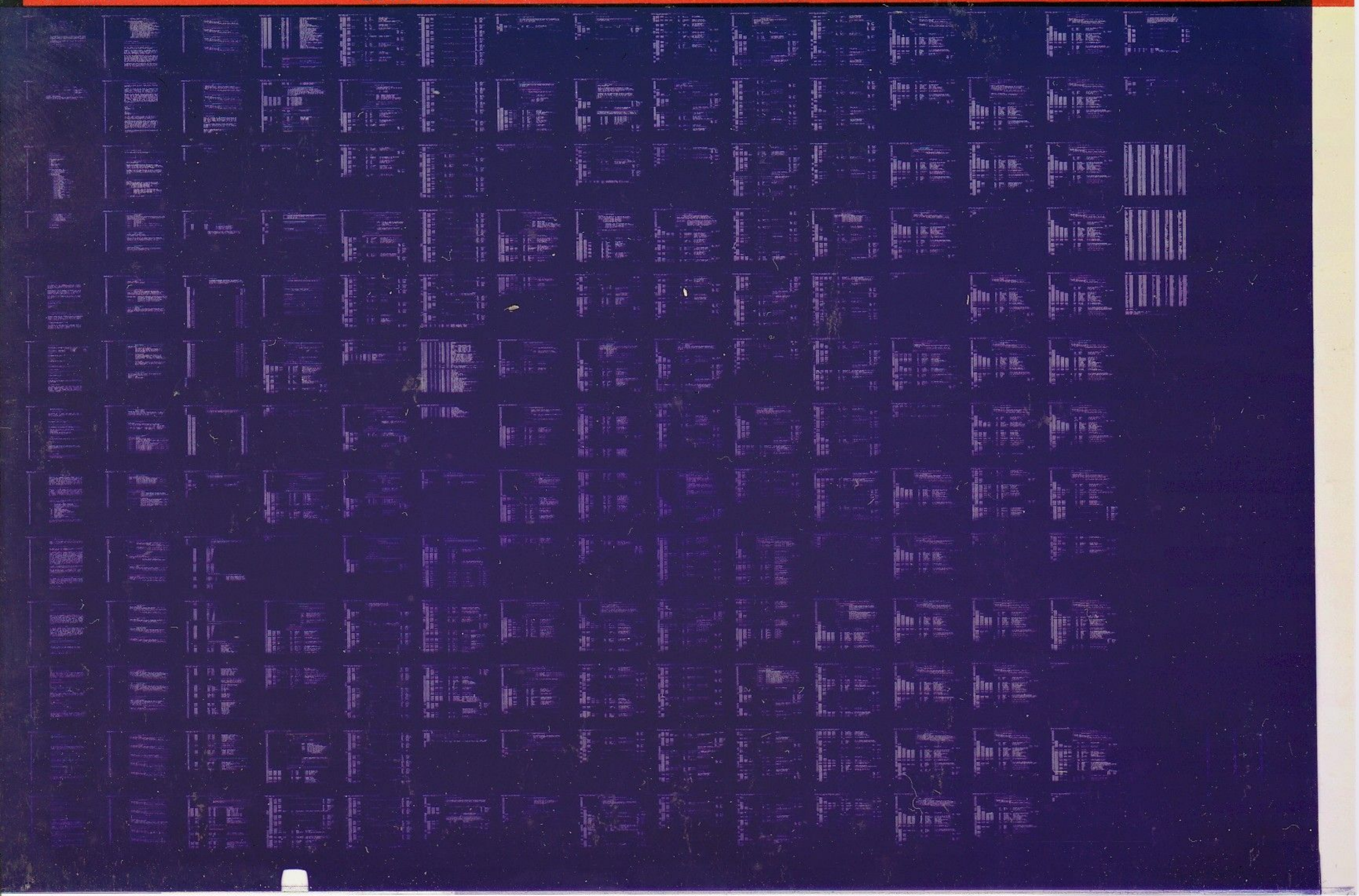
DPV11

DPV11 FUNC DIAG
CNDPVA0

AH-T428A-MC
FICHE 1 OF 1



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                        .NLIST  TOC
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IDENTIFICATION

PRODUCT CODE:	AC-T427A-MC
PRODUCT NAME:	CNDPVA0 DPV11 FUNC DIAG
PRODUCT DATE:	DECEMBER, 1982
MAINTAINER:	DIAGNOSTIC SERVICES/ISS
AUTHOR:	MIKE O'CONNOR

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42
43
44                              REVISION HISTORY:
45
46                              REV     DATE            AUTHOR          REASON
47                              ---     ----            ------          ------
48
49                              A       JUNE 80         MIKE OCONNOR    ORIGINAL RELEASE
50                              B       OCT. 80         MIKE OCONNOR    1. CHANGE CHARACTER LENGTH
51                                                                          IN TEST 37
52                                                                      2. CHANGE TIMEOUT IN TEST 29
53                                                                      3. ENHANCEMENTS
54
55                      ------------------------------------------------------------------------
56                      DEC,1982   SING LAKSHMANAN
57                      CVDPVB0 WAS MODIFIED TO RUN ON 11/21 PROCESSOR BY LOWERING PRIORITY 7 TO 6
58                      AND DEFAULT CSR AND VECTOR ADDRESSES WERE ALSO CHANGED. THE PROGRAM WAS
59                      RENAMED TO CNDPVA0 AND RUNS UNDER DIAGNOSTIC SUPERVISOR.
60                      ------------------------------------------------------------------------
61
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CONTENTS

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                                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.
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                                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.
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                                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 F_AG 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

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**********************************************************
```

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 -

```
651                                     0 = INTERNAL, 1 = RS423, 2 = RS422
652                                     3 = LOCAL MODEM LOOP, 4 = REMOTE MODEM LOOP (0)  1?
653
654                                 THIS IS THE USER SELECTED LOOPBACK. THE DEFAULT IS RS423.
655                                 THE FOLLOWING SHOULD BE CONSIDERED:
656                                     A. INTERNAL LOOPBACK RUNS THE DIAGNOSTIC THROUGH THE
657                                        USYNRT MAINTENANCE MODE LOOPBACK.  THE DRIVERS WILL
658                                        NOT BE TESTED.  NO CONNECTOR IS REQUIRED.
659                                     B. RS423 REQUIRES A H3260 ONBOARD CONNECTOR OR THE
660                                        BC05C CABLE AND THE H3259 CONNECTOR.  THIS TURNAROUND
661                                        WILL PROVIDE A 2K CLOCK FOR DIAGNOSTICS.  ALL TESTS
662                                        SHOULD BE ABLE TO BE RUN ON ALL PROCESSORS.
663                                     C. R2422 REQUIRES A MODIFIED H3260 ONBOARD CONNECTOR.
664                                        THIS TURNAROUND WILL PROVIDE A 50K CLOCK FOR DIAGNOSTICS.
665                                        THE TESTS RUN WILL DEPEND ON THE PROCESSOR.
666                                        1. THE LSI11/23 SHOULD RUN ALL TESTS.
667                                        2. THE LSI11/2  SHOULD RUN ALL TESTS EXCEPT TESTS 29-41.
668                                        3. THE LSI11 WITHOUT PROCESSOR MEMORY REFRESH SHOULD
669                                           RUN ALL TESTS EXCEPT TESTS 29-41.
670                                        4. THE LSI11 WITH PROCESSOR MEMORY REFRESH SHOULD
671                                           RUN ALL TESTS EXCEPT TESTS 29-43.
672                                     D. LOOPBACK THROUGH THE MODEM SHOULD ONLY BE ATTEMPTED IF THE
673                                        MODEM SUPPORTS THAT TYPE OF LOOBACK.
674
675
676
677                                 6.3.13 SOFTWARE PARAMETERS
678
679                                 NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY TIS DIAGNOSTIC
680
681
682                                 6.3.14 EXTENDED DISCUSSION OF P-TABLE DIALOGUE
683
684                                 THE  FULL CAPABILITY OF THE HARDWARE DIALOGUE IS REVEALED BY
685                                 THE FOLLOWING DISCUSSION OF WHAT HAPPENS INTERNALLY.
686
687                                 AS SOON AS THE QUESTION "# UNITS?" IS  ANSWERED  (WITH  THE
688                                 NUMBER  N,  SAY)  SPACE IN CORE IS ALLOCATED FOR N P-TABLES.
689                                 ALL OF THE P-TABLES ARE OF THE SAME FORMAT, AND THERE  IS  A
690                                 ONE-TO  ONE  CORRESPONDENCE  BETWEEN  THE HARDWARE PARAMETER
691                                 QUESTIONS AND THE SLOTS IN THE P-TABLE FORMAT.
692
693                                 ON THE FIRST TRIP THRU THE QUESTIONS, ALL OF  THE  SLOTS  IN
694                                 ALL  OF  THE  P-TABLES ARE FILLED.  IF THE OPERATOR TYPES IN
695                                 LESS THAN N EXPLICIT VALUES  IN  RESPONSE  TO  A  PARTICULAR
696                                 QUESTION, THESE VALUES ARE PLACED IN THE P-TABLES (ONE VALUE
697                                 GOING INTO THE PROPER SLOT OF EACH  P-TABLE  BEGINNING  WITH
698                                 THE  FIRST P-TABLE) UNTIL THE STRING OF VALUES IS EXHAUSTED.
699                                 THE LAST VALUE IN THE STRING BECOMES THE NEW DEFAULT AND  IS
700                                 USED TO FILL THAT SLOT IN THE REMAINING P-TABLES.
701
702                                 ON  SUBSEQUENT TRIPS THRU THE QUESTIONS, THE SAME PROCESS IS
703                                 CARRIED OUT, EXCEPT THAT THE EARLIEST P-TABLE  NOT  TO  HAVE
704                                 RECEIVED  AN  EXPLICIT VALUE IN ANY OF ITS SLOTS NOW ASSUMES
705                                 THE ROLE THAT TABLE NUMBER ONE PLAYED IN THE FIRST TRIP.
706
707                                 THE SERIES OF QUESTIONS  IS  REISSUED  UNTIL  AT  LEAST  ONE
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```
                        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).
```

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                        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.
;*
;*********************************************************************
```

```
1005
1006                    ;*********************************************************************
1007                    ;*                TEST 14 - DPV-11
1008                    ;* RECEIVE AND MODEM STATUS INTERRUPTS
1009                    ;* CHANGE THE MODEM STATUS WHILE HANDLING A RECEIVE INTERRUPT.
1010                    ;* ENSURE THAT THE MODEM STATUS INTERRUPT IS RECEIVED.
1011                    ;* SUBTEST 1 -  CHANGE RTS DURING THE RECEIVE INTERRUPT.  ENSURE THAT
1012                    ;*              THE DATA SET INTERRUPT WAS RECEIVED.
1013                    ;* SUBTEST 2 -  CHANGE DTR DURING THE RECEIVE INTERRUPT.  ENSURE THAT
1014                    ;*              THE DATA SET INTERRUPT WAS RECEIVED.
1015                    ;* SUBTEST 3 -  CHANGE LL DURING THE RECEIVE INTERRUPT.  ENSURE THAT
1016                    ;*              THE DATA SET INTERRUPT WAS RECEIVED.
1017                    ;*
1018                    ;*********************************************************************
1019
1020
1021
1022                    ;*********************************************************************
1023                    ;*                TEST 15 - DPV-11
1024                    ;* SUBTEST 1 - SECONDARY ADDRESS
1025                    ;*      SEGMENT 1 -     SELECT SECONDARY ADDRESS AND SEND THE CORRECT
1026                    ;*                      ADDRESS.  CHECK THE DATA IS PROPERLY RECEIVED.
1027                    ;*      SEGMENT 2 -     SELECT SECONDARY ADDRESS AND SEND A MESSAGE WITHOUT
1028                    ;*                      SENDING USING THE SECONDARY ADDRESS.  CHECK THAT A
1029                    ;*                      TIME OUT IS RECEIVED.
1030                    ;*
1031                    ;* SUBTEST 2 - ALL PARTIES ADDRESSING
1032                    ;*      SEGMENT 1 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
1033                    ;*                      MESSAGE USING THE ALL PARTIES ADDRESS.  ENSURE THAT
1034                    ;*                      THE MESSAGE IS CORRECTLY RECEIVED.
1035                    ;*      SEGMENT 2 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
1036                    ;*                      MESSAGE WITHOUT ALL PARTIES OR SECONDARY ADDRESS.
1037                    ;*                      CHECK THAT A TIME OUT IS RECEIVED.
1038                    ;*      SEGMENT 3 -     SELECT ALL PARTIES AND SECONDARY ADDRESS.  SEND A
1039                    ;*                      MESSAGE WITH A SECONDARY ADDRESS.  CHECK THAT A
1040                    ;*                      TIME OUT IS RECEIVED.
1041                    ;*
1042                    ;*********************************************************************
1043
```

```
1045
1046                    ;*********************************************************************
1047                    ;*                TEST 16 - DPV-11
1048                    ;* ABORT TEST
1049                    ;* SUBTEST 1 -  ABORT WITH IDLE CLEAR. ABORT CHARACTERS TRANSMITTED WHEN
1050                    ;*              THE ABORT BIT IS ASSERTED.
1051                    ;*              SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
1052                    ;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1053                    ;*
1054                    ;* SUBTEST 2 -  ABORT WITH IDLE SET. FLAGS TRANSMITTED WHEN THE ABORT BIT
1055                    ;*              IS ASSERTED.
1056                    ;*              SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, IDLE SET,
1057                    ;*                                5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1058                    ;*
1059                    ;*********************************************************************
1060
1061
1062                    ;*********************************************************************
1063                    ;*                TEST 17 - DPV-11
1064                    ;* EXTENDED CONTROL AND ADDRESSING TEST
1065                    ;* CHECK THAT THE RECEIVER CAN RECOGNIZE EXTENDED ADDRESSING AND CONTROL
1066                    ;* CHARACTERS.
1067                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
1068                    ;*                        3 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK,
1069                    ;*                        EXTENDED CONTROL AND ADDRESSING SELECTED
1070                    ;*
1071                    ;*********************************************************************
1072
1073
1074                    ;*********************************************************************
1075                    ;*                TEST 18 - DPV-11
1076                    ;* TRANSMIT GO AHEAD
1077                    ;* TERMINATE A MESSAGE USING TRANSMIT GO AHEAD.  CHECK THAT THE RECEIVE
1078                    ;* ABORT BIT IS SET WHEN THE END OF MESSAGE IS RECEIVED.
1079                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1, LOOP SET,
1080                    ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1081                    ;*
1082                    ;*********************************************************************
1083
1084
1085                    ;*********************************************************************
1086                    ;*                TEST 19 - DPV-11
1087                    ;* ASSEMBLED BIT COUNT
1088                    ;* TRANSMIT VARIOUS BIT LENGTHS WHILE RECEIVING AN 8 BIT CHARACTER.
1089                    ;* ENSURE THAT THE ASSEMBLED BIT COUNT (ABC) IS CORRECT UPON THE END
1090                    ;* OF MESSAGE.
1091                    ;*      SELECTED OPTIONS: BOP MODE, NO ERROR CHECKING, VARIOUS BIT
1092                    ;*                        LENGTH CHARACTERS, MAINTENANCE MODE LOOPBACK.
1093                    ;*
1094                    ;*********************************************************************
```

```
1096
1097                    ;*********************************************************************
1098                    ;*                TEST 20 - DPV-11
1099                    ;* SPECIAL SPACE SEQUENCE
1100                    ;* START A MESSAGE USING A SPECIAL SPACE SEQUENCE.  CHECK THAT THE
1101                    ;* MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
1102                    ;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
1103                    ;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
1104                    ;*
1105                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO 1,
1106                    ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1107                    ;*
1108                    ;*********************************************************************
1109
1110
1111                    ;*********************************************************************
1112                    ;*                TEST 21 - DPV-11
1113                    ;* SYNCH CHARACTER
1114                    ;* CHECK THAT A SYNCH CHARACTER OF 271 CAN BE USED TO COMMENCE A MESSAGE.
1115                    ;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
1116                    ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
1117                    ;*                        7 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1118                    ;*
1119                    ;*********************************************************************
1120
1121
1122                    ;*********************************************************************
1123                    ;*                TEST 22 - DPV-11
1124                    ;* SYNCH FROM TRANSMIT DATA PATH
1125                    ;* TRANSMIT A MESSAGE USING THE SYNCH FROM THE TRANSMIT DATA PATH.
1126                    ;* VERIFY THAT THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
1127                    ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE SET
1128                    ;*                        5 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1129                    ;*
1130                    ;*********************************************************************
1131
1132
1133                    ;*********************************************************************
1134                    ;*                TEST 23 - DPV-11
1135                    ;* STRIP SYNCHS
1136                    ;* SEND MORE THAN 2 SYNCHS WITH THE STRIP SYNCH BIT SET. CHECK THAT
1137                    ;* THE MESSAGE IS CORRECTLY TRANSMITTED AND RECEIVED.
1138                    ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, STRIP SYNCH SET
1139                    ;*                        6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1140                    ;*
1141                    ;*********************************************************************
```

```
;*********************************************************************
;*                 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.
;*
;*********************************************************************
```

```
1193
1194                    ;*****************************************************************
1195                    ;*              TEST 27 - DPV-11
1196                    ;* VRC ODD PARITY ERROR
1197                    ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
1198                    ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
1199                    ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, XMIT=7 &
1200                    ;*                        RCV=6 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1201                    ;*
1202                    ;*****************************************************************
1203
1204                    ;*****************************************************************
1205                    ;*              TEST 28 - DPV-11
1206                    ;* VRC EVEN PARITY ERROR
1207                    ;* BY SELECTING DIFFERENT CHARACTER LENGTHS IN THE RECEIVER AND
1208                    ;* TRANSMITTER, CAUSE A PARITY ERROR TO OCCUR.
1209                    ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY, XMIT=5 &
1210                    ;*                        RCV=4 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1211                    ;*
1212                    ;*****************************************************************
1213
1214                    ;*****************************************************************
1215                    ;*              TEST 29 - DPV-11
1216                    ;* DATA TEST
1217                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE WITHOUT THE USE OF INTERRUPT
1218                    ;* SERVICE ROUTINES. CHECK THAT THE DATA IS  CORRECT.
1219                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
1220                    ;*                        8 BIT CHARACTERS, MAINTENANCE MODE LOOPBACK.
1221                    ;*
1222                    ;*****************************************************************
1223
1224                    ;*****************************************************************
1225                    ;*              TEST 30 - DPV-11
1226                    ;* BOP DATA TEST
1227                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1228                    ;* DATA IS CORRECTLY RECEIVED.
1229                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
1230                    ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
1231                    ;*
1232                    ;*****************************************************************
1233
1234                    ;*****************************************************************
1235                    ;*              TEST 31 - DPV-11
1236                    ;* BOP DATA TEST
1237                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1238                    ;* DATA IS CORRECTLY RECEIVED.
1239                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
1240                    ;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
1241                    ;*
1242                    ;*****************************************************************
```

```
1244
1245                    ;*****************************************************************
1246                    ;*              TEST 32 - DPV-11
1247                    ;* BOP DATA TEST
1248                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1249                    ;* DATA IS CORRECTLY RECEIVED.
1250                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO,
1251                    ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
1252                    ;*
1253                    ;*****************************************************************
1254
1255                    ;*****************************************************************
1256                    ;*              TEST 33 - DPV-11
1257                    ;* BOP DATA TEST
1258                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1259                    ;* DATA IS CORRECTLY RECEIVED.
1260                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
1261                    ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
1262                    ;*
1263                    ;*****************************************************************
1264
1265                    ;*****************************************************************
1266                    ;*              TEST 34 - DPV-11
1267                    ;* BOP DATA TEST
1268                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1269                    ;* DATA IS CORRECTLY RECEIVED.
1270                    ;* NOTE: CERTAIN USYNRTS ONLY TRANSMIT A SPECIAL START SEQUENCE WHEN
1271                    ;*       TRANSMIT START AND END OF MESSAGE ARE SET BY A BYTE OPERATION.
1272                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ONES,
1273                    ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
1274                    ;*
1275                    ;*****************************************************************
1276
1277                    ;*****************************************************************
1278                    ;*              TEST 35 - DPV-11
1279                    ;* BOP DATA TEST
1280                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1281                    ;* DATA IS CORRECTLY RECEIVED.
1282                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZEROS,
1283                    ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
1284                    ;*
1285                    ;*****************************************************************
1286
1287                    ;*****************************************************************
1288                    ;*              TEST 36 - DPV-11
1289                    ;* BOP DATA TEST
1290                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1291                    ;* DATA IS CORRECTLY RECEIVED.
1292                    ;*      SELECTED OPTIONS: BOP MODE, CRC-CCITT PRESET TO ZERO, LOOP SET,
1293                    ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
1294                    ;*
1295                    ;*****************************************************************
```

```
1297
1298                    ;*****************************************************************
1299                    ;*                TEST 37 - DPV-11
1300                    ;* BCP DATA TEST
1301                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1302                    ;* DATA IS CORRECTLY RECEIVED.
1303                    ;*      SELECTED OPTIONS: BCP MODE, VRC-ODD PARITY, IDLE BIT SET
1304                    ;*                        6 BIT CHARACTERS, USER SELECTED LOOPBACK.
1305                    ;*
1306                    ;*****************************************************************
1307
1308                    ;*****************************************************************
1309                    ;*                TEST 38 - DPV-11
1310                    ;* BCP DATA TEST
1311                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1312                    ;* DATA IS CORRECTLY RECEIVED.
1313                    ;*      SELECTED OPTIONS: BCP MODE, VRC-EVEN PARITY,
1314                    ;*                        5 BIT CHARACTERS, USER SELECTED LOOPBACK.
1315                    ;*
1316                    ;*****************************************************************
1317
1318                    ;*****************************************************************
1319                    ;*                TEST 39 - DPV-11
1320                    ;* BCP DATA TEST
1321                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1322                    ;* DATA IS CORRECTLY RECEIVED.
1323                    ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES, STRIP SYNCHS,
1324                    ;*                        7 BIT CHARACTERS, USER SELECTED LOOPBACK.
1325                    ;*
1326                    ;*****************************************************************
1327
1328                    ;*****************************************************************
1329                    ;*                TEST 40 - DPV-11
1330                    ;* BCP DATA TEST
1331                    ;* TRANSMIT AND RECEIVE A COMPLETE DATA MESSAGE.  CHECK THAT THE
1332                    ;* DATA IS CORRECTLY RECEIVED.
1333                    ;*      SELECTED OPTIONS: BCP MODE, CRC-16 PRESET TO ONES,
1334                    ;*                        8 BIT CHARACTERS, USER SELECTED LOOPBACK.
1335                    ;*
1336                    ;*****************************************************************
```

```
;*******************************************************************
;*                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
                                    @
```

```
1419          002000                          .=2000
1420
1421
1422
1423
1424                                          .MCALL  SVC
1425  002000                                  SVC                                     ; INITIALIZE SUPERVISOR MACROS
1426
1427
1428  002000                          BGNMOD
1429
1430
1431          000001                  $LSTIN=  1      ;   LIST INSTRUCTIONS
1432          000001                  $LSTTAG= 1
1433          000001                  SVCINS=  1      ;   LIST INSTRUCTIONS, SHIFTED RIGHT
1434          000001                  SVCTST=  1      ;   LIST TEST TAGS, SHIFTED RIGHT
1435          000001                  SVCSUB=  1      ;   LIST SUBTEST TAGS, SHIFTED RIGHT
1436          000001                  SVCGBL=  1      ;   LIST GLOBAL TAGS, SHIFTED RIGHT
1437          000001                  SVCTAG=  1      ;   LIST OTHER TAGS, SHIFTED RIGHT
1438
1439                                  ;       CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
1440                                  ;       TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
1441                                  ;       SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
1442                                  ;       CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
1443
1444  002000                                    POINTER BGNDU
1445
1453
1454
1455
```

