DMP-11 M8203 STATIC DIAG.#2 AH-E235D-MC
DMR-11 CZDMSDO FICHE 1 OF 2

DMP-11 M8203 STATIC DIAG.#2 AH-E235D-MC
DMR-11 CZDMSDO FICHE 2 OF 2

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                    IDENTIFICATION
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PRODUCT CODE:   AC-E234D-MC

PRODUCT NAME:   CZDMSD0 M8203 STATIC DIAG #2

PRODUCT DATE:   AUGUST 1980

MAINTAINER:     DIAGNOSTIC ENGINEERING

AUTHOR:         DAVID HOFFMAN
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CONTENTS

1.0 INTRODUCTION

THE M8203 IS A SINGLE-LINE SYNCHRONOUS LINE UNIT MODULE WHICH SUPPORTS BOTH CHARACTER -ORIENTED (DDCMP, BSC, ETC.) AND BIT-ORIENTED (SDLC, HDLC, ETC.) PROTOCOLS. THE PURPOSE OF THIS PROGRAM IS TO PERFORM DIAGNOSTIC TESTING OF ALL M8203 LOGIC IN A RELATIVELY STATIC MANNER. THE FOLLOWING FUNCTIONS WILL BE PERFORMED: LINE UNIT REGISTER ADDRESSING, USYRT ADDRESSING, STATIC BIT INTERACTION AND READ/WRITE LOGIC TESTS, BASIC TRANSMITTER AND RECEIVER SEQUENCING AND DATA BUFFERING AND STATIC OPERATIONS IN CHARACTER AND BIT-STUFFING MODES. IN ADDITION DATA MESSAGES WILL BE SENT AT SPEEDS OF 2400 BAUD TO 1 MEGABAUD, WITH LOOPBACK IN THE USYRT, ON THE LINE UNIT AT TTL LEVEL, OR THROUGH AN EXTERNAL TEST CONNECTOR WITH A SPECIFIC MODEM INTERFACE SELECTED.

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

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 UNIBUS 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 M8203 STATIC LOGIC TESTS:

PDP-11/04,05,10,20,30,34,35,40,45,50,60, OR 70
16K MEMORY
CONSOLE TERMINAL
DMC-11 OR KMC-11 MICROPROCESSOR
M8203 LINE UNIT AND BC08S-1 CABLE AND BERG CONNECTORS

H3254 AND H3255 TEST CONNECTORS (IF NOT PRESENT, SOME TESTS WILL BE SKIPPED)

3.0 PRELIMINARY PROGRAM REQUIREMENTS

THIS PROGRAM OPERATES THE MICROPROCESSOR EXTENSIVELY IN ORDER TO TEST THE LINE INIT. FOR THIS REASON, THE MICROPROCESSOR DIAGNOSTIC AND SUBSYSTEM FUNCTIONAL TESTS SHOULD BE RUN FIRST, AND ANY FAULTS FOUND IN THE MICROPROCESSOR MODULE SHOULD BE REPAIRED, PRIOR TO RUNNING THE M8203 STATIC LOGIC TESTS.

4.0 GENERAL PROGRAM CONSIDERATIONS

4.1 DIAGNOSTIC SUPERVISOR

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

4.2 EXECUTION TIME

THE MAXIMUM TIME REQUIRED TO RUN THE M8203 STATIC LOGIC TESTS IS ABOUT 45 SECONDS PER PASS FOR EACH UNIT.

4.3 XXDP+

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

4.4 ACT/SLIDE

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

4.5 APT

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

4.6 MEMORY MANAGEMENT

MEMORY MANAGEMENT IS NOT UTILIZED IN THIS PROGRAM. IF IT IS INSTALLED, IT IS DISABLED BY THE PROGRAM.

4.7 MEMORY PARITY OPTION

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

4.8 ERROR LOGGING

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

5.0 PROGRAM LOAD MEDIA

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

6.0 OPERATING INSTRUCTIONS

6.1 LOADING AND STARTING PROCEDURES

6.1.1 LOADING PROCEDURES

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

6.1.2 STARTING PROCEDURES

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

6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION

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

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

6.2 INITIAL DIALOGUE

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

                        DRS LOADED
                        DIAG. RUN-TIME SERVICES
                        CZDMS-D-0
                        M8203 STATIC LOGIC TESTS - PART 2 OF 2
                        UNIT IS M8203
                        DR>

                        THE OPERATOR THEN RESPONDS 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 DIAGNOSTIC
LOT	LOOP ON TEST

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

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

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

6.3.1.5 EFFECT OF START COMMAND

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

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

AFTER THE PARENTHESES.

