    012133
FMG17    012144
FMG18    012221
FMG19    012270
FMG2     011223
FMG20    012335
FMG21    012422
FMG22    012471
FMG23    012536
FMG24    012605
FMG25    012652
FMG26    012715
FMG27    013011
FMG28    013100
FMG29    013221
FMG3     011260
FMG30    013314
FMG4     011332
FMG5     011377
FMG6     011410
FMG7     011413
FMG8     011457
FMG9     011522
FMODEM   006030
FMODE0   006115
FMODE1   006144
FMODE2   006233
FMODE3   006257
FMODE4   006266
FMODE5   006275
FMODE6   006325
FMS1     004102
FMT0     020276
FMT1     020350
FOUR   = 040000
FRSPAS   002312
FRSTIM   002310
F$AU   = 000015
F$AUTO=  000020
F$BGN  = 000040
F$CLEA=  000007
F$DU   = 000016
F$END  = 000041
F$HARD=  000004
F$HW   = 000013
F$INIT=  000006
F$JMP  = 000050
F$MOD  = 000000
F$MSG  = 000011
F$PROT=  000021
F$PWR  = 000017
F$RPT  = 000012
F$SEG  = 000003
F$SOFT=  000005
F$SRV  = 000010
F$SUB  = 000002
F$SW   = 000014
F$TEST=  000001
GETPRM   015570
G$CNTO=  000200
G$DELM=  000372
G$DISP=  000003
G$EXCP=  000400
G$HILI=  000002
G$LOLI=  000001
G$NO   = 000000
G$OFFS=  000400
G$OFSI=  000376
G$PRMA=  000001
G$PRMD=  000002
G$PRML=  000000
G$RADA=  000140
G$RADB=  000000
G$RADD=  000040
G$RADL=  000120
G$RADO=  000020
G$XFER=  000004
G$YES  = 000010
HEADER   002336
HELP   = 000000
HIGH     002340
HOE    = 100000 G
IBE    = 010000 G
IC     = 040000
IDLE   = 004000
IDU    = 000040 G
```

SYMBOL TABLE

```
IER    = 020000 G
ILLGL    017744 G
IPCR     002342
IPCSAR   002344
IRDSR    002350
IRXCSR   002346
ISR    = 000100 G
IXE    = 004000 G
I$AU   = 000041
I$AUTO= 000041
I$CLN = 000041
I$DU   = 000041
I$HRD = 000041
I$INIT= 000041
I$MOD = 000041
I$MSG = 000041
I$PROT= 000040
I$PTAB= 000041
I$PWR = 000041
I$RPT = 000041
I$SEG = 000041
I$SETU= 000041
I$SRV = 000041
I$SUB = 000041
I$TST = 000041
J$JMP = 000167
LENGTH   002352
LF     = 000012
LL     = 000010
LOCATE   020166 G
LOE    = 040000 G
LOGDEV   002354
LOOP   = 020000
LOT    = 000010 G
L$ACP    002110 G
L$APT    002036 G
L$AUT    002070 G
L$AUTO   016500 G
L$CCP    002106 G
L$CLEA   016564 G
L$CO     002032 G
L$DEPO   002011 G
L$DESC   003702 G
L$DESP   002076 G
L$DEVP   002060 G
L$DISP   002124 G
L$DLY    002116 G
L$DTP    002040 G
L$DTYP   002034 G
L$DU     017750 G
L$DUT    002072 G
L$DVTY   003674 G
L$EF     002052 G
L$ENVI   002044 G
L$ETP    002102 G
L$EXP1   002046 G
L$EXP4   002064 G
L$EXP5   002066 G
L$HARD   040250 G
L$HIME   002120 G
L$HPCP   002016 G
L$HPTP   002022 G
L$HW     002254 G
L$ICP    002104 G
L$INIT   015372 G
L$LADP   002026 G
L$LAST   040540 G
L$LOAD   002100 G
L$LUN    002074 G
L$MREV   002050 G
L$NAME   002000 G
L$PRIO   002042 G
L$PROT   015364 G
L$PRT    002112 G
L$REPP   002062 G
L$REV    002010 G
L$SPC    002056 G
L$SPCP   002020 G
L$SPTP   002024 G
L$STA    002030 G
L$TEST   002114 G
L$TIML   002014 G
L$UNIT   002012 G
L10000   002262
L10001   006676
L10002   007012
L10003   007070
L10004   007170
L10005   007270
L10006   007370
L10007   007470
L10010   007570
L10011   010212
L10012   010270
L10013   010756
L10014   011042
L10015   011066
L10017   016310
L10020   016562
L10021   016600
L10022   016730
L10023   017162
L10024   017230
L10025   017336
L10026   017510
L10027   017616
L10030   017732
L10031   017742
L10032   017746
L10033   017776
L10034   020164
L10035   020236
L10036   020656
L10037   020564
L10040   020654
L10041   021406
L10042   020774
L10043   021104
L10044   021214
L10045   021324