PROGRAM HEADER

```
                                .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.
                                ;--


                                        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
002054  000000
002056
002056  000000
002060
002060  003674
002062
002062  000000
002064
002064  000000
002066
002066  000000
002070
002070  000000
002072
002072  017750
002074
002074  000000
002076
002076  003702
002100
002100  104035
002102
002102  000000
002104
002104  015372
002106
002106  016564
002110
002110  016500
002112
002112  015364
002114
002114  000000
002116
002116  000000
002120
002120  000000
1468
1474
1475
1476
1477
1478                            .EVEN
1479
1480
1481
1482
1483
1484

L$EF::
        .WORD   0
        .WORD   0
L$SPC::
        .WORD   0
L$DEVP::
        .WORD   L$DVTYP
L$REPP::
        .WORD   0
L$EXP4::
        .WORD   0
L$EXP5::
        .WORD   0
L$AUT::
        .WORD   0
L$DUT::
        .WORD   L$DU
L$LUN::
        .WORD   0
L$DESP::
        .WORD   L$DESC
L$LOAD::
        EMT     E$LOAD
L$ETP::
        .WORD   0
L$ICP::
        .WORD   L$INIT
L$CCP::
        .WORD   L$CLEAN
L$ACP::
        .WORD   L$AUTO
L$PRT::
        .WORD   L$PROT
L$TEST::
        .WORD   0
L$DLY::
        .WORD   0
L$HIME::
        .WORD   0
```

```
                        .SBTTL  DISPATCH TABLE

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

                                DISPATCH 43

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

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

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

002252                                  BGNHW   DFPTBL
                                                                                        .WORD   L10000-L$HW/2
002252  000003
002254                                                                                  L$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
                                ;
100000                          BIT15== 100000
040000                          BIT14== 40000
020000                          BIT13== 20000
010000                          BIT12== 10000
004000                          BIT11== 4000
002000                          BIT10== 2000
001000                          BIT09== 1000
000400                          BIT08== 400
000200                          BIT07== 200
000100                          BIT06== 100
000040                          BIT05== 40
000020                          BIT04== 20
000010                          BIT03== 10
000004                          BIT02== 4
000002                          BIT01== 2
000001                          BIT00== 1
                                ;
001000                          BIT9==  BIT09
000400                          BIT8==  BIT08
000200                          BIT7==  BIT07
000100                          BIT6==  BIT06
000040                          BIT5==  BIT05
000020                          BIT4==  BIT04
000010                          BIT3==  BIT03
000004                          BIT2==  BIT02
000002                          BIT1==  BIT01
000001                          BIT0==  BIT00
                                ;
                                ; 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
  1536                                  ;;*************************************************************
  1537
  1538                                  ;;*************************************************************
  1539                                  ;SWITCH REGISIER OPTIONS
  1540
  1541          100000                  SW15=   100000
  1542          040000                  SW14=   40000
  1543          020000                  SW13=   20000
  1544          010000                  SW12=   10000
  1545          004000                  SW11=   4000
  1546          002000                  SW10=   2000
  1547          001000                  SW09=   1000
  1548          000400                  SW08=   400
  1549          000200                  SW07=   200
  1550          000100                  SW06=   100
  1551          000040                  SW05=   40
  1552          000020                  SW04=   20
  1553          000010                  SW03=   10
  1554          000004                  SW02=   4
  1555          000002                  SW01=   2
  1556          000001                  SW00=   1
  1557
  1558                                  ;;*************************************************************
  1559                                  ;;CSR AND STATUS WORD DEFINITIONS
  1560
  1561                                  ;;RXCSR - CSR0   (EXTERNAL REGISTER)  READ/WRITE BITS 0 - 6
  1562
  1563          000001                  SF=     BIT0            ;SELECT FREQUENCY.
  1564          000001                  RL=     BIT0            ;REMOTE LOOPBACK - IF WIRE WRAPPED
  1565                                                          ;SELECTED.
  1566          000002                  DTR=    BIT1            ;DATA TERMINAL READY  R/W
  1567          000004                  RTS=    BIT2            ;REQUEST TO SEND  R/W
  1568          000010                  LL=     BIT3            ;LOCAL LOOPBACK
  1569          000020                  RXENA=  BIT4            ;RECEIVER ENALBLE  R/W
  1570          000040                  DSITEN= BIT5            ;DATA SET INTERRUPT ENABLE  R/W
  1571          000100                  RXITEN= BIT6            ;RECEIVER INTERRUPT ENABLE  R/W
  1572                                                          ;** BITS 7 - 15   READ ONLY **
```

```
1573            000200                  RDATRY= BIT7            ;RECEIVE DATA READY  READ ONLY
1574            000400                  SFR=    BIT8            ;SYNCH OR FLAG DETECT  READ ONLY
1575            001000                  DM=     BIT9            ;DATA MODE  READ ONLY
1576            002000                  RSTARY= BIT10           ;RECEIVER STATUS READY  READ ONLY
1577            004000                  RXACT=  BIT11           ;RECEIVER ACTIVE  READ ONLY
1578            010000                  RR=     BIT12           ;RECEIVER READY  READ ONLY
1579            020000                  CTS=    BIT13           ;CLEAR TO SEND  READ ONLY
1580            040000                  IC=     BIT14           ;INCOMING CALL  READ ONLY
1581            100000                  DSCNG=  BIT15           ;DATA SET CHANGE  READ ONLY
1582
1583
1584                                    ;;PCSAR - CSR2   (INTERNAL USNYR/T REGISTERS 4 AND 5)  WRITE ONLY
1585
1586                                                            ;BITS 0-7 SYNCH CHARACTER OR SECONDARY STATION
1587                                                            ;ADDRESS.  LOWER BYTE OF THE PCSAR IS THE
1588                                                            ;SYNCH CHARACTER USED WITH IN BCP MODE   OR
1589                                                            ;THE SECONDARY ADDRESS USED IN BOP MODE.
1590
1591                                                            ;BITS 8-10 ERROR DETECTION SELECTION
1592            000000                  CCITT1= 0               ;CRC CCITT INITIALIZED TO ONES
1593            000400                  CCITT0= BIT8            ;CRC CCITT INITIALIZED TO ZEROS
1594            001400                  CRC16=  BIT8!BIT9       ;CRC 16
1595            002000                  VRCO=   BIT10           ;VRC ODD PARITY
1596            002400                  VRCE=   BIT8!BIT10      ;VRC EVEN PARITY
1597            003400                  NOERR=  BIT8!BIT9!BIT10 ;ALL ERROR DETECTION INHIBITED.
1598            001000                  NONE1=  BIT9            ;NOT USED
1599            003000                  NONE2=  BIT9!BIT10      ;NOT USED
1600
1601            004000                  IDLE=   BIT11           ;IDLE MODE SELECT
1602            010000                  SECADR= BIT12           ;SECONDARY ADDRESS SELECT
1603            020000                  SSYNCH= BIT13           ;STRIP SYNCH - BCP
1604            020000                  LOOP=   BIT13           ;LOOP MODE - BOP
1605            040000                  PROTO=  BIT14           ;PROTOCOL SELECT.
1606            100000                  APA=    BIT15           ;ALL PARTIES ADDRESSED.
1607
1608
1609                                    ;;RDSR  - CSR2   (INTERNAL USNYR/Y REGISTERS 0 AND 1)  READ ONLY
1610
1611                                                            ;BITS 0-7 RECEIVE DATA BUFFER
1612            000400                  RSOM=   BIT8            ;RECEIVED START OF MESSAGE.
1613            001000                  REOM=   BIT9            ;RECEIVED END OF MESSAGE.
1614            002000                  RABORT= BIT10           ;RECEIVER ABORT OR GO AHEAD
1615            004000                  ROVER=  BIT11           ;RECEIVER OVERRUN.
1616                                                            ;BITS 12-14 ASSEMBLED BIT COUNT (ABC)
1617            000000                  ALL=    0               ;ALL BITS VALID
1618            010000                  ONE=    BIT12           ;ONE BIT VALID
1619            020000                  TWO=    BIT13           ;TWO BITS VALID
1620            030000                  THREE=  BIT12!BIT13     ;THREE BITS VALID
1621            040000                  FOUR=   BIT14           ;FOUR BITS VALID
1622            050000                  FIVE=   BIT12!BIT14     ;FIVE BITS VALID
1623            060000                  SIX=    BIT13!BIT14     ;SIX BITS VALID
1624            070000                  SEVEN=  BIT12!BIT13!BIT14 ;SEVEN BITS VALID
1625
1626            100000                  ERR=    BIT15           ;ERROR CHECK
1627
1628
1629                                    ;;TXCSR - CSR4   (EXTERNAL LO BYTE  -  INTERNAL 7 HI BYTE) READ/WRITE
```

```
                                ;DEVICE RESET  - WRITE ONLY
                                ;TRANSMITTER ACTIVE - READ ONLY
                                ;TRANSMITTER BUFFER EMPTY - READ ONLY
                                ;MAINTENANCE MODE - R/W
                                ;TRANSMITTER ENABLE - R/W
                                ;SIGNAL QUALITY -READ ONLY
                                ;TEST MODE - READ ONLY  WIRE WRAPPED FOR
                                ;TEST MODE
                                ;TRANSMIT INTERRUPT ENABLE - R/W

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

                                ;EXTENDED CONTROL FIELD
                                ;EXTENDED ADDRESS FIELD.

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

                                ;BITS 0-7 TRANSMITTER DATA
                                ;TRANSMIT START OF MESSAGE - R/W
                                ;TRANSMIT END OF MESSAGE - R/W
                                ;TRANSMIT ABORT - R/W
                                ;TRANSMIT GO AHEAD - R/W
                                ;BITS 12 - 14 RESERVED
                                ;TRANSMIT DATA LATE ERROR. - READ ONLY


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

                                ;DDCMP SYNCH CHARACTER
                                ;RETURN FROM SUB.     [=  JSR PC]
                                ;BIT SET IN MODE WHEN IN BOP MODE
                                ;ASCII CARRIAGE RETURN
                                ;ASCII LINE FEED
                                ;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
                                ;LOW BYTE OF CRC IN TEST 26.
                                ;HIGH BYTE OF CRC IN TEST 26.
```

```
1674                                    .SBTTL  GLOBAL DATA SECTION
1675
1676                                    ;////////////////////////////////////////////////////////////////////////////
1677                                    ;/      THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
1678                                    ;/      IN MORE THAN ONE TEST.
1679                                    ;////////////////////////////////////////////////////////////////////////////
1680
1681
1682
1683                                    ;;*************************************************************************
1684                                    ;DPV11 VECTOR AND REGISTER INDIRECT POINTERS
1685  002262  000000                    RCVEC:  .WORD   0               ;DPV11 RECEIVER INTERRUPT VECTOR
1686  002264  000000                    XMTVEC: .WORD   0               ;DPV11 TRANSMITTER INT. VECTOR
1687  002266  000000                    CSR0:   .WORD   0               ;POINTER TO DPV11 CSR0
1688  002270  000000                    CSR2:   .WORD   0               ;POINTER TO DPV11 CSR2
1689  002272  000000                    CSR4:   .WORD   0               ;POINTER TO DPV11 CSR4
1690  002274  000000                    CSR6:   .WORD   0               ;POINTER TO DPV11 CSR6
1691  002276  000000                    CSR1:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR0
1692  002300  000000                    CSR3:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR2
1693  002302  000000                    CSR5:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR4
1694  002304  000000                    CSR7:   .WORD   0               ;POINTER TO HIGH BYTE OF CSR6
1695
1696          002266                    RXCSR=  CSR0                    ;RECEIVER CSR (READ/WRITE)
1697          002270                    PCSAR=  CSR2                    ;PARAMETER CONTROL SYNCH/ADDRESS REG.
1698                                                                    ;(WRITE ONLY)
1699          002270                    RDCSR=  CSR2                    ;RECEIVE DATA/STATUS REGISTER (READ ONLY)
1700          002272                    TXCSR=  CSR4                    ;TRANSMITTER CSR (READ/WRITE)
1701          002274                    TDSR=   CSR6                    ;TRANSMIT DATA/STATUS REGISTER (READ ONLY)
1702          002302                    PCR=    CSR5                    ;PCR = PARAMETER CONTROL REGISTER
1703
1704                                    ;;OTHER HARDWARE PARAMETERS
1705
1706  002306  000000                    TURN:   .WORD   0               ;TURN AROUND TYPE (0-7)
1707
1708                                    ;;*************************************************************************
1709                                    ;PROGRAM CONTROL PARAMETERS
1710
1711
1712
1713  002310  000000                    FRSTIM: .WORD   0               ;FLAG=0 IF PROGRAM JUST LOADED
1714  002312  000000                    FRSPAS: .WORD   0               ;FLAG=0 IF FIRST PASS AFTER LOAD
1715  002314  000000                    STARES: .WORD   0               ;FLAG=0 IF 1ST TIME THRU AFTER STA OR RES
1716
1717
1718
1719                                    ;;*************************************************************************
1720                                    ;PROGRAM VARIABLES
1721
1722                                    ;* MISCELLANEOUS STORAGE
1723  002316  000000                    ABORT:  .WORD   0               ;FLAG TO ALLOW AN ABORT TO BE ISSUED.
1724  002320  000000                    BITS:   .WORD   0               ;BITS TO BET SET IN THE CSR REGISTER
1725  002322  000000                    COUNTER:.WORD   0               ;COUNTER FOR # OF CHARACTERS TO RCV. (RDATA2)
1726  002324  000000                    CPU:    .WORD   0               ;PROCESSOR TYPE
1727                                                                    ;(3 = LSI11/23, 0 = LSI 11 OR LSI 11/2)
1728  002326  000000                    DATA:   .WORD   0               ;COUNTER FOR # OF DATA CHARATERS TRANSMITTED.
1729  002330  000000                    ERROR:  .WORD   0               ;ERROR STORAGE
1730  002332  000000                    EXERR:  .WORD   0               ;FLAG THAT AN ERROR IS EXPECTED IN DATA
```

```
1731 002334  000000                FLAG:    .WORD   0          ;SCRATCH WORD USED FOR MISC. FLAG IN SUB.
1732 002336  000000                HEADER:  .WORD   0          ;FLAG USED TO MARK DDCMP HEADER.
1733 002340  000000                HIGH:    .WORD   0          ;FLAG USED TO INDICATE HIGH SPEED ISR WHEN SET
1734 002342  000000                IPCR:    .WORD   0          ;IMAGE OF PCR
1735 002344  000000                IPCSAR:  .WORD   0          ;IMAGE OF PCSAR
1736 002346  000000                IRXCSR:  .WORD   0          ;IMAGE OF RXCSR
1737 002350  000000                IRDSR:   .WORD   0          ;IMAGE OF RDSR.
1738 002352  000000                LENGTH:  .WORD   0          ;CHARACTER LENGTH.
1739 002354  000000                LOGDEV:  .WORD   0          ;LOGICAL DEVICE NUMBER
1740 002356  000000                MAINT:   .WORD   0          ;MAINTENANCE MODE LOOPBACK FLAG
1741 002360  000000                MCFLAG:  .WORD   0          ;WORD USED IN TO TRACK MODEM CONTROL INT.
1742 002362  000000                MODE:    .WORD   0          ;PROTOCOL TYPE
1743 002364  000000                NESTPC:  .WORD   0          ;FLAG TO NOTIFY WHEN A SUBR IS NESTED
1744 002366  000000                NXMFLG:  .WORD   0          ;WORD USED WHEN ADDRESS IS NXM.
1745 002370  000000                OVER:    .WORD   0          ;FLAG TO ALLOW RECEIVE OVERRUN.
1746 002372  000000                PSTACK:  .WORD   0          ;CONTAINS BASE LEVEL PROGRAM SP
1747 002374  000000                REG:     .WORD   0          ;STORAGE OF A CSR ADDRESS
1748 002376  000000                RFLAG:   .WORD   0          ;WORD USED IN RECEIVE ROUTINE.
1749 002400  000000                RSAVE:   .WORD   0          ;TEMPORARY LOCATION TO SAVE RDSR ON INTERRUPT
1750 002402  000000                RXINI:   .WORD   0          ;RECEIVER INITIALIZATION
1751 002404  000000                RXINIT:  .WORD   0          ;RECEIVER INITIALIZATION WITH INT ENABLED.
1752 002406  000000                RXMINI:  .WORD   0          ;RECEIVER INIT WITH MAINTENANCE LOOPBACK.
1753 002410  000000                SAVE:    .WORD   0          ;SCRATCH WORD USED FOR MISC. STORAGE IN SUB.
1754 002412  000000                SAVTIM:  .WORD   0          ;STORAGE TO SAVE TIMER VALUE
1755 002414  000000                START:   .WORD   0          ;CONTER FOR # OF START CHARACTERS TO XMIT.
1756 002416  000000                SUBRPC:  .WORD   0          ;PC OF SUBR CALL FOR ERROR REPORTS
1757 002420  000000                TEMP:    .WORD   0          ;SCRATCH WORD USED FOR MISC. STORAGE IN SUB.
1758 002422  000000                TEND:    .WORD   0          ;TRANSMIT END
1759 002424  000000                TFLAG:   .WORD   0          ;WORD USED IN TRANSMIT INTERRUPT ROUTINE
1760 002426  000000                TIMEO:   .WORD   0          ;FLAG TO MARK TIME OUT IN $DATA SUBROUTINE.
1761 002430  000000                TIMER.   .WORD   0          ;TIMER VALUE
1762 002432  000000                TOGGLE:  .WORD   0          ;FLAG TO ALLOW TOGGLE OF RTS IN TEST.
1763 002434  000000                TSTART:  .WORD   0          ;TRANSMIT START
1764 002436  000000                TXINI:   .WORD   0          ;TRANSMITTER INITIALIZATION
1765 002440  000000                TXINIT:  .WORD   0          ;TRANSMITTER INITIALIZATION WITH INT ENABLED.
1766 002442  000000                TXMINI:  .WORD   0          ;TRANSMITTER INIT WITH MAINTENANCE LOOPBACK
1767
1768
1769
1770
1771
1772
1773
1774                                        .EVEN
1775
1776                               ;;*******************************************************************
1777                               ;;*******************************************************************
1778                               ;;MODEM CONTROL
1779
1780 002444                        MODEM:   .BLKW   10.        ;BUFFER AREA FOR MODEM STATUS
1781
1782                               ;;*******************************************************************
1783                               ;;*******************************************************************
1784                               ;;BUFFER AREA
1785
1786 002470  000000                XTYPE:   .WORD   0          ;POINTER TO DATA TYPE TO LOAD INTO XMIT BUFFER
1787 002472  000000                XCOUNT:  .WORD   0          ;# OF CHARACTERS TO TRANSMIT.
```

```
1788 002474  000000                ECOUNT: .WORD   0               ;# OF CHARACTERS FOR END OF MSG. IN BCP MODE.
1789 002476  000000                XMITD:  .WORD   0               ;# OF CHARACTERS TRANSMITTED.
1790 002500  000000                RCOUNT: .WORD   0               ;# OF CHARACTERS RECEIVED.
1791
1792
1793                               ;;*************************************************************************
1794                               ;               ** CCITT PSUEDO-RANDOM TEST PATTERN **
1795                               ; THE FOLLOWING 32 WORDS TRANSLATE INTO A 512 BIT PATTERN
1796                               ; THAT WAS GENERATED ACCORDING TO CCITT RECOMMENDATION V.52.  THIS
1797                               ; PATTERN WAS GENERATED BY A 9 BIT SHIFT REGISTER (INITIALIZED
1798                               ; AS 1S) WHOSE 5TH AND 9TH BITS ARE XORED.  THIS XOR RESULT IS SHIFTED
1799                               ; INTO THE 1ST BIT OF THE REGISTER AS THE REGISTER IS SHIFTED RIGHT.
1800                               ; THE 9TH BIT (OR BIT SHIFTED OUT) IS SHIFTED INTO THE BIT PATTERN.
1801                               ; NOTE: CCITT RECOMMENDED 511 BITS, I'VE EXTENDED THIS BY 1 BIT TO END
1802                               ; ON A WORD BOUNDARY.
1803 002502                        $CCITT:
1804 002502  177603  157427  031011          .WORD   177603,157427,031011
1805 002510  047321  163715  105221          .WORD   047321,163715,105221
1806 002516  143325  142304  040041          .WORD   143325,142304,040041
1807 002524  014116  052606  172334          .WORD   014116,052606,172334
1808 002532  105025  123754  111337          .WORD   105025,123754,111337
1809 002540  111523  030030  145064          .WORD   111523,030030,145064
1810 002546  137642  143531  063617          .WORD   137642,143531,063617
1811 002554  135015  066730  026575          .WORD   135015,066730,026575
1812 002562  052012  053627  070071          .WORD   052012,053627,070071
1813 002570  151172  165044  031605          .WORD   151172,165044,031605
1814 002576  166632  016741                  .WORD   166632,016741
1815
1816                               ;;*************************************************************************
1817                               ;; ALPHANUMERIC DATA
1818
1819 002602    101   102   103   ALPHA:  .ASCIZ  /ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789/
1820          000045               ACOUNT= .-ALPHA                 ;CHARACTER COUNT
1821                               .EVEN
1822
1823                               ;;*************************************************************************
1824                               ;; DDCMP BUFFER
1825
1826 002650    201                 DDCMP:  .BYTE   201             ;SOH (START OF HEADER)
1827 002651    064   000                   .BYTE   64,0            ;COUNT AND FLAGS (BITS 0 AND 1 FLAGS)
1828 002653    000                   .BYTE   0                     ;RESPONSE NUMBER
1829 002654    000                   .BYTE   0                     ;TRANSMIT NUMBER
1830 002655    001                   .BYTE   1                     ;STATION ADDRESS
1831          000006               DDCMP1= .-DDCMP
1832                                                               ;2 BYTES OF CRC16
1833 002656    104   104   103   DDMSG:  .ASCII  /DDCMP MESSAGE/
1834                                                               ;2 BYTES OF CRC16
1835          000015               DDCMP2= .-DDMSG
1836
1837                               ;;*************************************************************************
1838                               ;; TRANSMIT BUFFER
1839
1840 002673                        XMTBUF: .BLKB   256.
1841
1842                               ;;*************************************************************************
1843                               ;; RECEIVE BUFFER
1844
```

```
1845 003273                             RCVBUF: .BLKB   256.            ;256. BYTE BUFFER
1846          00040C                    RSIZE=  .-RCVBUF
1847                                            .EVEN
1848
1849
```

```
                                                  .SBTTL  GLOBAL TEXT SECTION

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



                                                  ;;*********************************************************************
                                                  ;* NAMES OF DEVICES SUPPORTED BY PROGRAM
                                                  ;;*********************************************************************
      003674                                              DEVTYP  <DPV11>
      003674                                                                                     L$DVTYP::
      003674     104      120      126                                                                    .ASCIZ  %DPV11%
                                                                                                          .EVEN

                                                  ;;*********************************************************************
                                                  ;* TITLE OF PROGRAM
                                                  ;;*********************************************************************
      003702                                              DESCRIPT   <DIAGNOSTIC TESTS>
      003702                                                                                     L$DESC::
      003702     104      111      101                                                                    .ASCIZ  /DIAGNOSTIC TESTS/
                                                                                                          .EVEN



                                                  ;
                                                  ; FORMAT STATEMENTS USED IN PRINT CALLS
                                                  ;
```

```
                        .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                  $WAIT:
003724  011637  002416          MOV     (SP),SUBRPC     ;SAVE THE PC THAT CALLED THE ROUTINE.
003730  162737  000004  002416  SUB     #4,SUBRPC       ;CORRECT THE PC.
003736  017637  000000  002320  MOV     @(SP),BITS      ;SAVE THE BITS THAT WE ARE CHECKING.
003744  062716  000002          ADD     #2,(SP)         ;UPDATE THE ADDRESS ON THE STACK.
003750  017637  000000  002374  MOV     @(SP),REG       ;SAVE THE ADDRESS OF THE CSR POINTER
003756  017737  176412  002374  MOV     @REG,REG        ;SAVE THE ACTUAL CSR ADDRESS.
003764  062716  000002          ADD     #2,(SP)         ;UPDATE THE ADDRESS ON THE STACK.
003770                          PUSH    <R2,R1,R0>      ;PUSH REGS ON THE STACK
003776  005000                  CLR     R0              ;USE R0 AS A LOOP TIMER.
004000
004000                  10$:
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$PNTB
     004062  062706  000004                                  ADD     #4,SP
     004066                          20$:
     004066                                  POP     <R0,R1,R2>      ;POP REGISTERS OFF STACK.
     004074  005037  002416                  CLR     SUBRPC

     004100  000207                          RETURN

     004102     045     101     050  FMS1:   .ASCIZ  /%A(CHECK THE XMIT CLOCK)%N/
                                             .EVEN

```

```
                        ;*****************************************************************
                        ;*****************************************************************
                        ;
                        ;                       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$:
004204  011637  002416                  MOV     (SP),SUBRPC     ;FLAG WHERE THIS SUBR. WAS CALLED.
004210  162737  000004  002416          SUB     #4,SUBRPC       ;ADJUST THE PC
004216                          .       ERRDF   1,EMG3,ERRG11   ;PRINT ERROR MESSAGE
004216  104455                                                          TRAP    C$ERDF
004220  000001                                                          .WORD   1
004222  013540                                                          .WORD   EMG3
004224  007572                                                          .WORD   ERRG11
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  #EMG9           ;PROMPT USER TO CHECK -12V.
004274  012746  011522                                                  MOV     #EMG9,-(SP)
004300  012746  000001                                                  MOV     #1,-(SP)
004304  010600                                                          MOV     SP,R0
004306  104414                                                          TRAP    C$PNTB
004310  062706  000004                                                  ADD     #4,SP
```