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

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

EXAMPLE:

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

THIS COMMAND WILL CAUSE THREE PASSES TO BE MADE, EACH PASS CONSISTING OF TESTS 1,2,3,4,6,8,9, AND 10 EXECUTED AGAINST 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 DRUP COMMAND. SEE THE DISCUSSION OF ADD AND DROP COMMANDS BELOW. DEFAULT IS TO TEST ALL UNITS WHICH HAVE NOT BEEN DROPPED BY A DROP COMMAND.

6.3.2.3 EFFECT OF RESTART COMMAND

THE RESTART COMMAND DIFFERS FROM THE START COMMAND IN THAT

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

6.3.3 CONTINUE COMMAND

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

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

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

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

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

6.3.3.3 EFFECT OF CONTINUE COMMAND

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

6.3.4 PROCEED COMMAND

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

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

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

6.3.4.2 EFFECT OF PROCEED COMMAND

PROCEED MUST FOLLOW A START, RESTART, OR CONTINUE. COMMAND

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

NOTE THAT IF THE MESSAGE "TOO MANY UNITS" IS ISSUED, TWO OR MORE CORE IMAGES MUST BE CREATED (WITH DIFFERENT NAMES) TO TEST ALL UNITS.

NOTE THAT ALTHOUGH THE CHAINABLE IMAGE CAN BE EXECUTED ON A 15K MACHINE, THE ORIGINAL CCI CREATION MUST BE DONE ON A LARGE MACHINE, THE EXACT SIZE BEING DEPENDENT ON WHICH UPDATE UTILITY IS USED.

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.

```
                                                                    M 1
457
458                             6.3.7 PRINT COMMAND
459
460                             ****************************************************************
461                             PRI(NT)
462                             ****************************************************************
463
464
465                             6.3.7.1 EFFECT OF PRINT COMMAND
466
467                             THE  TOTAL  NUMBER  OF  ERRORS  FOR EACH UNIT SINCE THE LAST
468                             START OR RESTART COMMAND  ARE  PRINTED.   THE  ISR  (INHIBIT
469                             STATISTICAL REPORTING) FLAG IS CLEARED.
470
471
472                             6.3.8 DISPLAY COMMAND
473
474                             ****************************************************************
475                             DIS(PLAY)/UNITS:<UNIT-LIST>
476                             ****************************************************************
477
478
479                             6.3.8.1 UNITS SWITCH (/UNITS:<UNIT-LIST>)
480
481                             <UNIT-LIST> IS AS IN THE RESTART COMMAND.
482
483
484                             6.3.8.2 EFFECT OF DISPLAY COMMAND
485
486                             THE  HARDWARE  P-TABLES FOR ALL UNITS UNDER TEST ARE PRINTED
487                             OUT IN THE FORMAT IN WHICH THEY  WERE  ENTERED.   ANY  UNITS
488                             THAT  WERE  DROPPED  BY  THE  OPERATOR ''DROP'' COMMAND ARE SO
489                             DESIGNATED.
490
491
492                             6.3.9 FLAGS COMMAND
493
494                             ****************************************************************
495                             FLA(GS)
496                             ****************************************************************
497
498
499                             6.3.9.1 EFFECT OF FLAGS COMMAND
500
501                             THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.
502
503
504                             6.3.10 ZFLAGS COMMAND
505
506                             ****************************************************************
507                             ZFL(AGS)
508                             ****************************************************************
509
510                             6.3.10.1 EFFECT OF ZFLAGS COMMAND
511
512                             ALL FLAGS ARE CLEARED.
513
```

6.3.11 CONTROL CHARACTERS

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

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

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

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING 8 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. DEVICE CSR ADDRESS : (O) 160170?

THIS IS THE ADDRESS AT WHICH THE CSR REGISTERS (SELO) RESIDE ON THE UNIBUS. THE ALLOWABLE RANGE IS 160000-177776 (OCTAL), AND THE DEFAULT VALUE IS 160170.

2. DEVICE VECTOR ADDRESS : (O) 300 ?

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

3. DEVICE PRIORITY LEVEL : (O) 5 ?

THIS IS THE CPU PRIORITY AT WHICH THE INTERRUPT HANDLERS OF THIS DEVICE WILL BE EXECUTED. THE ALLOWABLE RANGE IS 0-7, AND THE DEFAULT VALUE IS 5.