L10046   021404
L10047   021750
L10050   021576
L10051   021746
L10052   022202
L10053   022050
L10054   022200
L10055   022360
L10056   022612
L10057   023110
L10060   024116
L10061   023346
L10062   023644
L10063   024114
L10064   025232
L10065   024414
L10066   024724
L10067   025230
L10070   025476
L10071   025766
L10072   026676
L10073   026112
L10074   026170
L10075   026246
L10076   026366
L10077   026506
L10100   026646
L10101   030002
L10102   027200
L10103   027470
L10104   030000
L10105   030712
L10106   030304
L10107   030710
L10110   031236
L10111   031074
L10112   031234
L10113   031410
L10114   031620
L10115   032046
L10116   032236
L10117   032422
L10120   032606
L10121   032772
L10122   033162
L10123   033350
L10124   033766
L10125   033546
L10126   033764
L10127   034156
L10130   034346
L10131   034744
L10132   035120
L10133   035302
L10134   035472
L10135   035644
L10136   036020
L10137   036202
L10140   036364
L10141   036566
L10142   036770
L10143   037172
L10144   037350
L10145   037622
L10146   040032
L10147   040244
L10150   040302
MAINT    002356
MASK     004514
MCFLAG   002360
MFPT   = 000007
MM     = 000010
MMASK    006420
MODE     002362
MODEM    002444
NESTPC   002364
NEWST    015552
NOERR  = 003400
NONE1  = 001000
NONE2  = 003000
NXM      017734 G
NXMFLG   002366
ONE    = 010000
OVER     002370
O$APTS= 000000
O$AU   = 000000
O$BGNR= 000000
O$BGNS= 000000
O$DU   = 000001
O$ERRT= 000000
O$GNSW= 000000
O$POIN= 000001
O$SETU= 000000
PATCH    040466
PCR    = 002302
PCSAR  = 002270
PNT    = 001000 G
PRI    = 002000 G
PRI00  = 000000 G
PRI01  = 000040 G
PRI02  = 000100 G
PRI03  = 000140 G
PRI04  = 000200 G
PRI05  = 000240 G
PRI06  = 000300 G
PRI07  = 000340 G
PROTO  = 040000
PSTACK   002372
P1       040302
P2       040314
P3       040325
RABORT= 002000
RCOUNT   002500
RCVBUF   003273
RCVEC    002262
RDATA    016732 G
RDATA2   017164 G
RDATRY= 000200
RDSR   = 002270
REG      002374
REOM   = 001000
RESET  = 000001
RETURN= 000207
RFLAG    002376
RINT     016602 G
RL     = 000001
ROVER  = 004000
RR     = 010000
RSAVE    002400
RSIZE  = 000400
RSOM   = 000400
RSTARY= 002000
RTS    = 000004
RXACT  = 004000
RXCSR  = 002266
RXENA  = 000020
RXINI    002402
RXINIT   002404
RXITEN= 000100
RXMINI   002406
SAVE     002410
SAVTIM   002412
SECADR= 010000
SEVEN  = 070000
SF     = 000001
SFR    = 000400
SIX    = 060000
SQ     = 000040
SSYNCH= 020000
STARES   002314
STARST   015546
START    002414
SUBRPC   002416
SVCGBL= 000000
SVCINS= 000001
SVCSUB= 000001
SVCTAG= 000001
SVCTST= 000001
SW00   = 000001
SW01   = 000002
SW02   = 000004
SW03   = 000010
SW04   = 000020
SW05   = 000040
SW06   = 000100
```

CNDPVAO DPV11 FUNC DIAG MACRO M1200 14-DEC-82 16:44 PAGE 107-3
SYMBOL TABLE

```
SW07   = 000200        T$CODE= 002032        T$$SUB= 010126        T24     032774 G        T8      022614 G
SW08   = 000400        T$ERRN= 000132        T$$TES= 010147        T25     033164 G        T9      023112 G
SW09   = 001000        T$EXCP= 000000        T1      020030 G      T26     033352 G        T9.1    023112
SW10   = 002000        T$FLAG= 000040        T10     024120 G      T26.1   033352          T9.2    023350
SW11   = 004000        T$GMAN= 000000        T10.1   024120        T26.2   033550          T9.3    023646
SW12   = 010000        T$HILI= 000004        T10.2   024416        T27     033770 G        UAM   = 000200 G