GLOBAL SUBROUTINES

```
   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                  $BUFRS:
013701  002352                 MOV     LENGTH,R1       ;GET THE CHARACTER LENGTH
013702  002470                 MOV     XTYPE,R2        ;ADDRESS OF DATA TYPE
012703  002673                 MOV     #XMTBUF,R3      ;ADDRESS OF TRANSMIT BUFFER.
013704  002472                 MOV     XCOUNT,R4       ;CHARACTER COUNT.
005737  002362                 TST     MODE            ;WHAT MODE?
001444                         BEQ     10$             ;IF BCP, SKIP ADDRESS CHECK.
                        ;
032737  100000  002344         BIT     #APA,IPCSAR     ;IS APA DESIRED?
001403                         BEQ     5$              ;IF NOT CHECK SECONDARY ADDRESS.
112723  000377                 MOVB    #377,(R3)+      ;PUT APA IN THE XMIT BUFFER
000422                         BR      7$
004362                  5$:
032737  010000  002344         BIT     #SECADR,IPCSAR  ;IS THE SECONDARY ADDRESS DESIRED?
001403                         BEQ     6$              ;IF NOT  - JUST LOAD DATA
113723  002344                 MOVB    IPCSAR,(R3)+    ;PUT SECONDARY ADDRESS IN THE XMIT BUFFER.
000413                         BR      7$
004400                  6$:
112223                         MOVB    (R2)+,(R3)+     ;LOAD ADDRESS CHARACTER
032737  000020  002342         BIT     #EXADD,IPCR     ;IS EXTENDED ADDRESS REQUESTED?
001406                         BEQ     7$              ;BR IF NOT
142763  000001  177777         BICB    #BIT0,-1(R3)    ;MAKE SURE THE LSB OF THE ADDRESS IS 0
112223                         MOVB    (R2)+,(R3)+     ;GET THE EXTENDED ADDRESS BYTE.
005237  002472                 INC     XCOUNT          ;COMPENSATE TRANSMIT COUNT.
004426                  7$:
112223                         MOVB    (R2)+,(R3)+     ;LOAD CONTROL CHARACTER
032737  000010  002342         BIT     #EXCON,IPCR     ;IS EXTENDED CONTROL DESIRED?
```

```
2169 004436  001403                          BEQ     8$              ;BR IF NOT
2170 004440  112223                          MOVB    (R2)+,(R3)+     ;LOAD EXTENDED CONTROL
2171 004442  005237  002472                  INC     XCOUNT          ;COMPENSATE TRANSMIT COUNT
2172 004446                          8$:
2173 004446  062737  000002  002472          ADD     #2,XCOUNT       ;COMPENSATE TRANSMIT COUNT
2174 004454                          10$:
2175 004454  013737  002472  002474          MOV     XCOUNT,ECOUNT   ;TRANSMIT COUNT IS THE END COUNT IN BCP MODE.
2176 004462                          11$:
2177 004462  112213                          MOVB    (R2)+,(R3)      ;SAVE THE DATA IN THE TRANSMIT BUFFER
2178 004464  146123  004514                  BICB    MASK(R1),(R3)+  ;CLEAR UNUSED BITS (DEPENDS ON CHAR LENGTH)
2179 004470  005304                          DEC     R4              ;DECREMENT COUNTER.
2180 004472  001373                          BNE     11$             ;LOOP UNTIL THE TRANSMIT BUFFER IS LOADED.
2181
2182 004474  012701  003273                  MOV     #RCVBUF,R1      ;GET THE ADDRESS OF THE RECEIVE BUFFER
2183 004500  012702  000400                  MOV     #RSIZE,R2       ;GET THE LENGTH OF THE BUFFER.
2184 004504                          20$:
2185 004504  105021                          CLRB    (R1)+           ;CLEAR THE ENTIRE BUFFER
2186 004506  005302                          DEC     R2              ;DECREMENT THE COUNTER
2187 004510  001375                          BNE     20$             ;LOOP UNTIL THE ENTIRE RECEIVE BUFFER IS CLEAR
2188
2189 004512  000207                          RETURN
2190
2191 004514     000     376     374  MASK:   .BYTE   0,376,374,370,360,340,300,200,0
2192                                         .EVEN
2193
```

```
                ;*****************************************************************
                ;*****************************************************************
                ;
                ;                       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
                ;
                ;*****************************************************************
                ;*****************************************************************
004526          $DATA:
                ;
005037  002376          CLR     RFLAG           ;CLEAR THE RECEIVE FLAG
005037  002424          CLR     TFLAG           ;CLEAR THE TRANSMIT FLAG
005037  002360          CLR     MCFLAG          ;CLEAR THE MODEM CONTROL FLAG
005037  002330          CLR     ERROR           ;ERROR CONDITION FLAG
005037  002426          CLR     TIMEO           ;CLEAR TIMEOUT FLAG
005037  002476          CLR     XMITD           ;CLEAR XMIT COUNTER.
                ;
012701  003273          MOV     #RCVBUF,R1      ;RECEIVE BUFFER
012702  002673          MOV     #XMTBUF,R2      ;TRANSMIT BUFFER
013703  002472          MOV     XCOUNT,R3       ;TRANSMIT COUNTER
005037  002500          CLR     RCOUNT          ;CLEAR RECEIVE COUNTER.
                                                ;SET UP THE VECTORS.
005737  002340          TST     HIGH            ;IS THIS A HIGH SPEED TEST?
001435                  BEQ     5$              ;BRANCH IF LOW SPEED
                                                ;SET VECTORS WITH THE HIGH SPEED ISRS
```

```
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$:
2258 004676                                    SETVEC  XMTVEC,#XDATA,#PRI04  ;XMIT VECTOR
     004676  012746  000200                                                  MOV     #PRI04,-(SP)
     004702  012746  017340                                                  MOV     #XDATA,-(SP)
     004706  013746  002264                                                  MOV     XMTVEC,-(SP)
     004712  012746  000003                                                  MCV     #3,-(SP)
     004716  104437                                                          TRAP    C$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
```

```
2324                    ;*****************************************************************
2325                    ;*****************************************************************
2326                    ;
2327                    ;                       SUBROUTINE  $CHECK
2328                    ;
2329                    ;               FUNCTION - AFTER A DATA TRANSMISSION CHECK
2330                    ;                          1. THE ERROR CHECK BIT 2. THAT THE XMIT AND RCV
2331                    ;                          CHARACTER COUNTS ARE EQUAL 3. THAT THE XMIT AND
2332                    ;                          RCV BUFFERS ARE IDENTICAL
2333                    ;
2334                    ;       CALLING FORMAT:          JSR     PC,$CHECK
2335                    ;                                JSR     PC,$CHK1
2336                    ;
2337                    ;
2338                    ;       ENTRY CONDITIONS - IRDSR  = IMAGE OF THE LAST RECEIVED RDSR
2339                    ;                          XCOUNT = TRANSMIT CHARACTER COUNT.
2340                    ;                          RCOUNT = RECEIVER CHARACTER COUNT.
2341                    ;                          XMTBUF = THE TRANSMIT BUFFER STARTING ADDRESS.
2342                    ;                          RCVBUF = THE RECEIVE BUFFER STARTING ADDRESS.
2343                    ;                          MODE   = PROTOCOL MODE: 0 = BCP,  NON0 = BOP
2344                    ;
2345                    ;
2346                    ;       EXIT CONDITIONS  - IF ERROR DETECTED, A MESSAGE WILL BE OUTPUT.
2347                    ;
2348                    ;       CALLED BY        - $CHECK - TESTS 15, 17-23, 29-40
2349                    ;                          $CHK1  - TESTS 41-43
2350                    ;
2351                    ;   REGISTERS R1 - R3 DESTROYED
2352                    ;
2353                    ;*****************************************************************
2354                    ;*****************************************************************
2355 005246            $CHECK:
2356                            .ENABL  LSB             ;ENABLE LOCAL SYMBOL BLOCK.
2357
2358 005246  005737  002340            TST     HIGH            ;IS THIS A HIGH SPEED TEST (HIGH SPEED ISRS)
2359 005252  001046                    BNE     5$              ;IF YES SKIP CRC ERROR CHECK AND
2360 005254  005737  002362            TST     MODE            ;IS THIS BCP MODE?
2361 005260  001404                    BEQ     1$              ;BR IF YES
2362 005262  005737  002350            TST     IRDSR           ;IS THE ERROR BIT SET (BIT 15)
2363 005266  100410                    BMI     3$              ;IF YES - CRC ERROR.
2364 005270  000421                    BR      4$
2365 005272                    1$:
2366 005272  032737  002000  002344    BIT     #BIT10,IPCSAR   ;WAS CRC16 USED? (ONLY TIME BIT 10 IS SET)
2367 005300  001015                    BNE     4$              ;IF NOT DON'T CHECK BIT.
2368 005302  005737  002350            TST     IRDSR           ;IS THE ERROR BIT SET (BIT 15)?
2369 005306  100412                    BMI     4$              ;IF YES - OK
2370 005310                    3$:
2371 005310  011637  002416            MOV     (SP),SUBRPC     ;FLAG WHERE THIS SUBR. WAS CALLED.
2372 005314  162737  000004  002416    SUB     #4,SUBRPC       ;ADJUST THE PC
2373 005322                            ERRDF   5,EMG37,ERRG1   ;CRC ERROR
     005322  104455                                                    TRAP    C$ERDF
     005324  000005                                                    .WORD   5
     005326  015226                                                    .WORD   EMG37
     005330  006652                                                    .WORD   ERRG1
2374 005332  000444                    BR      30$
2375 005334                    4$:
2376 005334  023737  002472  002500    CMP     XCOUNT,RCOUNT   ;ARE THE CHARACTER COUNTS THE SAME.
```

```
2377 005342  001412                        BEQ     5$                ;IF YES - CONTINUE
2378 005344  011637  002416                MOV     (SP),SUBRPC       ;FLAG WHERE THIS SUBR. WAS CALLED.
2379 005350  162737  000004  002416        SUB     #4,SUBRPC         ;ADJUST THE PC
2380 005356                                ERRDF   6,EMG25,ERRG14    ;CHARACTER COUNTS DIFFERENT
     005356  104455                                                                TRAP    C$ERDF
     005360  000006                                                                .WORD   6
     005362  014725                                                                .WORD   EMG25
     005364  010760                                                                .WORD   ERRG14
2381 005366  000426                        BR      30$
2382 005370                          5$:
2383 005370  012701  002673                MOV     #XMTBUF,R1        ;GET THE ADDRESS OF THE XMIT BUFFER.
2384 005374  012702  003273                MOV     #RCVBUF,R2        ;GET THE ADDRESS OF THE RECV BUFFER.
2385 005400  013703  002472                MOV     XCOUNT,R3         ;GET THE CHARACTER COUNT
2386 005404                          $CHK1:
2387 005404  122122                        CMPB    (R1)+,(R2)+       ;ARE THE CHARACTERS THE SAME
2388 005406  001003                        BNE     20$               ;IF NOT, REPORT THE ERROR
2389 005410  005303                        DEC     R3                ;DECREMENT THE COUNT.
2390 005412  001414                        BEQ     30$               ;LOOP UNTIL DONE
2391 005414  000773                        BR      $CHK1
2392 005416                          20$:
2393 005416  011637  002416                MOV     (SP),SUBRPC       ;FLAG WHERE THIS SUBR. WAS CALLED.
2394 005422  162737  000004  002416        SUB     #4,SUBRPC         ;ADJUST THE PC
2395 005430  005301                        DEC     R1                ;POINT TO DATA IN ERROR
2396 005432  005302                        DEC     R2                ;POINT TO DATA IN ERROR.
2397 005434                                ERRDF   7,EMG26,ERRG3     ;CHARACTERS DON'T MATCH
     005434  104455                                                                TRAP    C$ERDF
     005436  000007                                                                .WORD   7
     005440  014753                                                                .WORD   EMG26
     005442  007014                                                                .WORD   ERRG3
2398 005444                          30$:
2399 005444  005037  002416                CLR     SUBRPC            ;CLEAR THE SUBR PC FLAG
2400                                       .DSABL  LSB               ;DISABLE LOCAL SYMBOL BLOCK.
2401 005450  000207                        RETURN
2402
```

```
                                        ;;*************************************************************
                                        ;;*************************************************************
                                        ;
                                        ;                       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
005502  104455                                                                              TRAP    C$ERDF
005504  000010                                                                              .WORD   8
005506  015321                                                                              .WORD   EMG40
005510  006652                                                                              .WORD   ERRG1
005512                                          PRINTB  #FMODEM,MCFLAG      ;PRINT THE NUMBER OF INTERRUPTS.
005512  013746  002360                                                                      MOV     MCFLAG,-(SP)
005516  012746  006030                                                                      MOV     #FMODEM,-(SP)
005522  012746  000002                                                                      MOV     #2,-(SP)
005526  010600                                                                              MOV     SP,R0
005530  104414                                                                              TRAP    C$PNTB
005532  062706  000006                                                                      ADD     #6,SP
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.
005554  012746  006325                                                                      MOV     #FMODE6,-(SP)
005560  012746  000001                                                                      MOV     #1,-(SP)
005564  010600                                                                              MOV     SP,R0
005566  104414                                                                              TRAP    C$PNTB
005570  062706  000004                                                                      ADD     #4,SP
005574                                  1$:
```

```
2446 005574  012701  002444          MOV     #MODEM,R1       ;ADDRESS OF MODEM STATUS
2447 005600                          PRINTB  #FMODE0
     005600  012746  006115                                          MOV     #FMODE0,-(SP)
     005604  012746  000001                                          MOV     #1,-(SP)
     005610  010600                                                  MOV     SP,R0
     005612  104414                                                  TRAP    C$PNTB
     005614  062706  000004                                          ADD     #4,SP
2448 005620                          PRINTB  #FMODE1         ;PRINT INITIAL MODEM STATUS
     005620  012746  006144                                          MOV     #FMODE1,-(SP)
     005624  012746  000001                                          MOV     #1,-(SP)
     005630  010600                                                  MOV     SP,R0
     005632  104414                                                  TRAP    C$PNTB
     005634  062706  000004                                          ADD     #4,SP
2449 005640                          PRINTB  #FMODE2
     005640  012746  006233                                          MOV     #FMODE2,-(SP)
     005644  012746  000001                                          MOV     #1,-(SP)
     005650  010600                                                  MOV     SP,R0
     005652  104414                                                  TRAP    C$PNTB
     005654  062706  000004                                          ADD     #4,SP
2450 005660  005002                  CLR     R2              ;CLEAR COUNTER
2451 005662                      5$:
2452 005662  012703  006420          MOV     #MMASK,R3
2453 005666  012704  000012          MOV     #10.,R4         ;# OF BITS TO CHECK IN THE MODEM STATUS
2454
2455 005672                      10$:
2456 005672  032311                  BIT     (R3)+,(R1)      ;CHECK THE BIT
2457 005674  001011                  BNE     12$             ;IS IT SET?
2458 005676                          PRINTB  #FMODE3         ;IF NOT, PRINT A 0
     005676  012746  006257                                          MOV     #FMODE3,-(SP)
     005702  012746  000001                                          MOV     #1,-(SP)
     005706  010600                                                  MOV     SP,R0
     005710  104414                                                  TRAP    C$PNTB
     005712  062706  000004                                          ADD     #4,SP
2459 005716  000410                  BR      15$
2460 005720                      12$:
2461 005720                          PRINTB  #FMODE4         ;PRINT A 1
     005720  012746  006266                                          MOV     #FMODE4,-(SP)
     005724  012746  000001                                          MOV     #1,-(SP)
     005730  010600                                                  MOV     SP,R0
     005732  104414                                                  TRAP    C$PNTB
     005734  062706  000004                                          ADD     #4,SP
2462 005740                      15$:
2463 005740  005304                  DEC     R4               DECREMENT BIT COUNTER
2464 005742  001353                  BNE     10$             ;LOOP UNTIL DONE.
2465
2466
2467 005744  005737  002360          TST     MCFLAG          ;IS THIS THE LAST STATUS
2468 005750  001416                  BEQ     30$             ;IF YES, EXIT
2469 005752  005721                  TST     (R1)+           ;INCREMENT MODEM STATUS POINTER.
2470 005754  005337  002360          DEC     MCFLAG          ;DECREMENT MC FLAG
2471 005760  005202                  INC     R2              ;INCREMENT COUNTER.
2472
2473 005762                          PRINTB  #FMODE5,R2      ;PRINT NEXT MODEM
     005762  010246                                                  MOV     R2,-(SP)
     005764  012746  006275                                          MOV     #FMODE5,-(SP)
     005770  012746  000002                                          MOV     #2,-(SP)
     005774  010600                                                  MOV     SP,R0
```

```
                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
                        ;
                        ;*****************************************************************
                        ;*****************************************************************
2610 006604             $DLAY:
2611 006604  017600  000000            MOV     @(SP),R0        ;GET THE # OF DELAY LOOPS
2612 006610  062716  000002            ADD     #2,(SP)         ;UPDATE THE PC
2613 006614             10$:
2614 006614                            DELAY   1               ;1 DELAY LOOP
     006614  012727  000001                                                  MOV     #1,(PC)+
     006620  000000                                                          .WORD   0
     006622  013727  002116                                                  MOV     L$DLY,(PC)+
     006626  000000                                                          .WORD   0
     006630  005367  177772                                                  DEC     -6(PC)
     006634  001375                                                          BNE     .-4
     006636  005367  177756                                                  DEC     -22(PC)
     006642  001367                                                          BNE     .-20
2615 006644  005300                    DEC     R0              ;DECREMENT VARIABLE LOOP COUNTER
2616 006646  001362                    BNE     10$             ;LOOP UNTIL DONE
2617 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                                                                          ERRC1:.
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
                007212  005046                  PRINTB  #FMG10,CSR4,<B,@CSR4>   ;PRINT THE LOW BYTE OF CSR4
                007214  157716  173052                                                          CLR     -(SP)
                007220  013746  002272                                                          BISB    @CSR4,(SP)
                007224  012746  011574                                                          MOV     CSR4,-(SP)
                007230  012746  000003                                                          MOV     #FMG10,-(SP)
                007234  010600                                                                  MOV     #3,-(SP)
                007236  104414                                                                  MOV     SP,R0
                007240  062706  000010                                                          TRAP    C$PNTB
2657            007244                                                                          ADD     #10,SP
                007244  005046                  PRINTB  #FMG5,<B,R1>            ;PRINT EXPECTED CONTENTS
                007246  150116                                                                  CLR     -(SP)
                007250  012746  011377                                                          BISB    R1,(SP)
                007254  012746  000002                                                          MOV     #FMG5,-(SP)
                007260  010600                                                                  MOV     #2,-(SP)
                007262  104414                                                                  MOV     SP,R0
                007264  062706  000006                                                          TRAP    C$PNTB
2658            007270                                                                          ADD     #6,SP
                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
```

```
                                        PRINTB  #FMG23,SUBRPC          ;PRINT WHERE CALLED
                                                                                MOV     SUBRPC,-(SP)
                                                                                MOV     #FMG23,-(SP)
                                                                                MOV     #2,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #6,SP
                                5$:
                                        PRINTB  #FMG4                   ;PRINT HEADER
                                                                                MOV     #FMG4,-(SP)
                                                                                MOV     #1,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #4,SP
                                        PRINTB  #FMG7,CSR0,<B,@CSR0>    ;PRINT THE LOW BYTE OF CSR0
                                                                                CLR     -(SP)
                                                                                BISB    @CSR0,(SP)
                                                                                MOV     CSR0,-(SP)
                                                                                MOV     #FMG7,-(SP)
                                                                                MOV     #3,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #10,SP
                                        PRINTB  #FMG5,#0                ;PRINT EXPECTED CONTENTS
                                                                                MOV     #0,-(SP)
                                                                                MOV     #FMG5,-(SP)
                                                                                MOV     #2,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #6,SP
                                        PRINTB  #FMG10,CSR4,<B,@CSR4>   ;PRINT THE LOW BYTE OF CSR4
                                                                                CLR     -(SP)
                                                                                BISB    @CSR4,(SP)
                                                                                MOV     CSR4,-(SP)
                                                                                MOV     #FMG10,-(SP)
                                                                                MOV     #3,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #10,SP
                                        PRINTB  #FMG5,#TBE              ;PRINT EXPECTED CONTENTS
                                                                                MOV     #TBE,-(SP)
                                                                                MOV     #FMG5,-(SP)
                                                                                MOV     #2,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #6,SP
                                        PRINTB  #FMG11,PCR,<B,@PCR>     ;PRINT THE HIGH BYTE OF CSR4
                                                                                CLR     -(SP)
                                                                                BISB    @PCR,(SP)
                                                                                MOV     PCR,-(SP)
                                                                                MOV     #FMG11,-(SP)
                                                                                MOV     #3,-(SP)
                                                                                MOV     SP,R0
                                                                                TRAP    C$PNTB
                                                                                ADD     #10,SP
                                        PRINTB  #FMG5,#0                ;PRINT EXPECTED CONTENTS
                                                                                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
                010214                                                          ERRG12::
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
```

```
                                                                                        TRAP    C$PNTB
                                                                                        ADD     #6,SP
2738 010732  000411                     BR      30$
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                                  ERRG14::
     010760
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                                  ERRG15::
     011044
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/
```

```
2760 011332     045     123     071  FMG4:    .ASCIZ  /%S9%S9%S9%S3%AFOUND:%S2%AEXPECTED:%N/
2761 011377     045     123     067  FMG5:    .ASCIZ  /%S7%03%N/
2762 011410     045     116     000  FMG6:    .ASCIZ  /%N/
2763 011413     045     101     122  FMG7:    .ASCIZ  /%ARXCSR    = %06%A (EXTERNAL):  %03/
2764 011457     045     101     130  FMG8:    .ASCIZ  /%AXMIT DATA: %03%A RCV DATA: %03%N/
2765 011522     045     116     045  FMG9:    .ASCIZ  /%N%A** CHECK -V FROM THE CHARGE PUMP **%N/
2766 011574     045     101     120  FMG10:   .ASCIZ  /%APCSCR    = %06%A (EXTERNAL):  %03/
2767 011640     045     101     120  FMG11:   .ASCIZ  /%APCR      = %06%A (USYNRT R7): %03/
2768 011704     045     101     124  FMG12:   .ASCIZ  /%AT. DATA  = %06%A (USYNRT R2): %03/
2769 011750     045     101     124  FMG13:   .ASCIZ  /%AT. STATUS= %06%A (USYNRT R3): %03/
2770 012014     045     101     103  FMG14:   .ASCIZ  /%ACONTENTS OF %06%A = %06%A   EXPECTED %06%N/
2771 012071     045     101     122  FMG15:   .ASCIZ  /%ARXCSR   = %06%A (EXTERNAL): %06/
2772 012133     045     123     063  FMG16:   .ASCIZ  /%S3%06%N/
2773 012144     045     101     122  FMG17:   .ASCIZ  /%ARTS NOT TURNED AROUND TO CTS AND RR (CD)%N/
2774 012221     045     101     104  FMG18:   .ASCIZ  /%ADTR NOT TURNED AROUND TO IC (RING)%N/
2775 012270     045     101     114  FMG19:   .ASCIZ  /%ALL NOT TURNED AROUND TO DM (DSR)%N/
2776 012335     045     101     122  FMG20:   .ASCIZ  /%ARL NOT TURNED AROUND TO TEST MODE (SIG. QUALITY)%N/
2777 012422     045     101     103  FMG21:   .ASCIZ  /%ACHECK THAT THE JUMPER IS INSTALLED%N/
2778 012471     045     101     103  FMG22:   .ASCIZ  /%ACAN'T WRITE BIT %06%A INTO RXCSR%N/
2779 012536     045     101     122  FMG23:   .ASCIZ  /%ARESET SUBROUTINE CALLED AT PC: %06%N/
2780 012605     045     101     124  FMG24:   .ASCIZ  /%ATRANSMITTED: %D2%A RECEIVED: %D2%N/
2781 012652     045     101     103  FMG25:   .ASCIZ  /%ACAN'T CLEAR BIT %06%A IN RXCSR%N/
2782 012715     045     101     116  FMG26:   .ASCIZ  /%ANOTE: DATA SET INTERRUPT MAY BE DISABLED - CHECK JUMPER%N/
2783 013011     045     101     124  FMG27:   .ASCII  /%ATEST %D2%A WILL ONLY RUN WITH RS422 ON A LSI-11/
2784 013072     057                          .BYTE    57
2785 013073     062     063     045          .ASCIZ  /23%N/
2786 013100     045     101     111  FMG28:   .ASCII  /%AIF CPU IS A M7264 WITH MEMORY REFRESH ENABLED, A HIGH/
2787 013167     045     101     040          .ASCIZ  /%A SPEED TEST CAN'T RUN%N/
2788 013221     045     101     052  FMG29:   .ASCIZ  /%A** IF M8020 JUMPERED FOR RS422, THIS ERROR EXPECTED **%N/
2789 013314     045     101     052  FMG30:   .ASCIZ  /%A** CHECK BYTE OP SIGNAL - STUCK LOW ?? **%N/
2790
2791 013372     122     105     123  EMG0:    .ASCIZ  /RESET ERROR AFTER BUS RESET (DETECTED ONLY ON 1ST PASS)/
2792 013462     124     111     115  EMG1:    .ASCIZ  /TIME OUT/
2793 013473     124     111     115  EMG2:    .ASCIZ  /TIME OUT - DURING INTERRUPT EXERCISE/
2794 013540     122     105     123  EMG3:    .ASCIZ  /RESET ERROR/
2795 013554     103     123     122  EMG4:    .ASCIZ  /CSR READ-WRITE ERROR/
2796 013601     125     123     131  EMG5:    .ASCIZ  /USYNRT XMIT ACTIVE NOT SET/
2797 013634     125     123     131  EMG6:    .ASCIZ  /USYNRT XMIT ACTIVE NOT CLEAR/
2798 013671     124     102     105  EMG7.    .ASCIZ  /TBE NOT CLEAR/
2799 013707     124     102     105  EMG8:    .ASCIZ  /TBE NOT SET/
2800 013723     130     115     111  EMG9:    .ASCIZ  /XMIT INTERRUPT NOT RECEIVED/
2801 013757     130     115     111  EMG10:   .ASCIZ  /XMIT INTERRUPT RECEIVED WHEN NOT EXPECTED/
2802 014031     122     105     103  EMG11:   .ASCIZ  /RECEIVER NOT DEACTIVATED/
2803 014062     122     105     103  EMG12:   .ASCIZ  /RECEIVER NOT ACTIVE/
2804 014106     122     105     103  EMG13:   .ASCIZ  /RECEIVER NOT INITIALIZED AFTER RECEIVER DISABLED/
2805 014167     122     105     103  EMG14:   .ASCIZ  /RECEIVER ACTIVE BEFORE FIRST DATA CHARACTER/
2806 014243     122     103     126  EMG15:   .ASCIZ  /RCV INTERRUPT NOT RECEIVED/
2807 014276     122     103     126  EMG16:   .ASCIZ  /RCV INTERRUPT RECEIVED BEFORE EXPECTED/
2808 014345     122     103     126  EMG17:   .ASCIZ  /RCV END OF MESSAGE NOT RECEIVED/
2809 014405     122     103     126  EMG18:   .ASCIZ  /RCV STATUS NOT CLEARED/
2810 014434     122     103     126  EMG19:   .ASCIZ  /RCV OVERRUN NOT RECEIVED/
2811 014465     122     103     126  EMG20:   .ASCIZ  /RCV ABORT NOT RECEIVED/
2812 014514     122     103     126  EMG21:   .ASCIZ  /RCV STATUS INTERRUPT NOT RECEIVED/
2813 014556     115     117     104  EMG22:   .ASCIZ  /MODEM LOOPBACK ERROR/
2814 014603     115     117     104  EMG23:   .ASCIZ  /MODEM STATUS INTERRUPT RECEIVED WHEN DISABLED/
2815 014661     115     117     104  EMG24:   .ASCIZ  /MODEM STATUS INTERRUPT NOT RECEIVED/
2816 014725     103     110     101  EMG25:   .ASCIZ  /CHARACTER COUNT ERROR/
```

```
2817 014753      104     101     124  EMG26:  .ASCIZ  /DATA ERROR/
2818 014766      130     115     111  EMG30:  .ASCIZ  /XMIT UNDERRUN/
2819 015004      122     105     103  EMG31:  .ASCIZ  /RECEIVER ERROR/
2820 015023      101     102     117  EMG32:  .ASCIZ  /ABORT NOT RECEIVED/
2821 015046      107     117     040  EMG33:  .ASCIZ  /GO AHEAD NOT RECEIVED/
2822 015074      101     102     117  EMG34:  .ASCIZ  /ABORT RECEIVED WHEN NOT EXPECTED/
2823 015135      101     104     104  EMG35:  .ASCIZ  /ADDRESS INCORRECTLY RECOGNIZED/
2824 015174      101     123     123  EMG36:  .ASCIZ  /ASSEMBLED BIT COUNT ERROR/
2825 015226      103     122     103  EMG37:  .ASCIZ  /CRC ERROR/
2826 015240      103     122     103  EMG38:  .ASCIZ  /CRC ERROR NOT DETECTED/
2827 015267      120     101     122  EMG39:  .ASCIZ  /PARITY ERROR NOT DETECTED/
2828 015321      115     125     114  EMG40:  .ASCIZ  /MULTIPLE MODEM CONTROL INTERRUPTS/
2829                                          .EVEN
2830
```