4. M8203 REG 11 (E121 SW10,9 , E134 SW9,10) : (O) 0 ?

THIS IS THE EXPECTED CONTENT (OCTAL) OF REG 11 SWITCHES. THE ALLOWABLE RANGE IS 000-056, AND THE DEFAULT VALUE IS 000. BITS 1,2 ARE E121 SW10,9, AND BITS 3,5 ARE E134 SW9,10.

5. M8203 REG 15 (E134 SW1-8) : (O) 0 ?

THIS IS THE EXPECTED CONTENT (OCTAL) OF REG 15 SWITCHES. THE ALLOWABLE RANGE IS 000-377, AND THE DEFAULT VALUE IS 000. BITS 0-7 ARE E134 SW1-8.

6. M8203 REG 16 (E121 SW1-8) : (O) 0 ?

THIS IS THE EXPECTED CONTENT (OCTAL) OF REG 16 SWITCHES.

```
571                     THE ALLOWABLE RANGE IS 000-377, AND THE DEFAULT VALUE IS 000.
572                     BITS 0-7 ARE E121 SW1-8.
573
574                     7.   TURNAROUND TYPE -
575                          (0=H3254&H3255,  1=CABLE, 2=MOD LOC, 3=MOD REM, 4=NONE)
576                          : (0) 0 ?
577
578                     THIS INDICATOR TELLS THE PROGRAM WHETHER  TEST  CONNECTOR(S)
579                     WILL BE MOUNTED SO THAT CERTAIN TESTS CAN BE RUN IN EXTERNAL
580                     LOOPBACK MODE.  THE  ALLOWABLE  ANSWERS  ARE  0-4,  AND  THE
581                     DEFAULT  VALUE  IS 0.  0 MEANS THAT THE H3254 AND H3255 TEST
582                     CONNECTORS WILL BE USED.  1 MEANS THAT  EXTERNAL  TURNAROUND
583                     WILL  BE  PROVIDED AT THE FAR END OF A CABLE ATTACHED TO THE
584                     J1 OR J2 CONNECTOR.  2 MEANS THAT MODEM LOCAL LOOPBACK  WILL
585                     BE  USED,  AND  3  MEANS  THAT MODEM REMOTE LOOPBACK WILL BE
586                     USED.  4 MEANS THAT NO EXTERNAL TURNAROUND WILL BE PROVIDED.
587                     WHEN  0  IS  SELECTED,  ALL TESTS WILL BE RUN, AND IF 1-4 IS
588                     SELECTED, CERTAIN TESTS CANNOT BE RUN, AND THE PROGRAM  WILL
589                     TYPE THE NUMBER(S) OF TEST(S) TO BE SKIPPED.
590
591                     8.   PLEASE SELECT BAUD RATE; TYPE '0' FOR 2.4K; '1' FOR 4.8K;
592                          '2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;
593                          '6' FOR 500K; OR '7' FOR 1 MEG BAUD :  (0)  4?
594
595                     THIS IS THE BAUD RATE WHICH IS SELECTED IN THE SWITCH PACK ON
596                     THE M8203. THE ALLOWABLE RANGE IS 0-7, AND THE DEFAULT VALUE IS
597                     4 (FOR 56K).
598
599
600                     6.3.13 SOFTWARE PARAMETERS
601
602                     FOUR  SOFTWARE  PARAMETER  QUESTIONS  ARE ASKED BY THE M8203
603                     STATIC LOGIC TESTS PROGRAM, PART 2. THESE QUESTIONS ARE  THE
604                     FOLLOWING:
605
606                     1.   IS  MAN.  INTERVEN.  DESIRED TO MOUNT TEST CONNECTOR(S)
607                     (L) N?
608
609                     IF THE OPERATOR ANSWERS  THE  QUESTION  WITH  Y  (YES),  THE
610                     PROGRAM  WILL  LATER  PAUSE BEFORE TESTING EACH LOGICAL UNIT
611                     AND INFORM THE OPERATOR  TO  INSTALL  THE  APPROPRIATE  TEST