SW13   = 020000        T$LAST= 000001        T10.3   024726        T28     034160 G        VRCE  = 002400
SW14   = 040000        T$LOLI= 000000        T11     025234 G      T29     034350 G        VRCO  = 002000
SW15   = 100000        T$LSYM= 010000        T12     025500 G      T3      020660 G        XCOUNT  002472
SYN    = 000226        T$LTNO= 000053        T13     025770 G      T3.1    020670          XDATA   017340 G
S$LSYM= 010000         T$NEST= 177777        T13.1   026036        T3.2    020776          XDATA2  017512 G
TBE    = 000004        T$NS0 = 000000        T13.2   026114        T3.3    021106          XDDCMP  017620 G
TDSR   = 002274        T$NS1 = 000004        T13.3   026172        T3.4    021216          XINT    017232 G
TEMP     002420        T$NS2 = 000002        T13.4   026250        T3.5    021326          XMITD   002476
TEND     002422        T$NS3 = 000003        T13.5   026370        T30     034746 G        XMTBUF  002673
TEOM   = 001000        T$PTNU= 000000        T13.6   026510        T31     035122 G        XMTVEC  002264
TERR   = 100000        T$SAVL= 177777        T14     026700 G      T32     035304 G        XTYPE   002470
TFLAG    002424        T$SEGL= 177777        T14.1   026712        T33     035474 G        X$ALWA= 000000
TGA    = 004000        T$SEKO= 010002        T14.2   027202        T34     035646 G        X$FALS= 000040
THREE  = 030000        T$SUBN= 000000        T14.3   027472        T35     036022 G        X$OFFS= 000400
TIMEO    002426        T$TAGL= 177777        T15     030004 G      T36     036204 G        X$TRUE= 000020
TIMER    002430        T$TAGN= 010151        T15.1   030004        T37     036366 G        $BUFRS  004316
TM     = 000040        T$TEMP= 000000        T15.2   030306        T38     036570 G        $CCITT  002502
TOGGLE   002432        T$TEST= 000053        T16     030714 G      T39     036772 G        $CHECK  005246
TSOM   = 000400        T$TSTM= 177777        T16.1   030714        T4      021410 G        $CHK1   005404
TSTART   002434        T$TSTS= 000001        T16.2   031076        T4.1    021410          $DATA   004526
TURN     002306        T$$AUT= 010020        T17     031240 G      T4.2    021600          $DATA1  005004
TWO    = 020000        T$$CLE= 010021        T18     031412 G      T40     037174 G        $DLAY   006604
TXABO  = 002000        T$$DU = 010033        T19     031622 G      T41     037352 G        $GO     005026
TXACT  = 000002        T$$HAR= 010150        T2      020434 G      T42     037624 G        $LSTIN= 000001
TXCSR  = 002272        T$$HW = 010000        T2.1    020434        T43     040034 G        $LSTTA= 000001
TXENA  = 000020        T$$INI= 010017        T2.2    020566        T5      021752 G        $MODEM  005452
TXIE   = 000100        T$$MSG= 010015        T20     032072 G      T5.1    021752          $RESET  004136
TXINI    002436        T$$PRO= 010016        T21     032240 G      T5.2    022052          $SPEED  006522
TXINIT   002440        T$$SEG= 010002        T22     032424 G      T6      022204 G        $TURN   006444
TXMINI   002442        T$$SRV= 010035        T23     032610 G      T7      022362 G        $WAIT   003724
T$ARGC= 000001

. ABS.  040540     000
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  29150 WORDS  ( 114 PAGES)
DYNAMIC MEMORY:  19748 WORDS  ( 75 PAGES)
ELAPSED TIME:  00:06:28
CNDPVA.BIN/DS:GBL/EN:AMA:ABS,CNDPVA.LST/CR/-SP/NL:CND:MD:BEX=SVC34/MLB,CNDPVA.P11
```