LOAD DEVICE PROTECTION TABLE

```
                                        .SBTTL  LOAD DEVICE PROTECTION TABLE

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

015364                                          BGNPROT
015364                                                                          .$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
```

```
2853                                      .SBTTL  INITIALIZE SECTION
2854
2855                                      ;////////////////////////////////////////////////////////////////////
2856                                      ;/ THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
2857                                      ;/ AT THE BEGINNING OF THE TEST SEQUENCE ON THE NEXT UNIT.
2858                                      ;////////////////////////////////////////////////////////////////////
2859
2860 015372                               BGNINIT
     015372                                                                        L$INIT::
2861
2862 015372                                      SETPRI  #PRI06          ;SET DIAGNOSTIC PRIORITY = 6
     015372 012700 000300                                                                MOV     #PRI06,R0
     015376 104441                                                                       TRAP    C$SPRI
2863 015400 010637 002372                        MOV     SP,PSTACK       ;STORE BASE LEVEL PROGRAM STACK POINTER
2864 015404 005037 002416                        CLR     SUBRPC          ;CLEAR STORAGE WORD FOR SUBROUTINE PC CALL
2865 015410 005037 002330                        CLR     ERROR           ;CLEAR ERROR FLAGS
2866                                                                     ;CLEAR MISC. FLAGS
2867 015414 005037 002334                        CLR     FLAG
2868 015420 005037 002376                        CLR     RFLAG
2869 015424 005037 002424                        CLR     TFLAG
2870 015430 005037 002366                        CLR     NXMFLG
2871 015434 005037 002316                        CLR     ABORT
2872 015440 005037 002432                        CLR     TOGGLE
2873 015444 005037 002370                        CLR     OVER
2874 015450 005037 002340                        CLR     HIGH
2875
2876 015454 005737 002310                        TST     FRSTIM          ;IS THIS THE TIME THROUGH AFTER LOAD?
2877 015460 001005                               BNE     1$              ;IF NOT - ERROR TRAP VECTOR ALREADY SAVED
2878 015462 012737 000001 002310                 MOV     #1,FRSTIM       ;FLAG THAT WE'VE BEEN THRU THE 1ST TIME
2879 015470 005037 002312                        CLR     FRSPAS          ;CLEAR COUNTER FOR # OF PASSES AFTER LOAD
2880
2881 015474                               1$:
2882 015474                                      CLRVEC  #4              ;ENSURE VECTOR 4 IS IN NORMAL STATE.
     015474 012700 000004                                                                MOV     #4,R0
     015500 104436                                                                       TRAP    C$CVEC
2883
2884 015502                                      READEF  #EF.START       ;IS THIS JUST STARTED?
     015502 012700 000040                                                                MOV     #EF.START,R0
     015506 104447                                                                       TRAP    C$REFG
2885 015510                                      BCOMPLETE STARST        ;IF YES - BRANCH.
     015510 103416                                                                       BCS     STARST
2886 015512                                      READEF  #EF.RESTART     ;IS THIS A RESTART ?
     015512 012700 000037                                                                MOV     #EF.RESTART,R0
     015516 104447                                                                       TRAP    C$REFG
2887 015520                                      BCOMPLETE STARST        ;IF YES - BRANCH.
     015520 103412                                                                       BCS     STARST
2888 015522                                      READEF  #EF.NEW         ;IS THIS A NEW PASS?
     015522 012700 000035                                                                MOV     #EF.NEW,R0
     015526 104447                                                                       TRAP    C$REFG
2889 015530                                      BCOMPLETE NEWST         ;IF YES - BRANCH
     015530 103410                                                                       BCS     NEWST
2890 015532                                      READEF  #EF.CONTINUE    ;IS THIS A CONTINUATION?
     015532 012700 000036                                                                MOV     #EF.CONTINUE,R0
     015536 104447                                                                       TRAP    C$REFG
2891 015540                                      BNCOMPLETE GETPRM       ;IF NOT - GET PARAMETERS
     015540 103013                                                                       BCC     GETPRM
2892 015542 000137 016310                        JMP     END             ;OTHERWISE - DON'T INITIALIZE.
```

```
                                                STARST:
                                                        CLR     STARES          ;CLEAR THE FLAG TO SHOW START/RESTART.
                                                NEWST:
                                                        MOV     #-1,LOGDEV      ;INITIALIZE LOGICAL UNIT NUMBER.
                                                        INC     FRSPAS          ;INCREMENT # OF PASSES AFTER LOAD.
                                                        INC     STARES          ;INCREMENT # OF PASSES SINCE START/RESTART.
                                                GETPRM:
                                                        INC     LOGDEV          ;NEXT LOGICAL UNIT TO BE TESTED
                                                        CMP     LOGDEV,L$UNIT   ;IS THE MAXIMUM UNIT # EXCEEDED?
                                                        BGE     NEWST           ;IF YES - DO A NEW START
                                                        GPHARD  LOGDEV,R1       ;GET THE P-TABLE POINTER INTO R1
015604  013700  002354                                                                  MOV     LOGDEV,R0
015610  104442                                                                          TRAP    C$GPHRD
015612  010001                                                                        MOV     R0,R1
                                                        BNCOMPLETE  GETPRM      ;IF NOT AVAILABLE, GET THE NEXT ONE
015614  103365                                                                          BCC     GETPRM
                                                        MOV     (R1),R0         ;SAVE THE ADDRESS
                                                        BIT     #7,R0           ;DOES THIS DEVICE ADDRESS END IN NON-ZERO?
                                                        BEQ     10$             ;IF NOT - OK (76XXX0)
                                                        BIC     #7,(R1)         ;MAKE IT 76XXX0
                                                        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$PNTB
015652  062706  000010                                                              ADD     #10,SP
                                                10$:
                                                        MOV     (R1),CSR0       ;CSR ADDRESS 0 = RECEIVER CSR (RXCSR)
                                                                                ;                READ/WRITE
                                                        MOV     CSR0,CSR1       ;SAVE HIGH BYTE ADDRESS
                                                        INC     CSR1
                                                        MOV     (R1),CSR2
                                                        ADD     #2,CSR2         ;CSR ADDRESS 2 = RECEIVE DATA/STATUS (RDSR)
                                                                                ;                READ ONLY
                                                                                ;CSR ADDRESS 2 = PARAMETER CONTROL/SYNCH ADDR
                                                                                ;                (PCSAR) - WRITE ONLY
                                                        MOV     CSR2,CSR3       ;SAVE HIGH BYTE ADDRESS
                                                        INC     CSR3
                                                        MOV     (R1),CSR4
                                                        ADD     #4,CSR4         ;CSR ADDRESS 4 = TRANSMITTER CSR (TXCSR)
                                                                                ;                READ/WRITE
                                                        MOV     CSR4,CSR5       ;CSR ADDRESS 5 = PARAMETER CONTROL REG (PCR)
                                                                                ;                READ/WRITE
                                                        INC     CSR5            ;                PCR IS HI BYTE OF TXCSR
                                                        MOV     (R1)+,CSR6
                                                        ADD     #6,CSR6         ;CSR ADDRESS 6 = TRANSMIT DATA/STATUS (TDSR)
                                                                                ;                READ/WRITE
                                                        MOV     CSR6,CSR7       ;SAVE HIGH BYTE ADDRESS
                                                        INC     CSR7
                                                        MOV     (R1),R0         ;GET VECTOR
                                                        BIT     #7,R0           ;DOES THIS VECTOR END IN NON-ZERO?
                                                        BEQ     11$             ;IF NOT - OK (XX0)
```

```
2939 016000  042711  000007                BIC     #7,(R1)          ;MAKE IT XX0
2940 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$PNTB
     016024  062706  000010                                                          ADD     #10,SP
2941 016030                          11$:
2942 016030  011137  002262                MOV     (R1),RCVEC       ;RCV. VECTOR
2943 016034  012137  002264                MOV     (R1)+,XMTVEC     ;TRANSMIT VECTOR
2944 016040  062737  000004  002264        ADD     #4,XMTVEC        ;ADJUST XMIT VECTOR
2945
2946 016046  011137  002306                MOV     (R1),TURN        ;TURNAROUND.
2947 016052  012737  000020  002402        MOV     #RXENA,RXINI     ;RECEIVER INIT WORD
2948 016060  012737  000020  002436        MOV     #TXENA,TXINI     ;TRANSMITTER INIT WORD
2949 016066  005737  002306                TST     TURN             ;WHAT WAS THE TURNAROUND
2950 016072  001004                        BNE     15$              ;IF ACTUAL TURNAROUND DON'T SET MAINT MODE
2951 016074  052737  000010  002436        BIS     #MM,TXINI        ;SET THE MAINT. MODE BIT.
2952 016102  000422                        BR      20$
2953 016104                          15$:
2954 016104  052737  000004  002402        BIS     #RTS,RXINI       ;SET RTS FOR TURNAROUND LOOP.
2955 016112  022737  000003  002306        CMP     #3,TURN          ;LOCAL LOOPBACK?
2956 016120  001004                        BNE     17$              ;IF NOT SKIP.
2957 016122  052737  000012  002402        BIS     #LL!DTR,RXINI    ;SET LOCAL LOOP AND DTR.
2958 016130  000407                        BR      20$
2959 016132                          17$:
2960 016132  022737  000004  002306        CMP     #4,TURN          ;REMOTE LOOPBACK?
2961 016140  001003                        BNE     20$
2962 016142  052737  000003  002402        BIS     #DTR!RL,RXINI    ;SET REMOTE LOOP AND DTR
2963 016150                          20$:
2964 016150  013737  002402  002404        MOV     RXINI,RXINIT     ;SAVE RECEIVER INIT WORD
2965 016156  052737  000140  002404        BIS     #RXITEN!DSITEN,RXINIT ;MAKE IT AN INTERRUPT INIT WORD
2966 016164  013737  002436  002440        MOV     TXINI,TXINIT     ;SAVE TRANSMITTER INIT WORD
2967 016172  052737  000100  002440        BIS     #TXIE,TXINIT     ;MAKE IT AN INTERRUPT INIT WORD
2968 016200  012737  000120  002406        MOV     #RXITEN!RXENA,RXMINI    ;RCV INIT FOR MAINT. LOOP.
2969 016206  012737  000130  002442        MOV     #TXIE!TXENA!MM,TXMINI   ;TRANS INIT WITH MAINT. LOOP.
2970                                                ;DETERMINE PROCESSOR TYPE
2971 016214                                SETVEC  #10,#ILLGL,#PRI06 ;SET UP ILLEGAL INSTRUCTION TRAP
     016214  012746  000300                                                          MOV     #PRI06,-(SP)
     016220  012746  017744                                                          MOV     #ILLGL,-(SP)
     016224  012746  000010                                                          MOV     #10,-(SP)
     016230  012746  000003                                                          MOV     #3,-(SP)
     016234  104437                                                                  TRAP    C$SVEC
     016236  062706  000010                                                          ADD     #10,SP
2972 016242  000007                        MFPT                     ;MOVE PROCESSOR TYPE TO R0
2973                                                                ;FOR AN LSI 11/23 R0 = 3
2974                                                                ;FOR OTHER LSI THIS WILL RESULT IN AN
2975                                                                ;ILLEGAL INSTRUCTION (R0=0).
2976 016244  010037  002324                MOV     R0,CPU           ;SAVE THE PROCESSOR TYPE
2977 016250                                CLRVEC  #10              ;RESTORE TRAP TO THE SUPERVISOR
     016250  012700  000010                                                          MOV     #10,R0
     016254  104436                                                                  TRAP    C$CVEC
2978 016256  005737  002324                TST     CPU              ;IS THE CPU A LSI11/23 ?
2979 016262  001004                        BNE     25$              ;BR IF YES
2980 016264  012737  000020  002430        MOV     #20,TIMER        ;SET THE TIMER FOR A LSI11 OR 11/2.
```

```
2981 016272  000403                          BR      30$
2982 016274                          25$:
2983 016274  012737  000050  002430          MOV     #50,TIMER       ;SET THE TIMER FOR A LSI-11/23.
2984 016302                          30$:
2985 016302  013737  002430  002412          MOV     TIMER,SAVTIM    ;STORE THE TIMER VALUE.
2986 016310                          END:
2987 016310                          ENDINIT
     016310                                                                          L10017:
     016310  104411                                                                          TRAP    C$INIT
2988 016312     045     101     052  FINIT1: .ASCIZ  /%A** WARNING - WILL ASSUME DPV ADDRESS %O6%A (NOT %O6%A)%N/
2989 016405     045     101     052  FINIT2: .ASCIZ  /%A** WARNING - WILL ASSUME DPV VECTOR  %O3%A (NOT %O3%A)%N/
2990                                 .EVEN
2991
2992
2993
2994
2995
```

```
                        .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$AUTO::
016500                          SETVEC  #4,#NXM,#PRIO6  ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.
016500  012746  000300                                                  MOV     #PRIO6,-(SP)
016504  012746  017734                                                  MOV     #NXM,-(SP)
016510  012746  000004                                                  MOV     #4,-(SP)
016514  012746  000003                                                  MOV     #3,-(SP)
016520  104437                                                          TRAP    C$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


```

```
3050                                    .SBTTL  GLOBAL INTERRUPT HANDLING ROUTINES
3051
3052                                    ;////////////////////////////////////////////////////////////////////
3053                                    ;/ THE INTERRUPT HANDLING SECTION CONTAINS CODING REQUIRED TO USE
3054                                    ;/ THE 'SETVEC' MACRO.  NOTE EVERY INTERRUPT ROUTINE SHOULD SAVE
3055                                    ;/ AND RESTORE R0.
3056                                    ;////////////////////////////////////////////////////////////////////
3057
3058                                    ;*********************************************************************
3059                                    ;       RINT -  INTERRUPT SERVICE ROUTINE
3060                                    ;
3061                                    ;       FUNCTION - RECEIVE INTERRUPT ROUTINE THAT SETS FLAGS WHEN
3062                                    ;                  A RECEIVE INTERRUPT CONDITON IS RECEIVED.
3063                                    ;
3064                                    ;       ENTRY CONDTIONS
3065                                    ;                       TOGGLE = IF NON ZERO, XOR THE BITS IN TOGGLE
3066                                    ;                                INTO THE RXCSR
3067                                    ;
3068                                    ;       EXIT CONDITIONS RFLAG =  1 SET - DATA RECEIVED
3069                                    ;                            =  2 SET - STATUS RECEIVED
3070                                    ;                       IRXCSR=  IMAGE OF RXCSR
3071                                    ;                       RSAVE =  IMAGE OF RDSR
3072                                    ;                       MCFLAG=  MODEM CONTROL INTERRUPT COUNT.
3073                                    ;
3074                                    ;       USED IN TESTS: 8,10,11,13,14
3075                                    ;
3076                                    ;*********************************************************************
3077
3078
3079 016602                             BGNSRV  RINT                                    RINT::
    016602
3080 016602                             1$:
3081 016602  017737  163460  002346              MOV     @RXCSR,IRXCSR   ;SAVE RXCSR
3082 016610  100011                              BPL     5$              ;BR IF NOT
3083 016612  005237  002360                      INC     MCFLAG          ;INCREMENT MODEM CONTROL FLAG.
3084 016616  022737  000002  002360              CMP     #2,MCFLAG       ;HAS THERE BEEN MORE THAN 2 INTERRUPTS?
3085 016624  002003                              BGE     5$              ;IF NOT, PROCEED.
3086 016626  042777  000040  163432              BIC     #DSITEN,@RXCSR  ;DISABLE THE INTERRUPT.
3087 016634                             5$:
3088 016634  032737  000200  002346              BIT     #RDATRY,IRXCSR  ;IS DATA READY?
3089 016642  001414                              BEQ     10$             ;IF NOT - CHECK STATUS.
3090 016644  052737  000001  002376              BIS     #1,RFLAG        ;FLAG FOR DATA
3091 016652  005737  002432                      TST     TOGGLE          ;TOGGLE ?
3092 016656  001406                              BEQ     10$             ;IF NOT, SKIP TOGGLE
3093 016660  013702  002432                      MOV     TOGGLE,R2       ;GET THE TOGGLE VALUE
3094 016664  005037  002432                      CLR     TOGGLE          ;ONLY TOGGLE ONCE.
3095 016670  074277  163372                      XOR     R2,@RXCSR       ;TOGGLE RTS.
3096 016674                             10$:
3097 016674  032737  002000  002346              BIT     #RSTARY,IRXCSR  ;IS STATUS READY?
3098 016702  001404                              BEQ     20$             ;IF NOT - DON'T SET THE FLAG.
3099 016704  052737  000002  002376              BIS     #2,RFLAG        ;SET THE FLAG
3100 016712  000403                              BR      25$
3101 016714                             20$:
3102 016714  005737  002370                      TST     OVER            ;CREATE AN OVERRUN?
3103 016720  001330                              BNE     1$              ;IF YES - DON'T READ THE DATA
3104                                                                     ;UNTIL THE STATUS FLAG IS SET.
3105 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
```

```
3111                            ;*****************************************************************
3112                            ;       RDATA - INTERRUPT SERVICE ROUTINE
3113                            ;
3114                            ;       FUNCTION - GENERAL PURPOSE RECEIVE INTERRUPT ROUTINE
3115                            ;
3116                            ;       ENTRY CONDTIONS
3117                            ;                       ECOUNT = # OF CHARACTERS TO BE RECEIVED.
3118                            ;                       R1     = ADDRESS OF BUFFER FOR NEXT CHARACTER
3119                            ;
3120                            ;       EXIT CONDITIONS
3121                            ;                       IRXCSR = IMAGE OF RXCSR
3122                            ;                       IRDSR  = IMAGE OF RDSR
3123                            ;                       RCOUNT = COUNT OF CHARACTERS RECEIVED
3124                            ;                       MODE   = PROTOCOL MODE ( 0 = BCP, NON 0 = BOP)
3125                            ;                       MCFLAG = COUNT OF MODEM CONTROL INTERRUPTS RECEIVED
3126                            ;                       MODEM  = ADDRESS OF MODEM CONTROL INTERRUPT TABLE
3127                            ;                       RFLAG  = RECEIVE END FLAG ( 1 = NO ERROR, -1 = ERROR)
3128                            ;                       R1     = INCREMENTED TO NEXT BYTE IN BUFFER.
3129                            ;
3130                            ;       USED IN TESTS: 15-28 & 30-40 (CALLED IN SUBROUTINE $DATA), 41
3131                            ;*****************************************************************
3132
3133
3134 016732                     BGNSRV  RDATA                                           RDATA::
    016732
3135
3136 016732  017737  163330  002346          MOV     @RXCSR,IRXCSR   ;SAVE THE RXCSR
3137 016740  100040                          BPL     10$             ;IS DATA SET CHANGE?  IF NOT SET, BR.
3138
3139 016742  032737  000040  002346          BIT     #DSITEN,IRXCSR  ;WAS THE DATA SET CHANGE INT. ENABLED?
3140 016750  001434                          BEQ     10$             ;IF NOT - DON'T KEEP TRACK OF THE CHANGES.
3141 016752  005237  002360                  INC     MCFLAG          ;INCR MODEM CONTROL FLAG.
3142 016756  022737  000011  002360          CMP     #9.,MCFLAG      ;WERE TOO MANY INTERRUPTS RECECEIVED?
3143 016764  002004                          BGE     1$              ;IF NOT - PROCEED.
3144 016766  042777  000040  163272          BIC     #DSITEN,@RXCSR  ;CLEAR MODEM CONTROL INTERRUPT.
3145 016774  000422                          BR      10$
3146 016776                             1$:
3147 016776                             PUSH    <R5>                ;SAVE R5
3148 017000  013705  002360                  MOV     MCFLAG,R5       ;USE THE INTERRUPT # AS A TABLE INDEX.
3149 017004  006305                          ASL     R5              ;CHANGE MODEM CONTROL TO ADDRESS OFFSET
3150 017006  013765  002346  002444          MOV     IRXCSR,MODEM(R5);SAVE THE MODEM STATUS
3151 017014  042765  006760  002444          BIC     #6760,MODEM(R5) ;SAVE ONLY THE MODEM STATUS.
3152 017022  032777  000040  163242          BIT     #TM,@TXCSR      ;WAS THE TEST MODE BIT SET?
3153 017030  001403                          BEQ     5$              ;BR IF NOT
3154 017032  052765  000040  002444          BIS     #TM,MODEM(R5)   ;SAVE TEST MODE STATUS.
3155 017040                             5$:
3156 017040                             POP     <R5>                ;RESTORE R5
3157
3158 017042                             10$:
3159 017042  032737  002200  002346          BIT     #RSTARY!RDATRY,IRXCSR ;IS THE DATA OR STATUS BIT SET
3160 017050  001444                          BEQ     55$
3161 017052  017737  163212  002350          MOV     @RDSR,IRDSR     ;SAVE THE DATA AND STATUS REG.
3162 017060  032737  000200  002346          BIT     #RDATRY,IRXCSR  ;IS DATA SET?
3163 017066  001404                          BEQ     20$
3164 017070  113721  002350                  MOVB    IRDSR,(R1)+     ;SAVE THE DATA.
3165 017074  005237  002500                  INC     RCOUNT          ;INCREMENT BYTE COUNT
3166 017100                             20$:
```

```
CNDPVA0 DPV11 FUNC DIAG MACRO M1200  14-DEC-82 16:44  PAGE 46-1
GLOBAL INTERRUPT HANDLING ROUTINES

 3167 017100  032737  002000  002346          BIT     #RSTARY,IRXCSR  ;IS STATUS SET?
 3168 017106  001410                          BEQ     50$
 3169 017110  032737  106000  002350          BIT     #ERR!ROVER.RABORT,IRDSR ;WAS THERE AN ERROR?
 3170 017116  001413                          BEQ     53$             ;IF NOT - MUST BE END OF MESSAGE.
 3171 017120  012737  177777  002376          MOV     #-1,RFLAG       ;OTHERWISE, SET ERROR FLAG.
 3172 017126  000412                          BR      54$
 3173 017130                          50$:
 3174 017130  005737  002362                  TST     MODE            ;IS THIS BCP?
 3175 017134  001012                          BNE     55$             ;IF NOT - EXIT
 3176 017136  023737  002500  002474          CMP     RCOUNT,ECOUNT   ;HAVE WE RECEIVED ALL THE CHARACTERS
 3177 017144  001006                          BNE     55$             ;IF NOT - EXIT
 3178 017146                          53$:
 3179 017146  012737  000001  002376          MOV     #1,RFLAG        ;SET FLAG
 3180 017154                          54$:
 3181 017154  042777  000100  163104          BIC     #RXITEN,@RXCSR  ;DISABLE INTERRUPT
 3182 017162                          55$:
 3183
 3184 017162                          ENDSRV
      017162                                                                  L10023:
      017162  000002                                                                  RTI
 3185
 3186
```

```
                        ;*****************************************************************
                        ;       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$:
017222  042777  000100  163036  BIC     #RXITEN,@RXCSR  ;DISABLE INTERRUPT
017230                  30$:
                        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                                            XINT::
017232
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
3272
```

```
                        ;*****************************************************************
                        ;       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 $DATA)
                        ;
                        ;*****************************************************************
017340                  BGNSRV  XDATA                                           XDATA::
017340
017340  005737  002414          TST     START           ;ANY STARTS LEFT TO SEND?
017344  001426                  BEQ     10$             ;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)
```

```
3330 017460                                16$:
3331 017460  112277  162610                      MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
3332 017464  005237  002476                      INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
3333 017470  005303                              DEC     R3              ;DECREMENT COUNTER
3334 017472  001006                              BNE     20$
3335 017474  053777  002422  162572              BIS     TEND,@TDSR      ;TRANSMIT END OF MESSAGE.
3336 017502  042777  000100  162562              BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
3337 017510                                20$:
3338
3339 017510                                ENDSRV
     017510                                                          L10026:
     017510  000002                                                        RTI
3340
```

```
3342                                    ;*****************************************************************
3343                                    ;       XDATA2 - INTERRUPT SERVICE ROUTINE
3344                                    ;
3345                                    ;       FUNCTION - HIGH SPEED TRANSMIT INTERRUPT ROUTINE FOR BOP MODE
3346                                    ;
3347                                    ;       ENTRY CONDTIONS
3348                                    ;                       START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
3349                                    ;                               BE SENT.
3350                                    ;
3351                                    ;       EXIT CONDITIONS
3352                                    ;                       XMITD = # OF DATA CHARACTERS TRANSMITTED
3353                                    ;
3354                                    ;
3355                                    ;       USED IN TESTS: 31,38,42,43
3356                                    ;
3357                                    ;*****************************************************************
3358
3359 017512                            BGNSRV  XDATA2
     017512                                                                          XDATA2::
3360 017512  005737  002414                    TST     START           ;ANY STARTS LEFT TO SEND?
3361 017516  100414                            BMI     20$             ;IF NEGATIVE SEND DATA
3362 017520  001406                            BEQ     10$             ;IF NOT, SKIP.
3363 017522  052777  000400  162544            BIS     #TSOM,@TDSR     ;SEND SYNCH (OR FLAG)
3364 017530                            5$:
3365 017530  005337  002414                    DEC     START           ;DECREMENT COUNTER.
3366 017534  000430                            BR      30$
3367 017536                            10$:
3368 017536  005337  002414                    DEC     START           ;MAKE THE COUNTER NEGATIVE.
3369 017542  042777  000400  162524            BIC     #TSOM,@TDSR     ;CLEAR START OF MESSAGE
3370 017550                            20$:
3371 017550  022737  000002  002476            CMP     #2,XMITD        ;IS THIS THE 3RD CHARACTER.
3372 017556  001003                            BNE     25$             ;IF NOT SKIP
3373 017560  113777  002342  162514            MOVB    IPCR,@PCR       ;CHANGE THE CHARACTER LENGTH
3374 017566                            25$:
3375 017566  112277  162502                    MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
3376 017572  005237  002476                    INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
3377 017576  005303                            DEC     R3              ;DECREMENT COUNTER
3378 017600  001006                            BNE     30$
3379 017602  052777  001000  162464            BIS     #TEOM,@TDSR     ;TRANSMIT END OF MESSAGE.
3380 017610  042777  000100  162454            BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
3381 017616                            30$:
3382
3383
3384 017616                            ENDSRV
     017616                                                                  L10027:
     017616  000002                                                                  RTI
3385
3386
3387
```

```
3389
3390                            ;*****************************************************************
3391                            ;       XDDCMP - INTERRUPT SERVICE ROUTINE
3392                            ;
3393                            ;       FUNCTIO" - DDCMP TRANSMIT INTERRUPT ROUTINE
3394                            ;
3395                            ;       ENTRY CONDTIONS
3396                            ;                       START = # OF START CHARACTERS (FLAGS OR SYNCHS) TO
3397                            ;                               BE SENT.
3398                            ;                       HEADER= FLAG WHICH IS SET AFTER THE DDCMP HEADER HAS
3399                            ;                               BEEN TRANSMITTED
3400                            ;                       DDCMP2= # OF DATA CHARACTERS IN THE DDCMP DATA MESSAGE
3401                            ;
3402                            ;       EXIT CONDITIONS
3403                            ;                       XMITD = # OF DATA CHARACTERS TRANSMITTED
3404                            ;                       RCOUNT= 0 (AFTER START OF MESSAGE TRANSMITTED)
3405                            ;
3406                            ;
3407                            ;       USED IN TESTS: 41
3408                            ;*****************************************************************
3409
3410 017620                    BGNSRV  XDDCMP
     017620                                                                          XDDCMP::
3411
3412 017620  005737  002414            TST     START           ;ANY STARTS LEFT TO SEND?
3413 017624  001413                    BEQ     10$             ;IF NOT, SKIP.
3414 017626  012777  000400  162440    MOV     #TSOM,@TDSR     ;SEND START OF MESSAGE.
3415 017634  005337  002414            DEC     START           ;DECREMENT COUNTER.
3416 017640  001034                    BNE     20$             ;
3417 017642  005037  002476            CLR     XMITD           ;CLEAR TRANSMIT COUNT.
3418 017646  005037  002500            CLR     RCOUNT          ;CLEAR RECEIVER COUNT.
3419 017652  000427                    BR      20$
3420 017654                    10$:
3421 017654  042777  001400  162412    BIC     #TEOM!TSOM,@TDSR ;CLEAR START OR END OF MESSAGE.
3422 017662  112277  162406            MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
3423 017666  005237  002476            INC     XMITD           ;INCR COUNT OF ACTUALLY SENT.
3424 017672  005303                    DEC     R3              ;DECREMENT COUNTER
3425 017674  001016                    BNE     20$
3426 017676  052777  001000  162370    BIS     #TEOM,@TDSR     ;TRANSMIT END OF MESSAGE.
3427 017704  005737  002336            TST     HEADER          ;IS THIS THE HEADER
3428 017710  001005                    BNE     15$             ;IF NOT, DISABLE THE TRANSMITTER
3429 017712  005237  002336            INC     HEADER          ;SET HEADER FLAG.
3430 017716  012703  000015            MOV     #DDCMP2,R3      ;COUNTER FOR THE MESSAGE
3431 017722  000403                    BR      20$
3432 017724                    15$:
3433 017724  042777  000100  162340    BIC     #TXIE,@TXCSR    ;DISABLE TRANSMITTER INTERRUPT.
3434 017732                    2C$:
3435
3436
3437 017732                    ENDSRV
     017732
     017732  000002                                                          L10030:
                                                                                    RTI
3438
```

```
3440                                    ;*****************************************************************
3441                                    ;       NXM -   INTERRUPT SERVICE ROUTINE
3442                                    ;
3443                                    ;       FUNCTION - NXM INTERRUPT ROUTINE.  THIS ROUTINE IS ASSIGNED
3444                                    ;                  TO VECTOR 4 WHEN ADDRESSING THE DPV FOR THE FIRST
3445                                    ;                  TIME.  IF THIS INTERRUPT IS GENERATED THE DPV IS
3446                                    ;                  INCORRECTLY ADDRESSED.
3447                                    ;
3448                                    ;       ENTRY CONDTIONS
3449                                    ;
3450                                    ;       EXIT CONDITIONS
3451                                    ;                       NXMFLG= FLAG SET WHEN THIS INTERRUPT IS SERVICED.
3452                                    ;
3453                                    ;       USED IN TESTS:  AUTO DROP
3454                                    ;*****************************************************************
3455
3456
3457 017734                            BGNSRV  NXM
     017734                                                                          NXM::
3458
3459 017734  012737  000001  002366            MOV     #1,NXMFLG               ;SET FLAG IF MEMORY IS NON-EXISTENT.
3460
3461 017742                            ENDSRV
     017742
     017742  000002                                                             L10031:
                                                                                        RTI
3462
3463
3464
```

```
                        ;*****************************************************************
                        ;       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                                           ILLGL::
017744
017744  005000                  CLR     R0

017746                  ENDSRV                                                  L10032:
017746                                                                                  RTI
017746  000002
```