612                     CONNECTOR(S)  ON  THAT  UNIT,  AND THEN PROCEED TO TEST THAT
613                     UNIT.  IF THE OPERATOR ANSWERS N (NO) TO THE ABOVE QUESTION,
614                     THE  PROGRAM  WILL  PERFORM  TESTING  ON  ALL  UNITS WITHOUT
615                     ALLOWING MANUAL INTERVENTION BETWEEN UNITS.  IN  THIS  CASE,
616                     ALL TEST CONNECTOR(S) ON ALL UNITS SHOULD BE INSTALLED PRIOR
617                     TO RUNNING THE PROGRAM.
618
619                     2.   SHOULD SWITCH PACK AND AX3-15 PRINTOUT BE ALLOWED (L) N
620                     ?
621
622                     IF  THE  OPERATOR  ANSWERS  YES,  THE PROGRAM WILL ALLOW THE
623                     PRINTOUT OF SWITCHES IN REGS 11,15,16 AND MODEM INTERFACE REG AX3-15
624                     ON  ANY  PASS IN WHICH THE CORRESPONDING TESTS ARE RUN.  THE
625                     DEFAULT IS NO, WHICH ONLY ALLOWS THE PRINTOUT ON  THE  FIRST
626                     PASS AFTER LOADING, IF THE TESTS ARE RUN.
627
```

```
                        3.   SHOULD SWITCH PACK TESTS BE ALLOWED (L) N ?

                        IF  THE  OPERATOR  ANSWERS  YES,  THE PROGRAM WILL ALLOW THE
                        READING AND COMPARISON OF SWITCHES IN REGS 11,15,16 TO VALUES ENTERED
                        INTO   THE   HARDWARE   P-TABLE   FOR   THIS   UNIT,   IF   THE
                        CORRESPONDING TEST IS RUN.  IF ALLOWED, SWITCH  PACK  ERRORS
                        WILL  BE REPORTED.  THE DEFAULT IS NO, AND THE TESTS ARE NOT
                        RUN.

                        4.   MSG TIMER VALUE (0-177777), 0 = LONGEST TIME-OUT :  (0)
                        0 ?

                        THIS  VALUE  CONTROLS  THE  DURATION OF THE RECEIVER MESSAGE
                        TIME-OUT IN  A  NUMBER  OF  TESTS  WHICH  SEND  AND  RECEIVE
                        MESSAGES  ON  THE  VARIOUS  MODEM  INTERFACES  WITH EXTERNAL
                        LOOPBACK.  THE SMALLER THE VALUE, THE  LONGER  THE  TIME-OUT
                        (UP TO SEVERAL SECONDS). THE DEFAULT IS 0.


                        6.3.14 EXTENDED DISCUSSION OF P-TABLE DIALOGUE

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

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

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

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

                        THE SERIES OF QUESTIONS  IS  REISSUED  UNTIL  AT  LEAST  ONE
                        QUESTION HAS RECEIVED N EXPLICIT VALUES FROM THE OPERATOR.
                        IN  GIVING  A  STRING  OF VALUES, COMMAS WITHOUT INTERVENING
                        VALUES MAY BE USED TO INDICATE  A  REPETITION  OF  THE  LAST
                        NAMED VALUE.

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

                        NOW  LET  US  SEE  HOW  WE  COULD  USE THESE CAPABILITIES TO
```

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

                        THE FOLLOWING DIALOGUE WOULD ACCOMPLISH THIS GOAL:

                        # UNITS (D) ? 16

                        UNIT 0
                        <QUESTION 1> ? 75
                        <QUESTION 2> ? 0-6
                        <QUESTION 3> ? 76

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

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

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



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

```
                                                                    E 2
                        7.0 DEVICE INFORMATION TABLES



                        ;*****************************************************************************
                        * MAINTENANCE REGISTER - BSEL1
                        ;*****************************************************************************
                        RUN     = BIT7
                        MCLR    = BIT6
                        STEPLU  = BIT4
                        LULOOP  = BIT3
                        ROMO    = BIT2
                        ROMI    = BIT1
                        STEPMP  = BIT0

                        ;*****************************************************************************
                        * CBUS REG 10 - TRANSMITTER BUFFER
                        ;*****************************************************************************
                        TX7     = BIT7
                        TX6     = BIT6
                        TX5     = BIT5
                        TX4     = BIT4
                        TX3     = BIT3
                        TX2     = BIT2
                        TX1     = BIT1
                        TX0     = BIT0

                        ;*****************************************************************************
                        * OBUS REG 11
                        ;*****************************************************************************
                        OC      = BIT7
                        GOAH    = BIT3
                        ABORT   = BIT2
                        EOM     = BIT1
                        SOM     = BIT0

                        ;*****************************************************************************
                        * OBUS REG 12
                        ;*****************************************************************************
                        IC      = BIT7
                        BPOLL   = BIT6
                        LULP    = BIT5

                        ;*****************************************************************************
                        * OBUS REG 13
                        ;*****************************************************************************
                        POLL    = BIT7
                        DTR     = BIT6
                        SELFR   = BIT5
                        HDX     = BIT4
                        MAINT1  = BIT3
                        MAINT2  = BIT2
                        SELSBY  = BIT1
```

```
                        ;*****************************************************************************
                        * OBUS REG 14
                        ;*****************************************************************************
                        TXEN    = BIT6
                        DISSI   = BIT5
                        RDAX    = BIT4
                        WAX     = BIT3
                        ENAX    = BIT2
                        AX2     = BIT1
                        AX1     = BIT0

                        ;*****************************************************************************
                        * OBUS REG 17
                        ;*****************************************************************************
                        CRC2    = BIT7
                        CRC1    = BIT6
                        IDLE    = BIT5
                        SECA    = BIT4
                        STRIP   = BIT3
                        RDALL   = BIT2
                        IERR    = BIT1
                        DDCMP   = BIT0

                        ;*****************************************************************************
                        * IBUS REG 10 - RECEIVER BUFFER
                        ;*****************************************************************************
                        RX7     = BIT7
                        RX6     = BIT6
                        RX5     = BIT5
                        RX4     = BIT4
                        RX3     = BIT3
                        RX2     = BIT2
                        RX1     = BIT1
                        RX0     = BIT0

                        ;*****************************************************************************
                        * IBUS REG 11
                        ;*****************************************************************************
                        OC      = BIT7
                        OACT    = BIT6
                        SW3     = BIT5
                        ORDY    = BIT4
                        SW2     = BIT3
                        SW1     = BIT2
                        SW0     = BIT1
                        UNRR    = BIT0

                        ;*****************************************************************************
                        * IBUS REG 12
                        ;*****************************************************************************
                        IC      = BIT7
                        IACT    = BIT6
                        LULP    = BIT5
                        IRDY    = BIT4
                        OVRR    = BIT3
                        RAB     = BIT2
                        EBLK    = BIT1
```

```
                        BCC     = BIT0

                        ;*****************************************************************************