DROP UNIT SECTION

```
3493                                    .SBTTL  DROP UNIT SECTION
3494
3495                                    ;////////////////////////////////////////////////////////////////////////
3496                                    ;/ THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
3497                                    ;/ TO NO LONGER BE TESTED.
3498                                    ;////////////////////////////////////////////////////////////////////////
3499
3500 017750                            BGNDU
      017750                                                                    L$DU::
3501
3502 017750                                    BRESET                  ;ISSUE LSI-BUS RESET TO CLEAN UP
      017750  104433                                                            TRAP    C$RESET
3503 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$PNTF
      017772  062706  000006                                                    ADD     #6,SP
3504
3505 017776                            ENDDU
      017776                                                                    L10033:
      017776  104453                                                            TRAP    C$DU
3506
3507
3508 020000     045     116     045    FMDROP: .ASCIZ  /%N%AUNIT %D2%A DROPPED/
3509                                            .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::
                                ;
020030                                  SETVEC  #4,#LOCATE,#PRIO6 ;SET UP NON -EXISTENT MEMORY TRAP VECTOR.
020030  012746  000300                                                          MOV     #PRIO6,-(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
```

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

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

                                ENDTST
020164                                                                  L10034:
020164  104401                                                                    TRAP    C$ETST

                                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
                                                                ;DEVICE FATAL ERROR
020174                                  ERRDF   9,EMT0          ;NON-EXISTENT DEVICE ERROR
020174  104455                                                                    TRAP    C$ERDF
020176  000011                                                                    .WORD   9
020200  020240                                                                    .WORD   EMT0
020202  000000                                                                    .WORD   0
020204  005237  002366                    INC     NXMFLG          ;SET THE FLAG
                                10$:
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
                                ENDSRV
020236                                                                  L10035:
020236  000002                                                                    RTI

                                EMT0:   .ASCIZ  /CSR ADDRESSING ERROR - TRAP 4/
                                FMT0:   .ASCIZ  /%S3%ACSR%D1%A AT %O6%A DOES NOT RESPOND%N/
                                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 $RESET SUBROUTINE:
                                ;*      1. ALL BITS IN THE DATA PORT REGISTERS ARE CLEARED.
                                ;*      2. ALL OUTPUT INDICATORS ARE CLEARED.
                                ;*      3. TRANSMIT BUFFER EMPTY (TBE) IS SET
                                ;*
                                ;* SUBTEST 1 - AFTER RESET, CHECK THAT MAINTENANCE MODE AND
                                ;*             TRANSMITTER CAN BE SET. ALSO CHECK THAT TRANSMITTER
                                ;*             BUFFER EMPTY (TBE) IS CLEARED WHEN TDSR IS ACCESSED
                                ;*             WITHOUT SETTING TRANSMITTER ENABLE.
                                ;* SUBTEST 2 - ON THE FIRST PASS ONLY, CHECK THAT A BUS RESET, DOES
                                ;*             A DPV11 RESET.
                                ;*
                                ;* NOTE: DATA MODE, CTS, RR (RECEIVER READY) AND IC (INCOMING CALL)
                                ;*       ARE UNAFFECTED BY A RESET.
                                ;*
                                ;*******************************************************************
020434                          BGNTST
                                                                                T2::
020434                            BGNSUB
                                                                                T2.1:
020434  104402                                                                    TRAP    C$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 - C R 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
```

```
3707 020770
3708 020770  105077  161272          30$:    CLRB    @RXCSR          ;CLEAR THE REGISTER
3709
3710 020774                           ENDSUB
     020774                                                                  L10042:
     020774  104403                                                                 TRAP    C$ESUB
3711
3712
3713 020776                           BGNSUB
     020776                                                                  T3.2:
     020776  104402                                                                 TRAP    C$BSUB
3714 021000  012701  000377                  MOV     #377,R1         ;WRITE DATA PATTERN
3715 021004  110177  161272                  MOVB    R1,@PCR         ;WRITE THE PATTERN.
3716 021010  120177  161266                  CMPB    R1,@PCR         ;IS THE PATTERN WRITTEN?
3717 021014  001025                          BNE     20$             ;IF NOT REPORT IT
3718 021016  005001                          CLR     R1              ;REMEMBER THE DATA PATTERN
3719 021020  105077  161256                  CLRB    @PCR            ;CLEAR THOSE BITS
3720 021024  105777  161252                  TSTB    @PCR            ;WERE THE BITS CLEARED?
3721 021030  001017                          BNE     20$             ;IF NOT - REPORT IT
3722 021032  012701  000001                  MOV     #BIT0,R1        ;START ROTATE PATTERN
3723 021036  012702  000006                  MOV     #6,R2           ;ROTATE THE BIT 4 TIMES
3724 021042                           10$:
3725 021042  150177  161234                  BISB    R1,@PCR         ;WRITE PATTERN
3726 021046  120177  161230                  CMPB    R1,@PCR         ;IS THE PATTERN WRITTEN?
3727 021052  001006                          BNE     20$             ;IF NOT - REPORT IT.
3728 021054  006101                          ROL     R1              ;ROTATE THE PATTERN
3729 021056  105077  161220                  CLRB    @PCR            ;CLEAR THE PCR.
3730 021062  005302                          DEC     R2
3731 021064  001366                          BNE     10$             ;CONTINUE UNTIL DONE.
3732 021066  000404                          BR      30$             ;EXIT - WHEN DONE
3733 021070                           20$:
3734 021070                                   ERRDF   13,EMG4,ERRGB
     021070  104455                                                                 TRAP    C$ERDF
     021072  000015                                                                 .WORD   13
     021074  013554                                                                 .WORD   EMG4
     021076  007272                                                                 .WORD   ERRGB
3735 021100                           30$:
3736 021100  105077  161176                  CLRB    @PCR            ;CLEAR THE PCR
3737
3738 021104                           ENDSUB
     021104                                                                  L10043:
     021104  104403                                                                 TRAP    C$ESUB
3739
3740 021106                           BGNSUB
     021106                                                                  T3.3:
     021106  104402                                                                 TRAP    C$BSUB
3741
3742 021110  012701  000377                  MOV     #377,R1         ;WRITE DATA PATTERN
3743 021114  110177  161154                  MOVB    R1,@TDSR        ;WRITE THE PATTERN.
3744 021120  120177  161150                  CMPB    R1,@TDSR        ;IS THE PATTERN WRITTEN?
3745 021124  001025                          BNE     20$             ;IF NOT REPORT IT
3746 021126  005001                          CLR     R1              ;REMEMBER DATA PATTERN
3747 021130  105077  161140                  CLRB    @TDSR           ;CLEAR THOSE BITS
3748 021134  105777  161134                  TSTB    @TDSR           ;IS THE DATA CLEAR?
3749 021140  001017                          BNE     20$             ;IF NOT - REPORT IT.
3750 021142  012701  000001                  MOV     #BIT0,R1        ;START ROTATE PATTERN
3751 021146  012702  000006                  MOV     #6,R2           ;ROTATE THE BIT 4 TIMES
```

```
3752 021152                            10$:
3753 021152  150177  161116                    BISB    R1,@TDSR        ;WRITE PATTERN
3754 021156  120177  161112                    CMPB    R1,@TDSR        ;IS THE PATTERN WRITTEN?
3755 021162  001006                            BNE     20$             ;IF NOT - REPORT IT.
3756 021164  105077  161104                    CLRB    @TDSR           ;CLEAR THE DATA.
3757 021170  006101                            ROL     R1              ;ROTATE THE PATTERN
3758 021172  005302                            DEC     R2
3759 021174  001366                            BNE     10$             ;CONTINUE UNTIL DONE.
3760 021176  000404                            BR      30$             ;EXIT - WHEN DONE
3761 021200                            20$:
3762 021200                                    ERRDF   14,EMG4,ERRG9
     021200  104455                                                                    TRAP    C$ERDF
     021202  000016                                                                    .WORD   14
     021204  013554                                                                    .WORD   EMG4
     021206  007372                                                                    .WORD   ERRG9
3763 021210                            30$:
3764 021210  105077  161060                    CLRB    @TDSR           ;CLEAR THE TDSR
3765
3766
3767 021214                              ENDSUB
     021214                                                                L10044:
     021214  104403                                                                   TRAP    C$ESUB
3768
3769 021216                              BGNSUB
     021216                                                                T3.4:
     021216  104402                                                                   TRAP    C$BSUB
3770 021220  012701  000017                    MOV     #17,R1          ;WRITE DATA PATTERN
3771 021224  110177  161054                    MOVB    R1,@CSR7        ;WRITE THE PATTERN.
3772 021230  120177  161050                    CMPB    R1,@CSR7        ;IS THE PATTERN WRITTEN?
3773 021234  001025                            BNE     20$             ;IF NOT REPORT IT
3774 021236  005001                            CLR     R1              ;REMEMBER DATA PATTERN.
3775 021240  105077  161040                    CLRB    @CSR7           ;CLEAR THOSE BITS
3776 021244  105777  161034                    TSTB    @CSR7           ;ARE THE STATUS BITS CLEAR?
3777 021250  001017                            BNE     20$             ;IF NOT - REPORT IT.
3778 021252  012701  000001                    MOV     #BIT0,R1        ;START ROTATE PATTERN
3779 021256  012702  000003                    MOV     #3,R2           ;ROTATE THE BIT 4 TIMES
3780 021262                            10$:
3781 021262  150177  161016                    BISB    R1,@CSR7        ;WRITE PATTERN
3782 021266  120177  161012                    CMPB    R1,@CSR7        ;IS THE PATTERN WRITTEN?
3783 021272  001006                            BNE     20$             ;IF NOT - REPORT IT.
3784 021274  105077  161004                    CLRB    @CSR7           ;CLEAR STATUS BITS.
3785 021300  006101                            ROL     R1              ;ROTATE THE PATTERN
3786 021302  005302                            DEC     R2
3787 021304  001366                            BNE     10$             ;CONTINUE UNTIL DONE.
3788 021306  000404                            BR      30$             ;EXIT - WHEN DONE
3789 021310                            20$:
3790 021310                                    ERRDF   15,EMG4,ERRG10
     021310  104455                                                                    TRAP    C$ERDF
     021312  000017                                                                    .WORD   15
     021314  013554                                                                    .WORD   EMG4
     021316  007472                                                                    .WORD   ERRG10
3791 021320                            30$:
3792 021320  105077  160760                    CLRB    @CSR7           ;CLEAR THE XMIT STATUS REG.
3793
3794 021324                              ENDSUB
     021324                                                                L10045:
     021324  104403                                                                   TRAP    C$ESUB
```

```
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,ERRC9   ;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::

                                  BGNSUB
021410                                                                          T4.1:
021410  104402                                                                  TRAP    C$BSUB
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
021416                                                                          TRAP    C$ESCAPE
021420  000330                                                                  .WORD   L10047-.
                                        TST     TURN            ;TURNAROUND?
                                        BNE     5$              ;BR IF EXTERNAL.
                                        BIS     #MM,@TXCSR      ;SET MAINTENANCE MODE.
                                5$:
                                        BIS     #TXENA,@TXCSR   ;ENABLE THE TRANSMITTER.
                                        BIS     #TSOM,@TDSR     ;TRANSMIT START OF MESSAGE.
                                        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.
                                                                ;**********************************

                                        ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
021462                                                                          TRAP    C$ESCAPE
021464  000264                                                                  .WORD   L10047-.
                                        BIT     #TXACT,@TXCSR   ;IS THE TRANSMITTER ACTIVE?
                                        BNE     10$             ;IF YES - OK.
                                        MOV     @TXCSR,R1       ;SAVE THE TRANSMIT STATUS
                                        BIS     #TXENA,R1       ;EXPECT TXENA TO BE SET.
                                        ERRDF   17,EMG5,ERRG7
021506                                                                          TRAP    C$ERDF
021510  000021                                                                  .WORD   17
021512  013601                                                                  .WORD   EMG5
021514  007172                                                                  .WORD   ERRG7
                                        BR      20$             ;SKIP THE REST OF THE SUBTEST.

                                10$:
                                        CLR     @TDSR           ;CLEAR TSOM
                                        BIC     #TXENA,@TXCSR   ;DISABLE THE TRANSMITTER
                                        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$ESCAPE
                021544  000204                                                                  .WORD   L10047-.
3853            021546  032777  000002  160516  BIT     #TXACT,@TXCSR           ;IS THE TRANSMIITER INACTIVE?
3854            021554  001406                  BEQ     20$                     ;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.

                021642  004737  003724                  JSR     PC,$WAIT        ;******** MACRO EXPANSION ********
                021646  000004                          .WORD   TBE             ;CALL WAIT ROUTINE -
                021650  002272                          .WORD   TXCSR           ;WAIT FOR TBE TO BE SET
                                                                                ;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
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
021754                                                                  TRAP    C$ESCAPE
021760                                                                  .WORD   L10052-.
021760  104410
021762  000220
                                        CLR     @TDSR           ;WRITE TO THE TDSR.
021764  005077  160304                  DELAY   5               ;DELAY 500 MICROSECONDS.  THIS WILL
021770                                                                  MOV     #5,(PC)+
021770  012727  000005                                                  .WORD   0
021774  000000                                                          MOV     I$DLY,(PC)+
021776  013727  002116                                                  .WORD   0
022002  000000                                                          DEC     -6(PC)
022004  005367  177772                                                  BNE     .-4
022010  001375                                                          DEC     -22(PC)
022012  005367  177756                                                  BNE     .-20
022016  001367
                                ;US TO ENSURE THAT TBE IS NOT
                                ;REASSERTED.  BECAUSE THE TRANSMITTER
                                ;IS IDLE, TBE SHOULD STAY LOW.
022020  032777  000004  160244          BIT     #TBE,@TXCSR     ;IS TBE CLEARED?
022026  001410                        BEQ     10$             ;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