                        * IBUS REG 13
                        ;*****************************************************************************
                        ;
                        RING    = BIT7
                        DTR     = BIT6
                        RTS     = BIT5
                        HDX     = BIT4
                        MODR    = BIT3
                        CS      = BIT2
                        STBY    = BIT1
                        CARR    = BIT0

                        ;*****************************************************************************
                        * IBUS REG 14
                        ;*****************************************************************************
                        READY   = BIT7
                        TXEN    = BIT6
                        DISSI   = BIT5
                        RDAX    = BIT4
                        WAX     = BIT3
                        ENAX    = BIT2
                        AX2     = BIT1
                        AX1     = BIT0

                        ;*****************************************************************************
                        * IBUS REG 17
                        ;*****************************************************************************
                        ;
                        SIGR    = BIT7
                        SIGQ    = BIT6
                        TXDATA  = BIT5
                        OCOR    = BIT4
                        ICIR    = BIT3
                        TESTMD  = BIT2
                        MCLK    = BIT1
                        DDCMP   = BIT0

                        ;*****************************************************************************
                        * AX0-15 - USYRT REG 0 (READ ONLY)
                        ;*****************************************************************************
                        RX7     = BIT7
                        RX6     = BIT6
                        RX5     = BIT5
                        RX4     = BIT4
                        RX3     = BIT3
                        RX2     = BIT2
                        RX1     = BIT1
                        RX0     = BIT0

                        ;*****************************************************************************
                        * AX0-16 - USYRT REG 1 (READ ONLY)
                        ;*****************************************************************************
                        RERR    = BIT7
                        ASBC2   = BIT6
                        ASBC1   = BIT5
                        ASBC0   = BIT4
```

```
                        ROR     = BIT3
                        RABT    = BIT2
                        REOM    = BIT1
                        RSOM    = BIT0

                        ;*****************************************************************************
                        * AX1-15 - USYRT REG 2
                        ;*****************************************************************************
                        TX7     = BIT7
                        TX6     = BIT6
                        TX5     = BIT5
                        TX4     = BIT4
                        TX3     = BIT3
                        TX2     = BIT2
                        TX1     = BIT1
                        TX0     = BIT0

                        ;*****************************************************************************
                        * AX1-16 - USYRT REG 3
                        ;*****************************************************************************
                        TERR    = BIT7
                        TXGA    = BIT3
                        TXAB    = BIT2
                        TEOM    = BIT1
                        TSOM    = BIT0

                        ;*****************************************************************************
                        * AX2-15 - USYRT REG 4
                        ;*****************************************************************************
                        SYN7    = BIT7
                        SYN6    = BIT6
                        SYN5    = BIT5
                        SYN4    = BIT4
                        SYN3    = BIT3
                        SYN2    = BIT2
                        SYN1    = BIT1
                        SYN0    = BIT0
                        SYNCH   = 226

                        ;*****************************************************************************
                        * AX2-16 - USYRT REG 5
                        ;*****************************************************************************
                        APA     = BIT7
                        DDC     = BIT6
                        STR     = BIT5
                        SEC     = BIT4
                        IDL     = BIT3
                        CRCTY2  = BIT2
                        CRCTY1  = BIT1
                        CRCTY0  = BIT0

                        ;*****************************************************************************
                        * AX3-15 - USYRT REG 6
                        ;*****************************************************************************
                        I422    = BIT7
                        XYZ     = BIT6
                        C32BCC  = BIT5
```

```
                                V35     = BIT4
                                INTGRL  = BIT3
                                C32ENB  = BIT2
                                OP      = BIT1
                                TEST    = BIT0
                                AX315U  = I422!XYZ!C32BCC!V35!INTGRL!OP

                                ;*****************************************************************************
                                * AX3-16 - USYRT REG 7
                                ;*****************************************************************************
                                TXLEN2  = BIT7