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

```
3934 022070  001003                    BNE     1$                ;BR IF EXTERNAL.
3935 022072  052777  000010  160172    BIS     #MM,@TXCSR        ;SET MAINTENANCE MODE.
3936 022100                        1$:
3937
3938 022100  052777  000020  160164    BIS     #TXENA,@TXCSR     ;ENABLE THE TRANSMITTER.
3939 022106  012777  000400  160160    MOV     #TSOM,@TDSR       ;TRANSMIT START OF MESSAGE.
3940 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.
                                       ;**********************************

3941 022124                            ESCAPE  TST               ;IF ERROR, BRANCH TO END OF TEST.
     022124  104410                                                          TRAP    C$ESCAPE
     022126  000054                                                          .WORD   L10052-.
3942
3943 022130  012777  000014  160136    MOV     #14,@TDSR         ;TRANSMIT 1ST CHARACTER.
3944 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.
                                       ;**********************************

3945 022146                            ESCAPE  TST               ;IF ERROR, BRANCH TO END OF TEST.
     022146  104410                                                          TRAP    C$ESCAPE
     022150  000032                                                          .WORD   L10052-.
3946 022152  012701  001000            MOV     #1000,R1          ;SET UP COUNTER
3947 022156                        5$:
3948 022156  005777  160112            TST     @TDSR             ;CHECK FOR TRANSMIT ERROR.
3949 022162  100406                    BMI     10$               ;WHEN SET OK.
3950 022164  005301                    DEC     R1                ;DECREMENT COUNTER.
3951 022166  001373                    BNE     5$                ;CONTINUE UNTIL COUNTER 0
3952 022170                            ERRDF   22,EMG8,ERRG2
     022170  104455                                                          TRAP    C$ERDF
     022172  000026                                                          .WORD   22
     022174  013707                                                          .WORD   EMG8
     022176  006700                                                          .WORD   ERRG2
3953 022200                        10$:
3954 022200                          ENDSUB
     022200                                                        L10054:
     022200  104403                                                          TRAP    C$ESUB
3955
3956
3957 022202                        ENDTST
     022202                                                        L10052:
     022202  104401                                                          TRAP    C$ETST
3958
3959
3960
```

```
                                .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::

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

                                        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$SVEC
022242  062706  000010                                                          ADD     #10.SP
                                        SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
022246  012700  000000                                                          MOV     #PRI00,R0
022252  104441                                                                  TRAP    C$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
                                                                ;*********************************
```

```
3999 022326  005737  002334                TST     FLAG            ;WAS AN INTERRUPT RECEIVED
4000 022332  001404                        BEQ     30$             ;IF NOT - OK. (RESET SHOULD CLEAR INT ENABLE)
4001 022334                                ERRDF   24,EMG10,ERRG2  ;ERROR MESSAGE - TRANMSIT INT RECEIVED
     022334  104455                                                        TRAP    C$ERDF
     022336  000030                                                        .WORD   24
     022340  013757                                                        .WORD   EMG10
     022342  006700                                                        .WORD   ERRG2
4002 022344                        30$:
4003 022344                                SETPRI  #PRI06          ;SET PROCESSOR PRIORITY TO 6 (FOR
     022344  012700  000300                                                 MOV     #PRI06,R0
     022350  104441                                                        TRAP    C$SPRI
4004                                                               ;LSI 11/03 THIS WILL DISABLE INTERRUPTS)
4005 022352                                CLRVEC  XMTVEC          ;RESTORE THE XMIT INTERRUPT VECTOR
     022352  013700  002264                                                 MOV     XMTVEC,R0
     022356  104436                                                        TRAP    C$CVEC
4006
4007 022360                        ENDTST
     022360                                                                L10055:
     022360  104401                                                        TRAP    C$ETST
4008
4009
4010
4011
```

```
                                .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.
                                ;*****************************************************************
                                BGNTST
                                                                                        T7::

                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10056-.
                                        MOV     #40252,@PCSAR   ;SET BCP MODE AND SYNCH CHARACTER.
                                        MOV     #RXENA,@RXCSR   ;ENABLE THE RECEIVER.
                                        MOV     #TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER
                                                                ;SELECT THE MAINTENANCE LOOPBACK.
                                        BIS     #TSOM,@TDSR     ;TRANSMIT START OF MESSAGE
                                        WAIT    TBE             ;WAIT FOR TBE TO BE SET.
                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
                                                .WORD   TBE     ;WAIT FOR TBE TO BE SET
                                                .WORD   TXCSR   ;IN TRANSMITTER  CSR.
                                                                ;*********************************

                                        ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10056-.
                                        BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
                                        BNE     20$                 ;IF SET, REPORT ERROR.
                                        BIS     #TSOM,@TDSR     ;RETRANSMIT START OF MESSAGE.
                                        WAIT    TBE             ;WAIT FOR TBE TO BE SET.
                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$WAIT        ;CALL WAIT ROUTINE -
                                                .WORD   TBE     ;WAIT FOR TBE TO BE SET
                                                .WORD   TXCSR   ;IN TRANSMITTER  CSR.
                                                                ;*********************************

                                        ESCAPE  TST             ;IF ERROR, BRANCH TO END OF TEST.
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10056-.
                                        BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
                                        BNE     20$                 ;IF SET, REPORT ERROR.
                                        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::

                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                                TRAP    C$ESCAPE
022620  104410                                                                  .WORD   L10057-.
022622  000266
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
                                                                                MOV     #PRI04,-(SP)
022646  012746  000200                                                          MOV     #XINT,-(SP)
022652  012746  017232                                                          MOV     XMTVEC,-(SP)
022656  013746  002264                                                          MOV     #3,-(SP)
022662  012746  000003                                                          TRAP    C$SVEC
022666  104437                                                                  ADD     #10,SP
022670  062706  000010
022674                                  SETVEC  RCVEC,#RINT,#PRI04
                                                                                MOV     #PRI04,-(SP)
022674  012746  000200                                                          MOV     #RINT,-(SP)
022700  012746  016602                                                          MOV     RCVEC,-(SP)
022704  013746  002262                                                          MOV     #3,-(SP)
022710  012746  000003                                                          TRAP    C$SVEC
022714  104437                                                                  ADD     #10,SP
022716  062706  000010
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.
```

```
4112 022764  005303                        DEC     R3              ;DECREMENT COUNTER.
4113 022766  001372                        BNE     5$
4114
4115 022770                                ERRDF   28,EMG15,ERRG2
     022770  104455                                                        TRAP    C$ERDF
     022772  000034                                                        .WORD   28
     022774  014243                                                        .WORD   EMG15
     022776  006700                                                        .WORD   ERRG2
4116 023000  000430                        BR      30$
4117 023002                          10$:
4118 023002  042777  000020  157256        BIC     #RXENA,@RXCSR   ;DISABLE THE RECEIVER
4119 023010  005037  002376                CLR     RFLAG           ;CLEAR THE FLAG.
4120 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
                                                                   ;*********************************

4121 023022  005737  002376                TST     RFLAG           ;WAS AN INTERUPT RECEIVED?
4122 023026  001011                        BNE     20$             ;IF YES - REPORT ERROR.
4123 023030  032777  004200  157230        BIT     #RXACT!RDATRY,@RXCSR ;CHECK RECEIVER ACTIVE AND DATA READY.
4124 023036  001411                        BEQ     30$                  ;IF CLEAR OK
4125 023040                                ERRDF   29,EMG13,ERRG2
     023040  104455                                                        TRAP    C$ERDF
     023042  000035                                                        .WORD   29
     023044  014106                                                        .WORD   EMG13
     023046  006700                                                        .WORD   ERRG2
4126 023050  000404                        BR      30$
4127 023052                          20$:
4128 023052                                ERRDF   30,EMG16,ERRG2
     023052  104455                                                        TRAP    C$ERDF
     023054  000036                                                        .WORD   30
     023056  014276                                                        .WORD   EMG16
     023060  006700                                                        .WORD   ERRG2
4129 023062                          30$:
4130 023062                                CALL    $RESET          ;RESET THE DPV.
4131 023066                                SETPRI  #PR106          ;SET THE PROCESSOR PRI TO 6
     023066  012700  000300                                                MOV     #PR106,R0
     023072  104441                                                        TRAP    C$SPRI
4132                                                               ;(THIS WILL DISABLE INTERRUPTS)
4133 023074                                CLRVEC  RCVEC           ;RESTORE THE RECV. VECTOR
     023074  013700  002262                                                MOV     RCVEC,R0
     023100  104436                                                        TRAP    C$CVEC
4134 023102                                CLRVEC  XMTVEC          ;RESTORE THE XMIT. VECTOR
     023102  013700  002264                                                MOV     XMTVEC,R0
     023106  104436                                                        TRAP    C$CVEC
4135
4136 023110                          ENDTST                                L10057:
     023110                                                                TRAP    C$ETST
     023110  104401
4137
4138
4139
```

```
                        .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.
                        ;*
                        ;*****************************************************************
                        BGNTST                                                  T9.:
                        BGNSUB                                                  T9.1:
023112                                                                          TRAP    C$BSUB
023112  104402
                                CALL    $RESET          ;RESET THE DPV
                                ESCAPE  TST             ;IF ERROR, EXIT THE TEST
023120                                                                          TRAP    C$ESCAPE
023120  104410                                                                  .WORD   L10060-.
023122  000774
                                CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
                                MOV     #1,START        ;# OF START OF MESSAGES.

                                SETVEC  #XMTVEC,#XINT,#PR104
023136                                                                          MOV     #PR104,-(SP)
023136  012746  000200                                                          MOV     #XINT,-(SP)
023142  012746  017272                                                          MOV     #XMTVEC,-(SP)
023146  013746  002264                                                          MOV     #3,-(SP)
023152  012746  000003                                                          TRAP    C$SVEC
023156  104437                                                                  ADD     #10,SP
023160  062706  000010
                                SETPRI  #PR100          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
023164                                                                          MOV     #PR100,R0
023164  012700  000000                                                          TRAP    C$SPRI
023170  104441
                                                        ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                        ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                        ;LEVEL 4-7.
                                                        ;SET UP INTERRUPT VECTOR

023172  052777  000130  15707.   BIS     #TIE!TRENA,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
```

```
4185                                                                    ;MAINTENANCE MODE LOOPBACK.
4186 023200  052777  000020  157060          BIS     #RXENA,@RXCSR   ;ENABLE THE RECEIVER
4187
4188 023206  005003                          CLR     R3              ;INITIALIZE THE COUNTER
4189 023210                            5$:
4190 023210  032777  004000  157050          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
4191 023216  001007                          BNE     10$             ;BR IF YES
4192 023220  005303                          DEC     R3              ;DECREMENT THE COUNTER
4193 023222  001372                          BNE     5$
4194 023224                                  ERRDF   31,EMG12,ERRG2
     023224  104455                                                                  TRAP    C$ERDF
     023226  000037                                                                  .WORD   31
     023230  014062                                                                  .WORD   EMG12
     023232  006700                                                                  .WORD   ERRG2
4195 023234  000444                          BR      45$
4196 023236                            10$:
4197 023236  005003                          CLR     R3              ;INITIALIZE THE COUNTER.
4198 023240                            12$:
4199 023240  032777  002200  157020          BIT     #RSTARY!RDATRY,@RXCSR   ;IS DATA OR STATUS READY?
4200 023246  001407                          BEQ     15$                     ;BR IF NOT
4201 023250  017737  157014  002400          MOV     @RDSR,RSAVE     ;SAVE THE CHARACTER
4202 023256  032737  001000  002400          BIT     #REOM,RSAVE     ;WAS THE RECEIVE END OF MESSAGE RECEIVED?
4203 023264  001007                          BNE     20$
4204 023266                            15$:
4205 023266  005303                          DEC     R3              ;DECREMENT THE COUNTER
4206 023270  001363                          BNE     12$
4207 023272                                  ERRDF   32,EMG17,ERRG2
     023272  104455                                                                  TRAP    C$ERDF
     023274  000040                                                                  .WORD   32
     023276  014345                                                                  .WORD   EMG17
     023300  006700                                                                  .WORD   ERRG2
4208 023302  000421                          BR      45$
4209 023304                            20$:
4210 023304  032777  002000  156754          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
4211 023312  001405                          BEQ     25$
4212 023314                                  ERRDF   33,EMG18,ERRG2
     023314  104455                                                                  TRAP    C$ERDF
     023316  000041                                                                  .WORD   33
     023320  014405                                                                  .WORD   EMG18
     023322  006700                                                                  .WORD   ERRG2
4213 023324  000410                          BR      45$
4214 023326                            25$:
4215 023326  032777  004000  156732          BIT     #RXACT,@RXCSR   ;IS THE RECEIVER INACTIVE?
4216 023334  001404                          BEQ     45$             ;BR IF YES
4217 023336                                  ERRDF   34,EMG11,ERRG2
     023336  104455                                                                  TRAP    C$ERDF
     023340  000042                                                                  .WORD   34
     023342  014031                                                                  .WORD   EMG11
     023344  006700                                                                  .WORD   ERRG2
4218
4219 023346                            45$:
4220
4221 023346                              ENDSUB                                                L10061:
     023346                                                                          TRAP    C$ESUB
     023346  104403
4222
4223 023350                              BGNSUB
```

```
     023350                                                                      T9.2:
     023350  104402                                                                      TRAP    C$BSUB
     023352                                 CALL    $RESET          ;RESET THE DPV
     023356                                 ESCAPE  TST             ;IF ERROR, EXIT THE TEST
     023356  104410                                                                      TRAP    C$ESCAPE
     023360  000536                                                                      .WORD   L10060-.

     023362  005037  002424                 CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
     023366  012737  000001  002414         MOV     #1,START        ;# OF START OF MESSAGES.

     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$SVEC
     023416  062706  000010                                                              ADD     #10,SP
     023422                                 SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
     023422  012700  000000                                                              MOV     #PRI00,R0
     023426  104441                                                                      TRAP    C$SPRI
                                                                ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                ;LEVEL 4-7.
                                                                ;SET UP INTERRUPT VECTOR

     023430  052777  000130  156634         BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
                                                                ;MAINTENANCE MODE LOOPBACK.
     023436  052777  000020  156622         BIS     #RXENA,@RXCSR   ;ENABLE THE RECEIVER

     023444  005003                         CLR     R3              ;INITIALIZE THE COUNTER
     023446                         5$:
     023446  032777  004000  156612         BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
     023454  001007                         BNE     10$             ;BR IF YES
     023456  005303                         DEC     R3              ;DECREMENT THE COUNTER
     023460  001372                         BNE     5$
     023462                                 ERRDF   35,EMG12,ERRG2
     023462  104455                                                                      TRAP    C$ERDF
     023464  000043                                                                      .WORD   35
     023466  014062                                                                      .WORD   EMG12
     023470  006700                                                                      .WORD   ERRG2
     023472  000464                         BR      55$
     023474                         10$:
     023474  005003                         CLR     R3              ;INITIALIZE THE COUNTER.
     023476                         12$:
     023476  032777  002000  156562         BIT     #RSTARY,@RXCSR  ;IS THE STATUS READY?
     023504  001007                         BNE     20$
     023506  005303                         DEC     R3              ;DECREMENT THE COUNTER
     023510  001372                         BNE     12$

     023512                                 ERRDF   36,EMG1,ERRG2   ;TIME OUT
     023512  104455                                                                      TRAP    C$ERDF
     023514  000044                                                                      .WORD   36
     023516  013462                                                                      .WORD   EMG1
     023520  006700                                                                      .WORD   ERRG2
     023522  000450                         BR      55$

     023524                         20$:
```

```
4261
4262 023524  032777  004000  156536          BIT     #ROVER,@RDSR    ;WAS THE RECEIVE OVERRUN RECEIVED?
4263 023532  001005                          BNE     40$             ;IF YES OK.
4264 023534                                  ERRDF   37,EMG19,ERRG2
     023534  104455                                                          TRAP    C$ERDF
     023536  000045                                                          .WORD   37
     023540  014434                                                          .WORD   EMG19
     023542  006700                                                          .WORD   ERRG2
4265 023544  000437                          BR      55$
4266 023546                          40$:
4267
4268 023546  032777  002000  156512          BIT     #RSTARY,@RXCSR  ;WAS THE STATUS CLEARED
4269 023554  001405                          BEQ     42$             ;IF YES OK
4270 023556                                  ERRDF   38,EMG18,ERRG2
     023556  104455                                                          TRAP    C$ERDF
     023560  000046                                                          .WORD   38
     023562  014405                                                          .WORD   EMG18
     023564  006700                                                          .WORD   ERRG2
4271 023566  000426                          BR      55$
4272 023570                          42$:
4273 023570  032777  002000  156470          BIT     #RSTARY,@RXCSR  ;IS THE STATUS READY?
4274 023576  001007                          BNE     47$
4275 023600  005303                          DEC     R3              ;DECREMENT THE COUNTER
4276 023602  001372                          BNE     42$
4277
4278 023604                                  ERRDF   39,EMG1,ERRG2   ;TIME OUT
     023604  104455                                                          TRAP    C$ERDF
     023606  000047                                                          .WORD   39
     023610  013462                                                          .WORD   EMG1
     023612  006700                                                          .WORD   ERRG2
4279 023614  000413                          BR      55$
4280
4281
4282 023616                          47$:
4283 023616  042777  000020  156442          BIC     #RXENA,@RXCSR   ;DISABLE THE RECEIVER.
4284
4285 023624  032777  002000  156434          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
4286 023632  001404                          BEQ     55$
4287 023634                          50$:
4288 023634                                  ERRDF   40,EMG18,ERRG2
     023634  104455                                                          TRAP    C$ERDF
     023636  000050                                                          .WORD   40
     023640  014405                                                          .WORD   EMG18
     023642  006700                                                          .WORD   ERRG2
4289 023644                          55$:
4290
4291 023644                            ENDSUB
     023644                                                         L10062:
     023644  104403                                                          TRAP    C$ESUB
4292
4293
4294
4295 023646                            BGNSUB
     023646                                                         T9.3:
     023646  104402                                                          TRAP    C$BSUB
4296 023650                                  CALL    $RESET          ;RESET THE DPV
4297 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$ESUB
4349
4350
4351
4352    024116                  ENDTST                                          L10060:
        024116                                                                          TRAP    C$ETST
        024116  104401
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::

                                  BGNSUB
024120                                                                  T10.1:
024120                                                                          TRAP    C$BSUB
024120  104402
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
024126                                                                  TRAP    C$ESCAPE
024126  104410                                                          .WORD   L10064-.
024130  001102
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?
```

```
4394 024262  001007                        BNE     10$             ;BR IF YES
4395 024264  005303                        DEC     R3              ;DECREMENT THE COUNTER
4396 024266  001372                        BNE     5$
4397 024270                                ERRDF   45,EMG12,ERRG2
     024270  104455                                                                TRAP    C$ERDF
     024272  000055                                                                .WORD   45
     024274  014062                                                                .WORD   EMG12
     024276  006700                                                                .WORD   ERRG2
4398 024300  000434                        BR      45$
4399 024302                          10$:
4400 024302  005003                        CLR     R3              ;INITIALIZE THE COUNTER.
4401 024304                          12$:
4402 024304  032737  000002  002376        BIT     #2,RFLAG        ;WAS STATUS RECEIVED?
4403 024312  001007                        BNE     20$
4404 024314  005303                        DEC     R3              ;DECREMENT THE COUNTER
4405 024316  001372                        BNE     12$
4406 024320                                ERRDF   46,EMG21,ERRG2
     024320  104455                                                                TRAP    C$ERDF
     024322  000056                                                                .WORD   46
     024324  014514                                                                .WORD   EMG21
     024326  006700                                                                .WORD   ERRG2
4407 024330  000420                        BR      45$
4408
4409 024332                          20$:
4410 024332  032737  001000  002400        BIT     #REOM,RSAVE     ;WAS THE RECEIVE END OF MESSAGE RECEIVED?
4411 024340  001004                        BNE     40$             ;IF YES OK.
4412 024342                                ERRDF   47,EMG17,ERRG2
     024342  104455                                                                TRAP    C$ERDF
     024344  000057                                                                .WORD   47
     024346  014345                                                                .WORD   EMG17
     024350  006700                                                                .WORD   ERRG2
4413 024352                          40$:
4414 024352  032777  002000  155706        BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
4415 024360  001404                        BEQ     45$
4416 024362                                ERRDF   48,EMG18,ERRG2
     024362  104455                                                                TRAP    C$ERDF
     024364  000060                                                                .WORD   48
     024366  014405                                                                .WORD   EMG18
     024370  006700                                                                .WORD   ERRG2
4417 024372                          45$:
4418 024372                                SETPRI  #PR106          ;SET PROCESSOR PRI TO 6
     024372  012700  000300                                                        MOV     #PR106,R0
     024376  104441                                                                TRAP    C$SPRI
4419                                                               ;(DISABLE INTERRUPT)
4420 024400                                CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
     024400  013700  002262                                                        MOV     RCVEC,R0
     024404  104436                                                                TRAP    C$CVEC
4421 024406                                CLRVEC  XMTVEC          ;RESORE THE VECTOR.
     024406  013700  002264                                                        MOV     XMTVEC,R0
     024412  104436                                                                TRAP    C$CVEC
4422
4423 024414                          ENDSUB                                L10065:
     024414                                                                        TRAP    C$ESUB
     024414  104403
4424
4425 024416                          BGNSUB                                T10.2:
     024416
```

```
     024416  104402                                                                            TRAP    C$BSUB
     024420                                 CALL    $RESET          ;RESET THE DPV
     024424                                 ESCAPE  TST             ;IF ERROR, EXIT THE TEST
     024424  104410                                                                            TRAP    C$ESCAPE
     024426  000604                                                                            .WORD   L10064-.

     024430  005037  002376                 CLR     RFLAG           ;CLEAR RECEIVE INTERRUPT
     024434  005037  002424                 CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
     024440  005037  002360                 CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
     024444  012737  000001  002414         MOV     #1,START        ;# OF START OF MESSAGES.
     024452  012737  000001  002370         MOV     #1,OVER         ;FLAG TO CREATE RECEIVE OVERRUN.

     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$SVEC
     024502  062706  000010                                                                    ADD     #10,SP
     024506                                 SETVEC  RCVEC,#RINT,#PRI04
     024506  012746  000200                                                                    MOV     #PRI04,-(SP)
     024512  012746  016602                                                                    MOV     #RINT,-(SP)
     024516  013746  002262                                                                    MOV     RCVEC,-(SP)
     024522  012746  000003                                                                    MOV     #3,-(SP)
     024526  104437                                                                            TRAP    C$SVEC
     024530  062706  000010                                                                    ADD     #10,SP
     024534                                 SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
     024534  012700  000000                                                                    MOV     #PRI00,R0
     024540  104441                                                                            TRAP    C$SPRI
                                                                    ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                    ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                    ;LEVEL 4-7.
                                                                    ;SET UP INTERRUPT VECTOR

     024542  052777  000130  155522         BIS     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND SELECT
                                                                    ;MAINTENANCE MODE LOOPBACK.
     024550  052777  000120  155510         BIS     #RXITEN!RXENA,@RXCSR  ;ENABLE THE RECEIVER

     024556  005003                         CLR     R3              ;INITIALIZE THE COUNTER
     024560                         5$:
     024560  032777  004000  155500         BIT     #RXACT,@RXCSR   ;IS THE RECEIVER ACTIVE?
     024566  001007                         BNE     10$             ;BR IF YES
     024570  005303                         DEC     R3              ;DECREMENT THE COUNTER
     024572  001372                         BNE     5$
     024574                                 ERRDF   49,EMG12,ERRG2
     024574  104455                                                                            TRAP    C$ERDF
     024576  000061                                                                            .WORD   49
     024600  014062                                                                            .WORD   EMG12
     024602  006700                                                                            .WORD   ERRG2
     024604  000434                         BR      45$
     024606                         10$:
     024606  005003                         CLR     R3              ;INITIALIZE THE COUNTER.
     024610                         12$:
     024610  032737  000002  002376         BIT     #2,RFLAG        ;WAS STATUS RECEIVED?
     024616  001007                         BNE     20$
     024620  005303                         DEC     R3              ;DECREMENT THE COUNTER
     024622  001372                         BNE     12$
```

```
4462 024624                                    ERRDF   50,EMG21,ERRG2
     024624  104455                                                      TRAP    C$ERDF
     024626  000062                                                      .WORD   50
     024630  014514                                                      .WORD   EMG21
     024632  006700                                                      .WORD   ERRG2
4463 024634  000420                            BR      45$
4464
4465 024636                            20$:
4466
4467 024636  032737  004000  002400          BIT     #ROVER,RSAVE    ;WAS THE RECEIVE OVERRUN RECEIVED?
4468 024644  001004                          BNE     40$             ;IF YES OK.
4469 024646                                    ERRDF   51,EMG19,ERRG2
     024646  104455                                                      TRAP    C$ERDF
     024650  000063                                                      .WORD   51
     024652  014434                                                      .WORD   EMG19
     024654  006700                                                      .WORD   ERRG2
4470 024656                            40$:
4471 024656  032777  002000  155402          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
4472 024664  001404                          BEQ     45$
4473 024666                                    ERRDF   52,EMG18,ERRG2
     024666  104455                                                      TRAP    C$ERDF
     024670  000064                                                      .WORD   52
     024672  014405                                                      .WORD   EMG18
     024674  006700                                                      .WORD   ERRG2
4474 024676                            45$:
4475 024676                                    SETPRI  #PR106          ;SET PROCESSOR PRI TO 6
     024676  012700  000300                                                      MOV     #PR106,R0
     024702  104441                                                      TRAP    C$SPRI
4476                                                                   ;(DISABLE INTERRUPT)
4477 024704                                    CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
     024704  013700  002262                                                      MOV     RCVEC,R0
     024710  104436                                                      TRAP    C$CVEC
4478 024712                                    CLRVEC  XMTVEC
     024712  013700  002264                                                      MOV     XMTVEC,R0
     024716  104436                                                      TRAP    C$CVEC
4479 024720  005037  002370                    CLR     OVER            ;CLEAR OVERRUN FLAG.
4480
4481 024724                            ENDSUB                                  L10066:
     024724                                                            TRAP    C$ESUB
     024724  104403
4482
4483
4484
4485 024726                            BGNSUB                                  T10.3:
     024726                                                            TRAP    C$BSUB
     024726  104402
4486 024730                                    CALL    $RESET          ;RESET THE DPV
4487 024734                                    ESCAPE  TST             ;IF ERROR, EXIT THE TEST
     024734  104410                                                      TRAP    C$ESCAPE
     024736  000274                                                      .WORD   L10064-.
4488
4489 024740  005037  002376                    CLR     RFLAG           ;CLEAR RECEIVE INTERRUPT
4490 024744  005037  002424                    CLR     TFLAG           ;CLEAR TRANSMIT INTERRUPT FLAG.
4491 024750  005037  002360                    CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
4492 024754  012737  000001  002414            MOV     #1,START        ;# OF START OF MESSAGES.
4493 024762  012737  000001  002316            MOV     #1,ABORT        ;FLAG TO SEND ABORT
4494
```

```
4495 024770                                    SETVEC  XMTVEC,#XINT,#PRI04
     024770  012746  000200                                                    #PRI04,-(SP)
     024774  012746  017232                                                    #XINT,-(SP)
     025000  013746  002264                                                    XMTVEC,-(SP)
     025004  012746  000003                                                JV  #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
025166  000410                          BR      45$
025170                          40$:
025170  032777  002000  155070          BIT     #RSTARY,@RXCSR  ;IS THE STATUS DROPPED?
025176  001404                          BEQ     45$

025200                                  ERRDF   56,EMG18,ERRG2
025200  104455                                                                          TRAP    C$ERDF
025202  000070                                                                          .WORD   56
025204  014405                                                                          .WORD   EMG18
025206  006700                                                                          .WORD   ERRG2
025210                          45$:
025210                                  SETPRI  #PRI06          ;SET PROCESSOR PRI TO 6
025210  012700  000300                                                                  MOV     #PRI06,R0
025214  104441                                                                          TRAP    C$SPRI
                                                                ;(DISABLE INTERRUPT)
025216                                  CLRVEC  RCVEC           ;RESTORE THE INTERRUPT VECTOR.
025216  013700  002262                                                                  MOV     RCVEC,R0
025222  104436                                                                          TRAP    C$CVEC
025224  005037  002316                  CLR     ABORT           ;CLEAR THE ABORT FLAG.


025230                                  ENDSUB
025230                                                                          L10067:
025230  104403                                                                          TRAP    C$ESUB


025232                                  ENDTST
025232                                                                          L10064:
025232  104401                                                                          TRAP    C$ETST
```

```
4554                                    .SBTTL          TEST 11 - RECEIVE AND TRANSMIT INTERRUPT
4555
4556                                    ;*****************************************************************
4557                                    ;*              TEST 11 - DPV-11
4558                                    ;* RECEIVE AND TRANSMIT INTERRUPT
4559                                    ;* TRANSMIT AND RECEIVE DATA USING INTERRUPT ROUTINES. THIS TEST
4560                                    ;* WILL TRANSMIT 4 DATA CHARACTERS. AFTER ENSURING THAT A TRANSMIT
4561                                    ;* INTERRUPT WAS COMPLETED, THE TEST WILL CHECK TO MAKE SURE THAT AT
4562                                    ;* LEAST 1 RECEIVE INTERRUPT WAS GENERATED.
4563                                    ;*
4564                                    ;*****************************************************************
4565 025234                            BGNTST
     025234                                                                          T11::
4566
4567 025234                                    CALL    $RESET          ;RESET THE DPV
4568 025240                                    ESCAPE  TST             ;IF ERROR, EXIT THE TEST
     025240  104410                                                                 TRAP    C$ESCAPE
     025242  000234                                                                 .WORD   L10070-.
4569 025244  005037  002424                    CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
4570 025250  005037  002376                    CLR     RFLAG
4571 025254  005037  002360                    CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
4572 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$SVEC
     025302  062706  000010                                                         ADD     #10,SP
4573 025306                                    SETVEC  XMTVEC,#XINT,#PRI04
     025306  012746  000200                                                         MOV     #PRI04,-(SP)
     025312  012746  017232                                                         MOV     #XINT,-(SP)
     025316  013746  002264                                                         MOV     XMTVEC,-(SP)
     025322  012746  000003                                                         MOV     #3,-(SP)
     025326  104437                                                                 TRAP    C$SVEC
     025330  062706  000010                                                         ADD     #10,SP
4574 025334                                    SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
     025334  012700  000000                                                         MOV     #PRI00,R0
     025340  104441                                                                 TRAP    C$SPRI
4575                                                                    ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
4576                                                                    ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
4577                                                                    ;LEVEL 4-7.
4578                                                                    ;SET UP INTERRUPT VECTOR
4579
4580
4581 025342  012777  043652  154720            MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
4582 025350  012737  000002  002414            MOV     #2,START        ;# OF STARTS TO SEND.
4583 025356  012777  000120  154702            MOV     #RXIIEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND SET
4584                                                                            ;SET INTERRUPT ENABLE.
4585 025364  012777  000130  154700            MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
4586                                                                            ;SELECT THE MAINTENANCE LOOPBACK.
4587 025372  005001                            CLR     R1              ;LOOP COUNTER
4588 025374                            10$:
4589 025374  022737  000004  002326            CMP     #4,DATA         ;ARE THE 4 DATA CHARACTERS RECEIVED?
4590 025402  001412                            BEQ     20$             ;IF YES - CHECK RECEIVE INTERRUPT.
4591 025404  005301                            DEC     R1              ;DECREMENT COUNTER
4592 025406  001372                            BNE     10$
4593
```

```
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
     025476                                                        L10070:
     025476  104401                                                        TRAP    C$ETST
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)
                                ;*
                                ;*****************************************************************
                                BGNTST
                                                                                        T12::
                                        CALL    $TURN           ;CHECK THE TURNAROUND.
                                        BCS     40$             ;SKIP TEST IF NO TURNAROUND.
                                5$:
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10071-.
                                        MOV     #RTS,R2         ;SAVE RTS IN REGISTER (FOR ERROR REPORT).
                                        MOV     R2,@RXCSR       ;SET RTS
                                        $DELAY  1               ;DELAY 100 MICROSECONDS
                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