                                TXLEN1  = BIT6
                                TXLEN0  = BIT5
                                RXLEN2  = BIT2
                                RXLEN1  = BIT1
                                RXLEN0  = BIT0
```

```
                                8.0 TEST DESCRIPTIONS
```

```
                        ;*************************************************************************
                            TEST 1 - BIT STUFFING TEST
                        *
                        * THE DEVICE IS ENABLED FOR TRANSMIT AND RECEIVE, AND A MESSAGE IS
                        * INITIATED IN BIT MODE . TWO LEADING FLAGS ARE SENT,
                        * FOLLOWED BY ALL SIXTEEN CHARS IN DATA PATTERN S. THIS PATTERN
                        * CONSISTS OF CHARACTERS WHICH REQUIRE NO BIT STUFFING AND CHARACTERS
                        * WHICH REQUIRE BIT STUFFING INDIVIDUALLY AND IN COMBINATION WITH
                        * ADJACENT CHARACTERS. ALL 16 CHARACTERS ARE READ AND COMPARED
                        * BY THE RECEIVER.
                        *   PATTERN S = 000,017,036,074,170,360,037,076,174,370,077,176,374,
                        *               177,376,377
                        ;*************************************************************************
```

```
                        ;*************************************************************************
                            TEST 2 - RCV OVERRUN ERROR SET AND CLEAR TEST
                        *
                        * IN THIS TEST, A RCV OVERRUN ERROR IS FORCED IN EACH OF 2 SUBTESTS.
                        * IN THE FIRST, A MESSAGE IS INITIATED, 64 001 CHARS ARE SENT, AND THE
                        * RECEIVER IS NOT SERVICED IN RESPONSE TO THE USYRT RCV FLAG, WHICH CAUSES RCV
                        * OVERRUN TO SET. THEN, A CHECK IS MADE TO INSURE THAT OVRR IS NOT
                        * CLEARED BY THE LINE UNIT READING THE USYRT STATUS.
                        * THEN, IC IS SET TO CLEAR THE ERROR, AND THIS IS VERIFIED.
                        *
                        * IN THE SECOND SUBTEST, RCV OVRUN IS FORCED AGAIN, AND A MASTER CLEAR
                        * IS ISSUED TO CLEAR THE ERROR, AND THIS IS VERIFIED.
                        ;*************************************************************************
```

```
                        ;*************************************************************************
                            TEST 3 - ABORT SEQUENCE TEST
                        *
                        * SET BIT MODE, CRC, AND ENABLE THE DEVICE FOR
                        * TRANSMIT AND RECEIVE. SEND 2 FLAGS AND 4 DATA CHARS (001).
                        * AS THE FIRST DATA CHAR IS BEING TRANSMITTED,
                        * SET THE ABORT BIT (REG 11).
                        * ON THE RECEIVER SIDE, CHECK FOR RECEPTION OF THE FIRST DATA CHAR
                        * AND THEN THE SETTING OF RAB AND REOM A CHAR TIME LATER.
                        * ALSO, CHECK FOR IACT = 0. THEN, CHECK THAT RAB
                        * IS CLEARED BY READING THE USYRT STATUS, TRANSMITTING A NEW MSG,
                        * RECEIVING THE FIRST CHAR (003) AND CHECKING FOR RAB CLEARED.
                        *
```

```
                        * REPEAT THE ABOVE SEQUENCE, SET IC, AND CHECK THAT
                        * THIS CLEARS RAB.
                        *
                        * REPEAT THE ABOVE SEQUENCE, ISSUE MASTER CLEAR, CHECK THAT THIS
                        * CLEARS RAB.
                        *
                        ;*************************************************************************
                        ;*************************************************************************
                            TEST 4 - ABORT AND IDLE FLAGS TEST
                        *
                        * TRANSMIT THE SAME ABORT SEQUENCE AS IN THE PREVIOUS TEST, BUT
                        * WITH THE IDLE BIT SET. CHECK THAT FLAGS ARE SENT AND RECEIVED
                        * (NOT ABORT CHARACTERS) BY VERIFYING THAT RAB DOES
                        * NOT SET, AND THAT THE MESSAGE TERMINATES WITH EBLK = 1.
                        ;*************************************************************************
                        ;*************************************************************************
                            TEST 5 - TRANSMITTER UNDERRUN ERROR, IDLE ABORT CHARS, BIT MODE
                        *
                        * A MESSAGE IS INITIATED IN BIT MODE, 4 001 CHARS ARE SENT, AND THE TRANSMITTER
                        * IS NOT SERVICED IN RESPONSE TO THE LAST TX FLAG, WHICH CAUSES TX
                        * UNDERRUN ERROR TO SET. ON THE RECEIVER SIDE, CHECK THAT THE DATA
                        * CHAR IS RECEIVED, AND THAT 8 CYCLES LATER THE RAB BIT SETS, AND
                        * THE DEVICE IDLES ABORT CHARACTERS.
                        ;*************************************************************************
                        ;*************************************************************************
                            TEST 6 - RECEIVER DISABLE TEST
                        *
                        * TRANSMIT AND RECEIVE ARE ENABLED IN BIT MODE, AND 2 FLAGS
                        * ARE SENT, FOLLOWED BY 5 252 DATA CHARS. AFTER THE SECOND DATA CHAR HAS BEGUN
                        * TO BE RECEIVED, IC IS SET.
                        * THEN, THE PROGRAM CHECKS THAT A USYRT RCV FLAG IS NOT GENERATED, AND
                        * THE RECEIVER DATA PATH STOPS OPERATING IN THE MIDDLE OF THE CHAR.
                        ;*************************************************************************
                        ;*************************************************************************
                            TEST 7 - ASSEMBLED BIT COUNT TEST
                        *