                                                .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                ;*********************************

                                        BIT     #CTS,@RXCSR     ;IS CTS ON?
                                        BEQ     10$             ;IF NOT - REPORT.
                                        BIT     #RR,@RXCSR      ;IS RR (CD) ON
                                        BEQ     10$             ;IF NOT - ERROR.
                                        MOV     #DTR,R2         ;SAVE DTR IN REGISTER (FOR ERROR REPORT).
                                        MOV     R2,@RXCSR       ;SET DTR.
                                        $DELAY  1               ;DELAY 100 MICROSECONDS
                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
                                                .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                ;*********************************

                                        BIT     #IC,@RXCSR      ;IS RING (IC) SET?
                                        BEQ     10$             ;IF NOT - ERROR.
                                        MOV     #SF,R2          ;SAVE SF IN REGISTER (FOR ERROR REPORT).
                                        MOV     R2,@RXCSR       ;SET REMOTE LOOP/ SEC FREQ
                                        $DELAY  1               ;DELAY 100 MICROSECONDS
                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
                                                .WORD   1       ;NUMBER OF DELAY LOOPS
                                                                ;*********************************

                                        BIT     #SQ,@TXCSR      ;IS SIGNAL QUALITY SET?
```

```
 4654 025626  001413                        BEQ     10$             ;IF NOT - ERROR.
 4655 025630  012702  000010                MOV     #LL,R2          ;SAVE LL IN REGISTER (FOR ERROR REPORT).
 4656 025634  010277  154426                MOV     R2,@RXCSR       ;SET LOCAL LOOP
 4657 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
                                                                    ;**********************************

 4658 025646  032777  001000  154412        BIT     #DM,@RXCSR      ;IS DATA MODE SET?
 4659 025654  001004                        BNE     20$
 4660
 4661 025656                          10$:
 4662 025656                                ERRDF   59,EMG22,ERRG13
      025656  104455                                                                TRAP    C$ERDF
      025660  000073                                                                .WORD   59
      025662  014556                                                                .WORD   EMG22
      025664  010272                                                                .WORD   ERRG13
 4663
 4664 025666                          20$:
 4665                                                               ;CLEAR ALL THOSE BITS
 4666 025666  042777  000017  154372        BIC     #RTS!DTR!SF!LL,@RXCSR
 4667 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
                                                                    ;**********************************

 4668
 4669 025702  012702  000004                MOV     #RTS,R2         ;CHECK RTS.
 4670 025706  030277  154354                BIT     R2,@RXCSR       ;IS IT SET?
 4671 025712  001021                        BNE     30$             ;IF YES, ERROR.
 4672 025714  012702  000002                MOV     #DTR,R2         ;CHECK DTR.
 4673 025720  030277  154342                BIT     R2,@RXCSR       ;IS IT SET?
 4674 025724  001014                        BNE     30$             ;IF YES, ERROR.
 4675 025726  012777  000001  154332        MOV     #SF,@RXCSR      ;CHECK SF.
 4676 025734  030277  154326                BIT     R2,@RXCSR       ;IS IT SET?
 4677 025740  001006                        BNE     30$             ;IF YES, ERROR.
 4678 025742  012777  000010  154316        MOV     #LL,@RXCSR      ;CHECK LL
 4679 025750  030277  154312                BIT     R2,@RXCSR       ;IS IT SET?
 4680 025754  001404                        BEQ     40$             ;IF NOT, OK
 4681 025756                          30$:
 4682 025756                                ERRDF   60,EMG22,ERRG15
      025756  104455                                                               TRAP    C$ERDF
      025760  000074                                                               .WORD   60
      025762  014556                                                               .WORD   EMG22
      025764  011044                                                               .WORD   ERRG15
 4683 025766                          40$:
 4684 025766                          ENDTST
      025766                                                                L10071:
      025766  104401                                                               TRAP    C$ETST
 4685
 4686
 4687
 4688
```

```
                                   .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

                              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$:

                                ENDSUB
026112
                                                                        L10073:
026112  104403                                                                    TRAP    C$ESUB

026114                          BGNSUB
026114
                                                                        T13.2:
026114  104402                                                                    TRAP    C$BSUB
026116                                CALL    $RESET            ;RESET THE DPV
026122                                ESCAPE  TST               ;IF ERROR, EXIT THE TEST
026122  104410                                                                    TRAP    C$ESCAPL
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$:
```

```
                                ENDSUB
                                                                        L10074:
 026170                                                                         TRAP    C$ESUB
 026170  104403
                                BGNSUB
                                                                        T13.3:
 026172                                                                         TRAP    C$BSUB
 026172  104402
                        CALL    $RESET          ;RESET THE DPV
                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 026174                                                                         TRAP    C$ESCAPE
 026200  104410                                                                 .WORD   L10072-.
 026202  000474
                        CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
                        CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.

                                                ;SET LOCAL LOOP, DTR AND RTS.
                        MOV     #LL!RTS!DTR,@RXCSR
                10$:
                        $DELAY  10              ;WAIT 1 MS

                                                ;******** MACRO EXPANSION ********
 026222  004737  006604         JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
 026226  000010                 .WORD   10              ;NUMBER OF DELAY LOOPS
                                                ;**********************************
                        TST     MCFLAG          ;WAS AN INTERRUPT RECEIVED?
                        BEQ     30$             ;IF NOT OK.
                        ERRDF   63,EMG23,ERRG2
 026236                                                                         TRAP    C$ERDF
 026240  000077                                                                 .WORD   63
 026242  014603                                                                 .WORD   EMG23
 026244  006700                                                                 .WORD   ERRG2

            30$:

              ENDSUB
                                                                        L10075:
 026246                                                                         TRAP    C$ESUB
 026246  104403
                                BGNSUB
                                                                        T13.4:
 026250                                                                         TRAP    C$BSUB
 026250  104402
                        CALL    $RESET          ;RESET THE DPV
                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
 026252                                                                         TRAP    C$ESCAPE
 026256  104410                                                                 .WORD   L10072-.
 026260  000416
                        CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
                        CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.

                                                ;ENABLE INTERRUPTS AND SET RTS.
                        MOV     #RXITEN!DSITEN!RTS,@RXCSR

                10$:
                        $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.
```

```
                                        ERRDF   66,EMG24,ERRG2                                  TRAP    C$ERDF
                                                                                                .WORD   66
                                                                                                .WORD   EMG24
                                                                                                .WORD   ERRG2
                                        PRINTB  #FMG26                                          MOV     #FMG26,-(SP)
                                                                                                MOV     #1,-(SP)
                                                                                                MOV     SP,R0
                                                                                                TRAP    C$PNTB
                                                                                                ADD     #4,SP
                                        BR      30$
                                20$:
                                        CMP     #1,MCFLAG       ;WAS ONLY 1 RECEIVED?
                                        BEQ     30$             ;IF YES - OK
                                        ERRDF   67,EMG40        ;REPORT MULTIPLE INTERRUPTS
                                                                                                TRAP    C$ERDF
                                                                                                .WORD   67
                                                                                                .WORD   EMG40
                                                                                                .WORD   0
                                30$:

                                  ENDSUB
                                                                                        L10077:
                                                                                                TRAP    C$ESUB

                                BGNSUB
                                                                                        T13.6:
                                                                                                TRAP    C$BSUB
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                                                TRAP    C$ESCAPE
                                                                                                .WORD   L10072-.
                                        CLR     RFLAG           ;CLEAR THE FLAG USED IN THE ISR
                                        CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.

                                                                ;ENABLE INTERRUPTS AND SET LL.
                                        MOV     #RXITEN!DSITEN!LL,@RXCSR

                                10$:
                                        $DELAY  10              ;WAIT 1 MS

                                                                ;******** MACRO EXPANSION ********
                                        JSR     PC,$DLAY        ;CALL DELAY SUBROUTINE
                                                .WORD   10      ;NUMBER OF DELAY LOOPS
                                                                ;*********************************


                                        TST     MCFLAG          ;WAS AN INTERRUPT RECEIVED?
                                        BNE     20$             ;IF YES - CHECK FOR MULTIPLE INTERRUPTS.
                                        ERRDF   68,EMG24,ERRG2
                                                                                                TRAP    C$ERDF
                                                                                                .WORD   68
                                                                                                .WORD   EMG24
                                                                                                .WORD   ERRG2
                                        PRINTB  #FMG26
                                                                                                MOV     #FMG26,-(SP)
```

```
                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
                                                                        T14::
                                        CALL    $TURN           ;CHECK THE TURNAROUND.
026700 103002                           BCC     1$              ;PROCEED, IF TURNAROUND ON.
026702                                  EXIT    TST             ;IF NO TURNAROUND, EXIT.
                                                                        TRAP    C$EXIT
026702 104432                                                           .WORD   L10101-.
026704 001072
026706                          1$:
                                  BGNSUB
                                                                        T14.1:
026706                                                                  TRAP    C$BSUB
026706 104402
                                        CALL    $RESET          ;RESET THE DPV
026710                                  ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                        TRAP    C$ESCAPE
026710 104410                                                           .WORD   L10101-.
026712 001060
                                        CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
                                        CLR     RFLAG
                                        CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
                                        MOV     #RTS,TOGGLE     ;TOGGLE RTS

                                        SETVEC  RCVEC,#RINT,#PRI04
026714                                                                  MOV     #PRI04,-(SP)
026714 012746 000200                                                    MOV     #RINT,-(SP)
026720 012746 016602                                                    MOV     RCVEC,-(SP)
026724 013746 002262                                                    MOV     #3,-(SP)
026730 012746 000003                                                    TRAP    C$SVEC
026734 104437                                                           ADD     #10,SP
026736 062706 000010
                                        SETVEC  XMTVEC,#XINT,#PRI04
026742                                                                  MOV     #PRI04,-(SP)
026742 012746 000200                                                    MOV     #XINT,-(SP)
026746 012746 017232                                                    MOV     XMTVEC,-(SP)
026752 013746 002264                                                    MOV     #3,-(SP)
026756 012746 000003                                                    TRAP    C$SVEC
026762 104437                                                           ADD     #10,SP
026764 062706 000010
                                        SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
026770                                                                  MOV     #PRI00,R0
026770 012700 000000                                                    TRAP    C$SPRI
026774 104441
                                                                ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                                ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                                ;LEVEL 4-7.
                                                                ;SET UP INTERRUPT VECTOR
```

```
4911
4912 027030  012777  043652  153232          MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
4913 027036  012737  000002  002414          MOV     #2,START        ;# OF START CHARACTERS.
4914 027044  012777  000160  153214          MOV     #RXITEN!DSITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND INT.
4915 027052  012777  000130  153212          MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
4916                                                                    ;SELECT THE MAINTENANCE LOOPBACK.
4917 027060  005001                          CLR     R1              ;LOOP COUNTER
4918 027062                              10$:
4919 027062  005737  002360                  TST     MCFLAG          ;WAS A MODEM CHANGE INTERRUPT RECEIVED?
4920 027066  001017                          BNE     20$             ;IF YES, EXIT.
4921 027070  005301                          DEC     R1              ;DECREMENT COUNTER
4922 027072  001373                          BNE     10$
4923
4924 027074                                  ERRDF   70,EMG24,ERRG2
      027074  104455                                                          TRAP    C$ERDF
      027076  000106                                                          .WORD   70
      027100  014661                                                          .WORD   EMG24
      027102  006700                                                          .WORD   ERRG2
4925
4926 027104                                  PRINTB  #FMG26          ;NOTIFY THAT INTERRUPT MAY BE DISABLED BY
      027104  012746  012715                                                  MOV     #FMG26,-(SP)
      027110  012746  000001                                                  MOV     #1,-(SP)
      027114  010600                                                          MOV     SP,R0
      027116  104414                                                          TRAP    C$PNTB
      027120  062706  000004                                                  ADD     #4,SP
4927                                                            ;REMOVING THE WIRE WRAP.
4928 027124  000410                          BR      30$
4929 027126                              20$:
4930 027126  022737  000001  002360          CMP     #1,MCFLAG       ;WAS ONLY 1 RECEIVED?
4931 027134  001404                          BEQ     30$             ;IF YES - OK
4932 027136                                  ERRDF   71,EMG40        ;REPORT MULTIPLE INTERRUPTS
      027136  104455                                                          TRAP    C$ERDF
      027140  000107                                                          .WORD   71
      027142  015321                                                          .WORD   EMG40
      027144  000000                                                          .WORD   0
4933 027146                              30$:
4934 027146                                  CALL    $RESET          ;RESET THE DPV
4935 027152                                  SETPRI  #PRI06          ;SET THE PROCESSOR PRIORITY TO 6
      027152  012700  000300                                                  MOV     #PRI06,R0
      027156  104441                                                          TRAP    C$SPRI
4936                                                            ;(THIS WILL DISABLE INTERRUPTS)
4937 027160                                  CLRVEC  RCVEC           ;RESTORE THE RECV. VECTOR
      027160  013700  002262                                                  MOV     RCVEC,R0
      027164  104436                                                          TRAP    C$CVEC
4938 027166                                  CLRVEC  XMTVEC          ;RESTORE THE XMIT. VECTOR
      027166  013700  002264                                                  MOV     XMTVEC,R0
      027172  104436                                                          TRAP    C$CVEC
4939 027174                                  ESCAPE  TST             ;IF ERROR, ESCAPE
      027174  104410                                                          TRAP    C$ESCAPE
      027176  000604                                                          .WORD   L10101-.
4940
4941 027200                              ENDSUB
      027200                                                        L10102:
      027200  104403                                                          TRAP    C$ESUB
4942
4943 027202                              BGNSUB
      027202                                                        T14.2:
```

```
                                                                          TRAP    C$BSUB
 027202  104402
 027204                               CALL    $RESET          ;RESET THE DPV
 027210                               ESCAPE  TST             ;IF ERROR, EXIT THE TEST
                                                                          TRAP    C$ESCAPE
 027210  104410                                                           .WORD   L10101-.
 027212  000570
 027214  005037  002424               CLR     TFLAG           ;CLEAR THE FLAGS USED IN THE ISRS.
 027220  005037  002376               CLR     RFLAG
 027224  005037  002360               CLR     MCFLAG          ;CLEAR MODEM CONTROL FLAG.
 027230  012737  000002  002432       MOV     #DTR,TOGGLE     ;TOGGLE DTR.

 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$SVEC
 027260  062706  000010                                                   ADD     #10,SP
 027264                               SETVEC  XMTVEC,#XINT,#PRI04
 027264  012746  000200                                                   MOV     #PRI04,-(SP)
 027270  012746  017232                                                   MOV     #XINT,-(SP)
 027274  013746  002264                                                   MOV     XMTVEC,-(SP)
 027300  012746  000003                                                   MOV     #3,-(SP)
 027304  104437                                                           TRAP    C$SVEC
 027306  062706  000010                                                   ADD     #10,SP
 027312                               SETPRI  #PRI00          ;SET PROCESSOR PRIORITY.  FOR LSI 11/03
 027312  012700  000000                                                   MOV     #PRI00,R0
 027316  104441                                                           TRAP    C$SPRI
                                                              ;THIS WILL ENABLE INTERRUPTS.  FOR 11/23
                                                              ;THIS WILL ALLOW ACKNOWLEDGMENT OF INTERRUPTS
                                                              ;LEVEL 4-7.
                                                              ;SET UP INTERRUPT VECTOR


 027320  012777  043652  152742       MOV     #43652,@PCSAR   ;SET BCP MODE, NO ERROR AND SYNCH CHARACTER.
 027326  012737  000002  002414       MOV     #2,START        ;# OF START CHARACTERS.
 027334  012777  000160  152724       MOV     #RXITEN!DSITEN!RXENA,@RXCSR ;ENABLE THE RECEIVER AND INT.
 027342  012777  000130  152722       MOV     #TXIE!TXENA!MM,@TXCSR ;ENABLE THE TRANSMITTER AND INT.
                                                              ;SELECT THE MAINTENANCE LOOPBACK.
 027350  005001                       CLR     R1              ;LOOP COUNTER
 027352                       10$:
 027352  005737  002360               TST     MCFLAG          ;WAS A MODEM CHANGE INTERRUPT RECEIVED?
 027356  001017                       BNE     20$             ;IF YES, EXIT.
 027360  005301                       DEC     R1              ;DECREMENT COUNTER
 027362  001373                       BNE     10$

 027364                               ERRDF   72,EMG24,ERRG2
 027364  104455                                                           TRAP    C$ERDF
 027366  000110                                                           .WORD   72
 027370  014661                                                           .WORD   EMG24
 027372  006700                                                           .WORD   ERRG2

 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
```

```
4975
4976 027414  000410                          BR      30$                     ;REMOVING THE WIRE WRAP.
4977 027416                            20$:
4978 027416  022737  000001  002360          CMP     #1,MCFLAG               ;WAS ONLY 1 RECEIVED?
4979 027424  001404                          BEQ     30$                     ;IF YES - OK
4980 027426                                  ERRDF   73,EMG40                ;REPORT MULTIPLE INTERRUPTS
     027426  104455                                                                  TRAP    C$ERDF
     027430  000111                                                                  .WORD   73
     027432  015321                                                                  .WORD   EMG40
     027434  000000                                                                  .WORD   0
4981 027436                            30$:
4982 027436                                  CALL    $RESET                  ;RESET THE DPV
4983 027442                                  SETPRI  #PRI06                  ;SET THE PROCESSOR PRI TO 6
     027442  012700  000300                                                          MOV     #PRI06,R0
     027446  104441                                                                  TRAP    C$SPRI
4984                                                                         ;(THIS WILL DISABLE INTERRUPTS)
4985 027450                                  CLRVEC  RCVEC                   ;RESTORE THE RECV. VECTOR
     027450  013700  002262                                                          MOV     RCVEC,R0
     027454  104436                                                                  TRAP    C$CVEC
4986 027456                                  CLRVEC  XMTVEC                  ;RESTORE THE XMIT. VECTOR
     027456  013700  002264                                                          MOV     XMTVEC,R0
     027462  104436                                                                  TRAP    C$CVEC
4987 027464                                  ESCAPE  TST                     ;IF ERROR, ESCAPE
     027464  104410                                                                  TRAP    C$ESCAPE
     027466  000314                                                                  .WORD   L10101-.
4988
4989 027470                          ENDSUB                                                  L10103:
     027470                                                                              TRAP    C$ESUB
     027470  104403
4990
4991 027472                          BGNSUB                                                  T14.3:
     027472                                                                              TRAP    C$BSUB
     027472  104402
4992 027474                                  CALL    $RESET                  ;RESET THE DPV
4993 027500                                  ESCAPE  TST                     ;IF ERROR, EXIT THE TEST
     027500  104410                                                                  TRAP    C$ESCAPE
     027502  000300                                                                  .WORD   L10101-.
4994 027504  005037  002424                  CLR     TFLAG                   ;CLEAR THE FLAGS USED IN THE ISRS.
4995 027510  005037  002376                  CLR     RFLAG
4996 027514  005037  002360                  CLR     MCFLAG                  ;CLEAR MODEM CONTROL FLAG.
4997 027520  012737  000010  002432          MOV     #LL,TOGGLE              ;TOGGLE LL
4998
4999 027526                                  SETVEC  RCVEC,#RINT,#PRI04
     027526  012746  000200                                                          MOV     #PRI04,-(SP)
     027532  012746  016602                                                          MOV     #RINT,-(SP)
     027536  013746  002262                                                          MOV     RCVEC,-(SP)
     027542  012746  000003                                                          MOV     #3,-(SP)
     027546  104437                                                                  TRAP    C$SVEC
     027550  062706  000010                                                          ADD     #10,SP
5000 027554                                  SETVEC  XMTVEC,#XINT,#PRI04
     027554  012746  000200                                                          MOV     #PRI04,-(SP)
     027560  012746  017232                                                          MOV     #XINT,-(SP)
     027564  013746  002264                                                          MOV     XMTVEC,-(SP)
     027570  012746  000003                                                          MOV     #3,-(SP)
     027574  104437                                                                  TRAP    C$SVEC
     027576  062706  000010                                                          ADD     #10,SP
5001 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
     030000                                                           L10104:
     030000  104403                                                           TRAP    C$ESUB
5039
5040 030002                                ENDTST
     030002                                                           L10101:
     030002  104401                                                           TRAP    C$ETST
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  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    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
                                        ESCAPE  TST             ;IF ERROR - EXIT
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10105-.
                                ENDSEG
                                                                                10000$:
                                                                                        TRAP    C$ESEG

                                BGNSEG
                                                                                        TRAP    C$BSEG
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10105-.
                                        MOV     #1,START        ;SEND 1 FLAG
                                        MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
                                        :
                                        MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
                                        MOVB    #143,IPCR       ;SET UP CHARACTER LENGTH

                                        MOV     #1,TIMER        ;CHANGE TIMEOUT VALUE
                                        MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
                                        CLRB    XMTBUF          ;CLEAR SECONDARY ADDRESS FROM XMIT BUFFER.
                                        CALL    $DATA
                                        :
                                        MOV     SAVTIM,TIMER    ;RESTORE THE TIMER
                                        TST     TIMEO           ;DID THE RECEIVER TIME OUT?
                                        BNE     1$              ;IF YES - OK.
                                        ERRDF   76,EMG35
                                                                                        TRAP    C$ERDF
                                                                                        .WORD   76
                                                                                        .WORD   EMG35
                                                                                        .WORD   0
                                1$:
                                   ENDSEG
                                                                                10001$:
                                                                                        TRAP    C$ESEG
                                ENDSUB
                                                                                L10106:
                                                                                        TRAP    C$ESUB


                                BGNSUB
                                                                                T15.2:
                                                                                        TRAP    C$BSUB
                                  BGNSEG
                                                                                        TRAP    C$BSEG
                                      CALL    $RESET          ;RESET THE DPV
                                      ESCAPE  TST             ;IF ERROR, BR TO THE END.
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10105-.
                                      MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
                                      MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
                                      BIS     #APA!SECADR!231,IPCSAR  ;ALL PARTIES ADDRESS AND
                                                                      ;SECONDARY ADDRESS
                                      MOV     #1,START        ;SEND 1 FLAG
                                      MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
```

```
5130 030360  012737  000004  002352          MOV     #4,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
5131 030366  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
5132 030374  012737  001000  002422          MOV     #TEOM,TEND      ;END OF MESSAGE
5133 030402  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
5134 030410  012737  000012  002472          MOV     #10.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
5135                                                                  ;
5136 030416  013777  002344  151644          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
5137 030424  112737  000204  002342          MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH
5138
5139
5140 030432                                   CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
5141 030436  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
5142 030444  005037  002332                  CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
5143 030450                                   CALL    $DATA           ;
5144 030454                                   ESCAPE  TST             ;IF ERROR - EXIT
     030454  104410                                                                  TRAP    C$ESCAPE
     030456  000234                                                                  .WORD   L10105-.
5145
5146 030460                                   CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
5147 030464                                   ESCAPE  TST             ;IF ERROR - EXIT
     030464  104410                                                                  TRAP    C$ESCAPE
     030466  000224                                                                  .WORD   L10105-.
5148 030470                              ENDSEG
     030470                                                                  10000$:
     030470  104405                                                                  TRAP    C$ESEG
5149
5150 030472                              BGNSEG
     030472  104404                                                                  TRAP    C$BSEG
5151 030474                                   CALL    $RESET          ;RESET THE DPV
5152 030500                                   ESCAPE  TST             ;IF ERROR, BR TO THE END.
     030500  104410                                                                  TRAP    C$ESCAPE
     030502  000210                                                                  .WORD   L10105-.
5153 030504  012737  000001  002414              MOV     #1,START        ;SEND 1 FLAG
5154 030512  012737  000002  002336              MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
5155                                                                     ;
5156 030520  013777  002344  151542              MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
5157 030526  112737  000204  002342              MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH
5158
5159 030534  012737  000001  002430              MOV     #1,TIMER        ;CHANGE TIME OUT VALUE
5160 030542  012737  000001  002332              MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
5161 030550  105037  002673                      CLRB    XMTBUF          ;CLEAR SECONDARY ADDRESS FROM XMIT BUFFER.
5162 030554                                       CALL    $DATA           ;
5163 030560  013737  002412  002430              MOV     SAVTIM,TIMER    ;RESTORE THE TIME OUT VALUE.
5164 030566  005737  002426                      TST     TIMEO           ;DID THE RECEIVER TIME OUT?
5165 030572  001006                              BNE     1$              ;IF YES - OK.
5166 030574                                       ERRDF   77,EMG35
     030574  104455                                                                  TRAP    C$ERDF
     030576  000115                                                                  .WORD   77
     030600  015135                                                                  .WORD   EMG35
     030602  000000                                                                  .WORD   0
5167 030604                                       ESCAPE  TST
     030604  104410                                                                  TRAP    C$ESCAPE
     030606  000104                                                                  .WORD   L10105-.
5168 030610                              1$:
5169 030610                              ENDSEG
     030610                                                                  10001$:
     030610  104405                                                                  TRAP    C$ESEG
```

```
030612                                  BGNSEG
030612  104404                                                                          TRAP    C$BSEG
030614                                          CALL    $RESET          ;RESET THE DPV
030620                                          ESCAPE  TST             ;IF ERROR, BR TO THE END.
030620  104410                                                                          TRAP    C$ESCAPE
030622  000070                                                                          .WORD   L10105-.
030624  012737  000001  002414                  MOV     #1,START        ;SEND 1 FLAG
030632  012737  000002  002336                  MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
                                                                        ;
030640  013777  002344  151422                  MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
030646  112737  000204  002342                  MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH

030654  112737  000231  002673                  MOVB    #231,XMTBUF     ;CHANGE FIRST XMIT CHARACTER.
030662  005037  002332                          CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA
030666                                          CALL    $DATA           ;
030672                                          ESCAPE  TST             ;IF ERROR - EXIT
030672  104410                                                                          TRAP    C$ESCAPE
030674  000016                                                                          .WORD   L10105-.

030676                                          CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
030702                                          ESCAPE  TST             ;IF ERROR - EXIT
030702  104410                                                                          TRAP    C$ESCAPE
030704  000006                                                                          .WORD   L10105-.
030706                                  ENDSEG
030706                                                                          10002$:
030706  104405                                                                          TRAP    C$ESEG
030710                                ENDSUB
030710                                                                          L10107:
030710  104403                                                                          TRAP    C$ESUB


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.
                                ;*
                                ;*****************************************************************
                                BGNTST
                                                                                        T16::
                                  BGNSUB
                                                                                        T16.1:
030714  104402                                                                                TRAP    C$BSUB
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
030722  104410                                                                                TRAP    C$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$ERDF
031066  000116                                                                                .WORD   78
031070  015023                                                                                .WORD   EMG32
031072  000000                                                                                .WORD   0
                                20$:
                                  ENDSUB
                                                                                L10111:
031074  104403                                                                                TRAP    C$ESUB

                                BGNSUB
                                                                                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::
                                        CALL    $RESET          ;RESET THE DPV
031240                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
031244  104410                                                                  TRAP    C$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    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
031410                          20$:

                                ENDTST
031410                                                                  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::
                        
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
031416  104410                                                                  TRAP    C$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
      031620  104401                                L10114:
                                                          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.
                                ;*
                                ;*****************************************************************
5373 031622                     BGNTST
     031622                                                                             T19::
5374
5375 031622  012737  100000  002362          MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
5376 031630  012737  003400  002344          MOV     #NOERR,IPCSAR   ;NO ERROR CHECKING
5377
5378 031636  012737  000007  002352          MOV     #7,LENGTH       ;CHARACTER LENGTH.
5379
5380 031644  012737  000400  002434          MOV     #TSOM,TSTART    ;START OF MESSAGE.
5381 031652  012737  001000  002422          MOV     #TEOM,TEND      ;ABORT MESSAGE
5382 031660  012737  002502  002470          MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
5383 031666  012737  000001  002472          MOV     #1,XCOUNT       ;# OF CHARACTERS TO TRANSMIT
5384 031674                                  CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
5385 031700  012737  000001  002352          MOV     #1,LENGTH       ;CHANGE THE LENGTH
5386 031706                     7$:                                  ;
5387 031706                                  CALL    $RESET          ;RESET THE DPV
5388 031712                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
     031712  104410                                                                     TRAP    C$ESCAPE
     031714  000132                                                                     .WORD   L10115-.
5389 031716  012737  000001  002414          MOV     #1,START        ;SEND 1 FLAG
5390 031724  012737  000002  002336          MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
5391 031732  013777  002344  150330          MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
5392 031740  013701  002352                  MOV     LENGTH,R1       ;GET CHARACTER LENGTH
5393 031744  116137  032050  002342          MOVB    CHLEN(R1),IPCR  ;SET UP CHARACTER LENGTH.
5394
5395
5396 031752  012737  000001  002356          MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
5397 031760  012737  000001  002332          MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
5398 031766                                  CALL    $DATA           ;
5399 031772                                  ESCAPE  TST             ;IF ERROR - EXIT
     031772  104410                                                                     TRAP    C$ESCAPE
     031774  000052                                                                     .WORD   L10115-.
5400
5401
5402 031776  013701  002352                  MOV     LENGTH,R1       ;GET CHARACTER LENGTH
5403 032002  142737  000217  002351          BICB    #217,IRDSR+1    ;CLEAR ALL BUT ABC FROM LAST RDSR.
5404 032010  126137  032061  002351          CMPB    ABC(R1),IRDSR+1 ;IS THE ABC THE EXPECTED VALUE?
5405 032016  001405                          BEQ     10$
5406 032020                                  ERRDF   81,EMG36
     032020  104455                                                                     TRAP    C$ERDF
     032022  000121                                                                     .WORD   81
     032024  015174                                                                     .WORD   EMG36
     032026  000000                                                                     .WORD   0
5407 032030  000406                          BR      20$
5408 032032                     10$:
```

```
 5409 032032  005237  002352                 INC     LENGTH          ;THE NEXT CHARACTER LENGTH
 5410 032036  022737  000011  002352         CMP     #9.,LENGTH      ;8 BITS?
 5411 032044  001320                         BNE     7$              ;IF NOT - CONTINUE
 5412
 5413 032046                          20$:
 5414
 5415
 5416 032046                          ENDTST
      032046                                                                  L10115:
      032046  104401                                                                  TRAP    CSETST
 5417
 5418 032050     000     040     100  CHLEN:  .BYTE   0,40,100,140,200,240,300,340,0
 5419 032061     000     020     040  ABC:    .BYTE   0,20,40,60,100,120,140,160,0
 5420                                 .EVEN
 5421
```

```
                                .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::

                                        CALL    $RESET          ;RESET THE DPV
032072                                  ESCAPE  TST             ;IF ERROR, BR TO THE END.
032076  104410                                                                  TRAP    C$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    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
032236                          20$:

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

```
                                .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.
                                ;*
                                ;*****************************************************************
                                BGNTST
032240                                                                          T21::
032240
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
032244                                                                                  TRAP    C$ESCAPE
032244  104410                                                                          .WORD   L10117-.
032246  000154
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  002354          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    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
032422                          20$:

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

```
                                        .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     #VRC0,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::

                                        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.
                                ;*
                                ;*****************************************************************
                                BGNTST
                                                                                        T24::

                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10122-.
                                        MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
                                        MOV     #CCITT1,IPCSAR  ;SET CRC-CCITT PRESET TO ONE
                                        BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE GO AHEAD.
                                        MOV     #1,START        ;SEND 1 FLAG
                                        MOV     #2,HEADER       ;SEND 2 HEADER CHARACTERS
                                        MOV     #4,LENGTH       ;CHARACTER LENGTH OF 5 BITS.
                                        MOV     #TSOM,TSTART    ;START MESSAGE
                                        MOV     #TXABO,TEND     ;ABORT MESSAGE
                                        MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
                                        MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
                                        MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
                                        MOVB    #204,IPCR       ;SET UP CHARACTER LENGTH

                                        CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
                                        MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
                                        MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
                                        CALL    $DATA           ;
                                        ESCAPE  TST             ;IF ERROR - EXIT TEST
                                                                                        TRAP    C$ESCAPE
                                                                                        .WORD   L10122-.
                                        TST     IRDSR           ;IS THE ERR BIT SET
                                        BMI     20$             ;IF YES - OK
                                        ERRDF   82,EMG38
                                                                                        TRAP    C$ERDF
                                                                                        .WORD   82
                                                                                        .WORD   EMG38
                                                                                        .WORD   0
                                20$:

                                ENDTST
                                                                                L10122:
                                                                                        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.
                                ;*
                                ;*****************************************************************
                                BGNTST
                                                                                T25::

                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
                                                                                TRAP    C$ESCAPE
                                                                                .WORD   L10123-.
                                        MOV     #BOP,MODE       ;FLAG THAT WE ARE IN BOP MODE.
                                        MOV     #CCITTO,IPCSAR  ;SET CRC-CCITT PRESET TO ZERO
                                        BIS     #LOOP,IPCSAR    ;SET LOOP MODE TO RECOGNIZE GO AHEAD.
                                        MOV     #1.,START       ;SEND 1 FLAG
                                        MOV     #2.,HEADER      ;SEND 2 HEADER CHARACTERS
                                        MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
                                        MOV     #TSOM,TSTART    ;START MESSAGE
                                        MOV     #TXABO,TEND     ;ABORT MESSAGE
                                        MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
                                        MOV     #64.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                ;
                                        MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
                                        CLRB    IPCR            ;SET UP CHARACTER LENGTH

                                        CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.
                                        MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
                                        MOV     #1,EXERR        ;FLAG THAT AN ERROR IS EXPECTED IN $DATA
                                        CALL    $DATA           ;
                                        ESCAPE  TST             ;IF ERROR - EXIT TEST
                                                                                TRAP    C$ESCAPE
                                                                                .WORD   L10123-.
                                        TST     IRDSR           ;IS THE ERR BIT SET
                                        BMI     20$             ;IF YES - OK
                                        ERRDF   83,EMG38
                                                                                TRAP    C$ERDF
                                                                                .WORD   83
                                                                                .WORD   EMG38
                                                                                .WORD   0
                                20$:

                                ENDTST
                                                                        L10123:
                                                                                TRAP    C$ETST
```

TEST 25 - CRC-CCITT PRESET TO ZERO

```
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
                                                                        T26.1:
033352  104402                                                                  TRAP    C$BSUB
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
033360  104410                                                          TRAP    C$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$ERDF
     033540  000124                                                                  .WORD   84
     033542  015240                                                                  .WORD   EMG38
     033544  000000                                                                  .WORD   0
     033546                            20$:
     033546                              ENDSUB
     033546                                                               L10125:
     033546  104403                                                                  TRAP    C$ESUB

     033550                              BGNSUB
     033550                                                               T26.2:
     033550  104402                                                                  TRAP    C$BSUB
     033552                                      CALL    $RESET          ;RESET THE DPV
     033556                                      ESCAPE  TST             ;IF ERROR, BR TO THE END.
     033556  104410                                                                  TRAP    C$ESCAPE
     033560  000206                                                                  .WORD   L10124-.
     033562  005037  002362                      CLR     MODE            ;FLAG THAT WE ARE IN BCP MODE.
     033566  012737  001400  002344              MOV     #CRC16,IPCSAR   ;SET VRC EVEN
     033574  112737  000271  002344              MOVB    #271,IPCSAR     ;SYNCH CHARACTER
     033602  052737  040000  002344              BIS     #PROTO,IPCSAR   ;SET BCP PROTOCOL
     033610  012737  000002  002414              MOV     #2,START        ;SEND 2 SYNCHS
     033616  012737  000001  002336              MOV     #1,HEADER       ;SEND 1 HEADER CHARACTER
     033624  012737  000010  002352              MOV     #8.,LENGTH      ;CHARACTER LENGTH OF 8 BITS.
     033632  012737  000400  002434              MOV     #TSOM,TSTART    ;START OF MESSAGE.
     033640  012737  001000  002422              MOV     #TEOM,TEND      ;END OF MESSAGE
     033646  012737  002502  002470              MOV     #$CCITT,XTYPE   ;USE CCITT DATA PATTERN
     033654  012737  000017  002472              MOV     #15.,XCOUNT     ;# OF CHARACTERS TO TRANSMIT
                                                                         ;
     033662  013777  002344  146400              MOV     IPCSAR,@PCSAR   ;SET UP PARAMETERS AND ADDRESS
     033670  105037  002342                      CLRB    IPCR            ;SET UP CHARACTER LENGTH

     033674                                      CALL    $BUFRS          ;SET UP TRANSMIT AND RECEIVE BUFFERS.

     033700  012737  000001  002356              MOV     #1,MAINT        ;FLAG TO USE MAINTENANCE MODE LOOPBACK.
     033706  005037  002332                      CLR     EXERR           ;FLAG THAT NO ERRORS ARE EXPECTED IN $DATA

     033712  062737  000002  002474              ADD     #2,ECOUNT       ;CHANGE END COUNT TO GET CRC

     033720                                      CALL    $DATA           ;
     033724                                      ESCAPE  TST             ;IF ERROR - EXIT TEST
     033724  104410                                                                  TRAP    C$ESCAPE
     033726  000040                                                                  .WORD   L10124-.
     033730  012701  003273                      MOV     #RCVBUF,R1      ;ADDRESS OF RECEIVE BUFFER
     033734  063701  002472                      ADD     XCOUNT,R1       ;CALCULATE ADDRESS OF CRC
     033740  122127  000332                      CMPB    (R1)+,#CRCLO    ;CHECK LO BYTE OF THE CRC
     033744  001003                              BNE     10$             ;IF ERROR - REPORT
     033746  122127  000266                      CMPB    (R1)+,#CRCHI    ;CHECK HI BYTE OF THE CRC
     033752  001404                              BEQ     20$             ;IF NOT ERROR - OK
     033754                            10$:
     033754                                      ERRDF   85,EMG37        ;CRC ERROR.
     033754  104455                                                                  TRAP    C$ERDF
     033756  000125                                                                  .WORD   85
     033760  015226                                                                  .WORD   EMG37
     033762  000000                                                                  .WORD   0
     033764                            20$:
     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::


 033770                                         CALL    $RESET          ;RESET THE DPV
 033774                                         ESCAPE  TST             ;IF ERROR, BR TO THE END.
 033774  104410                                                                                TRAP    C$ESCAPE
 033776  000160                                                                                .WORD   L10127-.
 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
 034146  104455                                                                                TRAP    C$ERDF
 034150  000126                                                                                .WORD   86
 034152  015267                                                                                .WORD   EMG39
 034154  000000                                                                                .WORD   0
 034156                                 20$:


 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
                                ;
                                ;
                                ;
```

TEST 29 - DATA TEST

```
                                        .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.
```

```
 5950 034536  005305                          DEC     R5              ;DECREMENT LOOP COUNTER
 5951 034540  001010                          BNE     15$             ;IF NOT ZERO OK.
 5952 034542                                  BREAK                   ;BREAK FOR SUPERVISOR INTERRUPT.
      034542  104422                                                          TRAP    C$BRK
 5953 034544  005304                          DEC     R4              ;IS OUTER LOOP 0?
 5954 034546  001355                          BNE     9$              ;IF NOT, RESET INNER LOOP COUNTER
 5955                                                                 ;OTHERWISE, REPORT ERROR
 5956 034550                          13$:
 5957 034550                                  ERRDF   89,EMG1
      034550  104455                                                          TRAP    C$ERDF
      034552  000131                                                          .WORD   89
      034554  013462                                                          .WORD   EMG1
      034556  000000                                                          .WORD   0
 5958 034560  000471                          BR      50$
 5959
 5960 034562                          15$:
 5961 034562  032777  002200  145476          BIT     #RSTARY!RDATRY,@RXCSR ;IS STATUS OR DATA READY?
 5962 034570  001746                          BEQ     10$             ;IF NOT CHECK TBE
 5963 034572  017737  145470  002346          MOV     @RXCSR,IRXCSR   ;SAVE RXCSR
 5964 034600  017737  145464  002350          MOV     @RDSR,IRDSR     ;SAVE RDSR
 5965 034606  032737  000200  002346          BIT     #RDATRY,IRXCSR  ;IS DATA READY?
 5966 034614  001404                          BEQ     17$
 5967 034616  113721  002350                  MOVB    IRDSR,(R1)+     ;SAVE THE DATA
 5968 034622  005237  002500                  INC     RCOUNT          ;INCREMENT COUNT
 5969 034626                          17$:
 5970 034626  032737  002000  002346          BIT     #RSTARY,IRXCSR  ;IS STATUS READY?
 5971 034634  001724                          BEQ     10$             ;IF NOT CHECK TBE
 5972 034636  032737  106000  002350          BIT     #ERR!ROVER!RABORT,IRDSR ;ANY ERRORS?
 5973 034644  001005                          BNE     18$             ;IF YES, REPORT.
 5974 034646  032737  001000  002350          BIT     #REOM,IRDSR     ;END OF MESSAGE.
 5975 034654  001031                          BNE     30$
 5976 034656  000713                          BR      10$
 5977 034660                          18$:
 5978 034660                                  ERRDF   90,EMG31
      034660  104455                                                          TRAP    C$ERDF
      034662  000132                                                          .WORD   90
      034664  015004                                                          .WORD   EMG31
      034666  000000                                                          .WORD   0
 5979 034670  000425                          BR      50$
 5980
 5981
 5982 034672                          20$:
 5983 034672  032777  000400  145374          BIT     #TSOM,@TDSR     ;IS START OF MESSAGE SENT.
 5984 034700  001405                          BEQ     25$             ;IF NOT, CONTINUE.
 5985 034702  005037  002476                  CLR     XMITD           ;CLEAR XMIT COUNTER
 5986 034706  042777  000400  145360          BIC     #TSOM,@TDSR     ;CLEAR START OF MESSAGE.
 5987 034714                          25$:
 5988 034714  112277  145354                  MOVB    (R2)+,@TDSR     ;TRANSMIT A CHARACTER.
 5989 034720  005237  002476                  INC     XMITD           ;COUNT CHARACTER ACTUALLY TRANSMITTED.
 5990 034724  005303                          DEC     R3              ;DECREMENT COUNTER
 5991 034726  001315                          BNE     15$             ;IF NOT DONE LOOP
 5992 034730  052777  001000  145336          BIS     #TEOM,@TDSR     ;SEND END OF MESSAGE.
 5993 034736  000711                          BR      15$
 5994
 5995 034740                          30$:
 5996 034740                                  CALL    $CHECK          ;CHECK THAT THE DATA WAS CORRECT.
 5997
```

```
 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
```

TEST 32 - BOP DATA TEST

```
                                .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  00236(          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     #$LCITT,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
                                                                                T34::
035646
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
```

TEST 35 - BOP DATA TEST

```
                                        .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
036202                                                                          L10137:
036202                                                                                  TRAP    C$ETST
```

TEST 36 - BOP DATA TEST

```
                                .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
                                                                                        T37::
036366
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    $MODEM          ;PRINT OUT MODEM CONTROL STATUS.
036566                          50$:

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

TEST 38 - BCP DATA TEST

```
                                        .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
                                                                                T40::
037174
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
                                                                        L10144:
037350                                                                          TRAP    C$ETST
037350  104401
```

```
                                .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.
                                ;*
                                ;*****************************************************************
                                BGNTST
                                                                                        T43::
                                        CALL    $RESET          ;RESET THE DPV
                                        ESCAPE  TST             ;IF ERROR, BR TO THE END.
040040  104410                                                                  TRAP    C$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
                                                                        .WORD L10150-L$HARD/2
040246  000015
                                                                L$HARD::
040250
                                        GPRMA   P1,0,0,160000,177776,YES
040250                                                                  .WORD   T$CODE
040250  000031                                                          .WORD   P1
040252  040302                                                          .WORD   T$LOLIM
040254  160000                                                          .WORD   T$HILIM
040256  177776
                                        GPRMA   P2,2,0,0,776,YES
040260                                                                  .WORD   T$CODE
040260  001031                                                          .WORD   P2
040262  040314                                                          .WORD   T$LOLIM
040264  000000                                                          .WORD   T$HILIM
040266  000776
                                        GPRMD   P3,4,0,7,0,4,YES
040270                                                                  .WORD   T$CODE
040270  002032                                                          .WORD   P3
040272  040325                                                          .WORD   7
040274  000007                                                          .WORD   T$LOLIM
040276  000000                                                          .WORD   T$HILIM
040300  000004

                                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 ************************************
                                PATCH:
                                        .=.+40
                                        NOP
                                        NOP
                                        NOP
                                ;*******************************************************************************


                                ENDMOD

                                        LASTAD
                                                                                                .EVEN
                                                                                                .WORD   0
                                                                                                .WORD   0
                                L$LAST::
                                .END
```

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

ABC     032061          C$BRK = 000022          DIAGMC= 000000          ERRG14  010760 G        FMODE5  006275
ABORT   002316          C$BSEG= 000004          DM    = 001000          ERRG15  011044 G        FMODE6  006325
ACOUNT= 000045          C$BSUB= 000002          DSCNG = 100000          ERRG2   006700 G        FMS1    004102
ADR   = 000020 G        C$CEFG= 000045          DSITEN= 000040          ERRG3   007014 G        FMT0    020276
ALL   = 000000          C$CLCK= 000062          DTR   = 000002          ERRG4   007072 G        FMT1    020350
ALPHA   002602          C$CLEA= 000012          ECOUNT  002474          ERRG7   007172 G        FOUR  = 040000
APA   = 100000          C$CLOS= 000035          EF.CON= 000036 G        ERRG8   007272 G        FRSPAS  002312
ASSEMB= 000010          C$CLP1= 000006          EF.NEW= 000035 G        ERRG9   007372 G        FRSTIM  002310
BITS    002320          C$CVEC= 000036          EF.PWR= 000034 G        ERROR   002330          F$AU  = 000015
BIT0  = 000001 G        C$DCLN= 000044          EF.RES= 000037 G        EVL   = 000004 G        F$AUTO= 000020
BIT00 = 000001 G        C$DODU= 000051          EF.STA= 000040 G        EXADD = 000020          F$BGN = 000040
BIT01 = 000002 G        C$DRPT= 000024          EMG0    013372          EXCON = 000010          F$CLEA= 000007
BIT02 = 000004 G        C$DU  = 000053          EMG1    013462          EXERR   002332          F$DU  = 000016
BIT03 = 000010 G        C$EDIT= 000003          EMG10   013757          E$END = 002100          F$END = 000041
BIT04 = 000020 G        C$ERDF= 000055          EMG11   014031          E$LOAD= 000035          F$HARD= 000004
BIT05 = 000040 G        C$ERHR= 000056          EMG12   014062          FINIT1  016312          F$HW  = 000013
BIT06 = 000100 G        C$ERRO= 000060          EMG13   014106          FINIT2  016405          F$INIT= 000006
BIT07 = 000200 G        C$ERSF= 000054          EMG14   014167          FIVE  = 050000          F$JMP = 000050
BIT08 = 000400 G        C$ERSO= 000057          EMG15   014243          FLAG    002334          F$MOD = 000000
BIT09 = 001000 G        C$ESCA= 000010          EMG16   014276          FMDROP  020000          F$MSG = 000011
BIT1  = 000002 G        C$ESEG= 000005          EMG17   014345          FMG0    011070          F$PROT= 000021
BIT10 = 002000 G        C$ESUB= 000003          EMG18   014405          FMG1    011166          F$PWR = 000017
BIT11 = 004000 G        C$ETST= 000001          EMG19   014434          FMG10   011574          F$RPT = 000012
BIT12 = 010000 G        C$EXIT= 000032          EMG2    013473          FMG11   011640          F$SEG = 000003
BIT13 = 020000 G        C$GETB= 000026          EMG20   014465          FMG12   011704          F$SOFT= 000005
BIT14 = 040000 G        C$GETW= 000027          EMG21   014514          FMG13   011750          F$SRV = 000010
BIT15 = 100000 G        C$GMAN= 000043          EMG22   014556          FMG14   012014          F$SUB = 000002
BIT2  = 000004 G        C$GPHR= 000042          EMG23   014603          FMG15   012071          F$SW  = 000014
BIT3  = 000010 G        C$GPLO= 000030          EMG24   014661          FMG16   012133          F$TEST= 000001
BIT4  = 000020 G        C$GPRI= 000040          EMG25   014725          FMG17   012144          GETPRM  015570
BIT5  = 000040 G        C$INIT= 000011          EMG26   014753          FMG18   012223          G$CNTO= 000200
BIT6  = 000100 G        C$INLP= 000020          EMG3    013540          FMG19   012270          G$DELM= 000372
BIT7  = 000200 G        C$MANI= 000050          EMG30   014766          FMG2    011223          G$DISP= 000003
BIT8  = 000400 G        C$MEM = 000031          EMG31   015004          FMG20   012335          G$EXCP= 000400
BIT9  = 001000 G        C$MSG = 000023          EMG32   015023          FMG21   012422          G$HILI= 000002
BOE   = 000400 G        C$OPEN= 000034          EMG33   015046          FMG22   012471          G$LOLI= 000001
BOP   = 100000          C$PNTB= 000014          EMG34   015074          FMG23   012536          G$NO  = 000000
CCITT0= 000400          C$PNTF= 000017          EMG35   015135          FMG24   012605          G$OFFS= 000400
CCITT1= 000000          C$PNTS= 000016          EMG36   015174          FMG25   012652          G$OFSI= 000376
CHLEN   032050          C$PNTX= 000015          EMG37   015226          FMG26   012715          G$PRMA= 000001
COUNTE  002322          C$QIO = 000377          EMG38   015240          FMG27   013011          G$PRMD= 000002
CPU     002324          C$RDBU= 000007          EMG39   015267          FMG28   013100          G$PRML= 000000
CR    = 000015          C$REFG= 000047          EMG4    013554          FMG29   013221          G$RADA= 000140
CRCHI = 000266          C$RESE= 000033          EMG40   015321          FMG3    011260          G$RADB= 000000
CRCLO = 000332          C$REVI= 000003          EMG5    013601          FMG30   013314          G$RADD= 000040
CRC16 = 001400          C$RFLA= 000021          EMG6    013634          FMG4    011332          G$RADL= 000120
CSR0    002266          C$RPT = 000025          EMG7    013671          FMG5    011377          G$RADO= 000020
CSR1    002276          C$SEFG= 000046          EMG8    013707          FMG6    011410          G$XFER= 000004
CSR2    002270          C$SPRI= 000041          EMG9    013723          FMG7    011413          G$YES = 000010
CSR3    002300          C$SVEC= 000037          EMT0    020240          FMG8    011457          HEADER  002336
CSR4    002272          C$TPRI= 000013          END     016310          FMG9    011522          HELP  = 000000
CSR5    002302          DATA    002326          ERR   = 100000          FMODEM  006030          HIGH    002340
CSR6    002274          DDCMP   002650          ERRG1   006652 G        FMODE0  006115          HOE   = 100000 G
CSR7    002304          DDCMP1= 000006          ERRG10  007472 G        FMODE1  006144          IBE   = 010000 G
CTS   = 020000          DDCMP2= 000015          ERRG11  007572 G        FMODE2  006233          IC    = 040000
C$AU  = 000052          DDMSG   002656          ERRG12  010214 G        FMODE3  006257          IDLE  = 004000
C$AUTO= 000061          DFPTBL  002254 G        ERRG13  010272 G        FMODE4  006266          IDU   = 000040 G
```

CNDPVAO DPV11 FUNC DIAG MACRO M1200 14-DEC-82 16:44 PAGE 107-2
SYMBOL TABLE

```
IER    = 020000 G      L$EXP5  002066 G      L10040  020654      L10131  034744      P1      040302
ILLGL    017744 G      L$HARD  040250 G      L10041  021406      L10132  035120      P2      040314
IPCR     002342        L$HIME  002120 G      L10042  020774      L10133  035302      P3      040325
IPCSAR   002344        L$HPCP  002016 G      L10043  021104      L10134  035472      RABORT= 002000
IRDSR    002350        L$HPTP  002022 G      L10044  021214      L10135  035644      RCOUNT  002500
IRXCSR   002346        L$HW    002254 G      L10045  021324      L10136  036020      RCVBUF  003273
ISR    = 000100 G      L$ICP   002104 G      L10046  021404      L10137  036202      RCVEC   002262
IXE    = 004000 G      L$INIT  015372 G      L10047  021750      L10140  036364      RDATA   016732 G
I$AU   = 000041        L$LADP  002026 G      L10050  021576      L10141  036566      RDATA2  017164 G
I$AUTO= 000041         L$LAST  040540 G      L10051  021746      L10142  036770      RDATRY= 000200
I$CLN  = 000041        L$LOAD  002100 G      L10052  022202      L10143  037172      RDSR   = 002270
I$DU   = 000041        L$LUN   002074 G      L10053  022050      L10144  037350      REG     002374
I$HRD  = 000041        L$MREV  002050 G      L10054  022200      L10145  037622      REOM   = 001000
I$INIT= 000041         L$NAME  002000 G      L10055  022360      L10146  040032      RESET  = 000001
I$MOD  = 000041        L$PRIO  002042 G      L10056  022612      L10147  040244      RETURN= 000207
I$MSG  = 000041        L$PROT  015364 G      L10057  023110      L10150  040302      RFLAG   002376
I$PROT= 000040         L$PRT   002112 G      L10060  024116      MAINT   002356      RINT    016602 G
I$PTAB= 000041         L$REPP  002062 G      L10061  023346      MASK    004514      RL     = 000001
I$PWR  = 000041        L$REV   002010 G      L10062  023644      MCFLAG  002360      ROVER  = 004000
I$RPT  = 000041        L$SPC   002056 G      L10063  024114      MFPT   = 000007      RR     = 010000
I$SEG  = 000041        L$SPCP  002020 G      L10064  025232      MM     = 000010      RSAVE   002400
I$SETU= 000041         L$SPTP  002024 G      L10065  024414      MMASK   006420      RSIZE  = 000400
I$SRV  = 000041        L$STA   002030 G      L10066  024724      MODE    002362      RSOM   = 000400
I$SUB  = 000041        L$TEST  002114 G      L10067  025230      MODEM   002444      RSTARY= 002000
I$TST  = 000041        L$TIML  002014 G      L10070  025476      NESTPC  002364      RTS    = 000004
J$JMP  = 000167        L$UNIT  002012 G      L10071  025766      NEWST   015552      RXACT  = 004000
LENGTH   002352        L10000  002262        L10072  026676      NOERR  = 003400      RXCSR  = 000266
LF     = 000012        L10001  006676        L10073  026112      NONE1  = 001000      RXENA  = 000020
LL     = 000010        L10002  007012        L10074  026170      NONE2  = 003000      RXINI   002402
LOCATE   020166 G      L10003  007070        L10075  026246      NXM     017734 G      RXINIT  002404
LOE    = 040000 G      L10004  007170        L10076  026366      NXMFLG  002360      RXITEN= 000100
LOGDEV   002354        L10005  007270        L10077  026506      ONE    = 010000      RXMINI  002406
LOOP   = 020000        L10006  007370        L10100  026646      OVER    002370      SAVE    002410
LOT    = 000010 G      L10007  007470        L10101  030002      O$APTS= 000000       SAVTIM  002412
L$ACP    002110 G      L10010  007570        L10102  027200      O$AU   = 000000      SECADR= 010000
L$APT    002036 G      L10011  010212        L10103  027470      O$BGNR= 000000       SEVEN  = 070000
L$AUT    002070 G      L10012  010270        L10104  030000      O$BGNS= 000000       SF     = 000001
L$AUTO   016500 G      L10013  010756        L10105  030712      O$DU   = 000001      SFR    = 000400
L$CCP    002106 G      L10014  011042        L10106  030304      O$ERRT= 000000       SIX    = 060000
L$CLEA   016564 G      L10015  011066        L10107  030710      O$GNSW= 000000       SQ     = 000040
L$CO     002032 G      L10017  016310        L10110  031236      O$POIN= 000001       SSYNCH= 020000
L$DEPO   002011 G      L10020  016562        L10111  031074      O$SETU= 000000       STARES  002314
L$DESC   003702 G      L10021  016600        L10112  031234      PATCH   040466      STARST  015546
L$DESP   002076 G      L10022  016730        L10113  031410      PCR    = 002302      START   002414
L$DEVP   002060 G      L10023  017162        L10114  031620      PCSAR  = 002270      SUBRPC  002416
L$DISP   002124 G      L10024  017230        L10115  032046      PNT    = 001000 G    SVCGBL= 000000
L$DLY    002116 G      L10025  017336        L10116  032236      PRI    = 002000 G    SVCINS= 000001
L$DTP    002040 G      L10026  017510        L10117  032422      PRI00  = 000000 G    SVCSUB= 000001
L$DTYP   002034 G      L10027  017616        L10120  032606      PRI01  = 000040 G    SVCTAG= 000001
L$DU     017750 G      L10030  017732        L10121  032772      PRI02  = 000100 G    SVCTST= 000001
L$DUT    002072 G      L10031  017742        L10122  033162      PRI03  = 000140 G    SW00   = 000001
L$DVTY   003674 G      L10032  017746        L10123  033350      PRI04  = 000200 G    SW01   = 000002
L$EF     002052 G      L10033  017776        L10124  033766      PRI05  = 000240 G    SW02   = 000004
L$ENVI   002044 G      L10034  020164        L10125  033546      PRI06  = 000300 G    SW03   = 000010
L$ETP    002102 G      L10035  020236        L10126  033764      PRI07  = 000340 G    SW04   = 000020
L$EXP1   002046 G      L10036  020656        L10127  034156      PROTO  = 040000      SW05   = 000040
L$EXP4   002064 G      L10037  020564        L10130  034346      PSTACK  002372       SW06   = 000100
```

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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$SEK0= 010002          T14.2   027202          T34     035646 G        X$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
```