                        * THE FOLLOWING SEQUENCE IS PERFORMED 8 TIMES, EACH TIME USING A
```

```
                        * DIFFERENT TX CHAR LENGTH (FROM 2 TO 8 BITS) AND A RCV CHAR LENGTH = 8
                        * BITS :
                        * A MESSAGE IS INITIATED IN BIT MODE, NO CRC.
                        * 2 FLAGS ARE SENT, FOLLOWED BY 3 000 DATA CHARACTERS AND A
                        * TERMINATING FLAG. AFTER THE RECEIVER HAS RECEIVED THE MESSAGE, AX0-16
                        * IS READ TO RETRIEVE THE ASSEMBLED BIT COUNT. THIS COUNT IS CHECKED TO INSURE
                        * THAT IT IS CORRECT FOR THE TX CHAR LENGTH USED IN THAT TRANSMISSION.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 8 - SECONDARY STATION ADDRESS BIT TEST
                        *
                        * FIRST, A MASTER CLEAR IS ISSUED. THEN, THE LINE UNIT IS PLACED IN
                        * BIT MODE, AND THE SECA BIT (REG 17) IS SET.
                        * 2 FLAGS ARE SENT, FOLLOWED BY 252, 000, AND A TERMINATING FLAG.
                        * THEN, THE RECEIVER IS CHECKED TO MAKE SURE THAT NO DATA CHARS ARE
                        * RECEIVED.
                        *
                        * NEXT, THE SECONDARY STATION ADDRESS BITS IN AX2-15 ARE LOADED
                        * WITH THE FIRST WORD OF DATA PATTERN T . 2 FLAGS ARE SENT,
                        * FOLLOWED BY THE FIRST WORD OF DATA PATTERN T, A 000 CHAR,
                        * AND A TERMINATING FLAG.
                        * THEN, THE RCV'D DATA IS CHECKED TO MAKE SURE THAT THE SEC STATION
                        * ADDRESS IS RCV'D AS THE FIRST DATA CHAR, FOLLOWED BY 000.
                        *
                        * THEN, THE SUBTEST IS REPEATED FOR EACH OF THE REMAINING WORDS OF
                        * DATA PATTERN T.
                        *   PATTERN T = 000,125,252,176,177
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 9 - RDALL (ALL PARTIES ADDRESS) BIT TEST
                        *
                        * FIRST, A MASTER CLEAR IS ISSUED. THEN, THE LINE UNIT IS PLACED IN
                        * BIT MODE, AND THE SECA BIT IS SET.
                        * 2 FLAGS ARE SENT, FOLLOWED BY 377, 125, AND A TERMINATING FLAG.
                        * THEN, THE RECEIVER IS CHECKED TO MAKE SURE THAT NO DATA CHARS ARE
                        * RECEIVED.
                        * NEXT, THE RDALL BIT IN REG 17 IS SET TO 1. 2 FLAGS
                        * ARE SENT, FOLLOWED BY 377, 125, AND A TERMINATING FLAG.
                        * THEN, THE REC'D DATA IS CHECKED TO MAKE SURE THAT 377
                        * IS REC'D AS THE FIRST DATA CHAR, FOLLOWED BY 125.
                        ;*****************************************************************************
                        ;*****************************************************************************
```

```
                        TEST 10 - INSERT ERROR (IERR) BIT TEST - CHAR MODE, NO CRC
                *
                * THE LINE UNIT IS PLACED IN DDCMP MODE WITH NO ERROR DETECTION, AND 2
                * SYNCHS, A 000 CHAR, A 377 CHAR, AND 2 SYNCHS ARE LOADED INTO THE
                * TRANSMITTER SILO. THEN, THE LU IS CLOCKED UNTIL THE 2ND BIT OF THE 000
                * CHAR IS ABOUT TO BE SENT AND THE IERR BIT IS SET FOR A CLOCK TIME AND
                * THEN CLEARED. IN THE SAME WAY, IERR IS SET PRIOR TO THE SENDING OF THE 4TH
                * AND 5TH BITS OF THE 000 CHAR. IT IS ALSO SET FOR THE SENDING OF THE FIRST
                * 4 BITS OF THE 377 CHAR. THE PROGRAM READS THE FIRST RCV'D CHAR FROM AX0
                * AND CHECKS IT TO BE 032, AND READS THE 2ND CHAR AND CHECKS IT TO BE 377.
                * THEN, A MASTER CLEAR IS DONE TO IDLE THE DEVICE.
                ;*************************************************************************



                ;*************************************************************************
                        TEST 11 - SWITCH PACK PRINTOUT AND TEST
                *
                * - READ AND PRINT SWITCHES IN REG 11 (E121 SW10,9 , E134 SW9,10) :
                * THE PROGRAM READS REG 11 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
                * (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
                * THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 1,2
                * ARE E121 SW10,9 , AND BITS 3,5 ARE E134 SW9,10.
                *
                * - READ AND PRINT SWITCHES IN REG 15 (E134 SW1-8) :
                * THE PROGRAM READS REG 15 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
                * (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
                * THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 0-7 ARE E134 SW1-8.
                *
                * - READ AND PRINT SWITCHES IN REG 16 (E121 SW1-8) :
                * THE PROGRAM READS REG 16 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
                * (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
                * THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 0-7 ARE E121 SW1-8.
                ;*************************************************************************



                ;*************************************************************************
                        TEST 12 - REG AX3-15 PRINTOUT
                *
                * IN THIS TEST, REG AX3-15 IS READ AND THE CONTENTS PRINTED OUT IF DESIRED BY
                * THE OPERATOR, AS INDICATED IN THE SOFTWARE P-TABLE. THE DEFAULT IS TO NOT
                * PRINT THE REG.
                ;*************************************************************************



                ;*************************************************************************
                        TEST 13 - CRC GENERATION TEST
                *
                * - CRC-16, CHAR MODE:
```

```
                        * THE FOLLOWING MESSAGE IS SENT IN DDCMP MODE WITH CRC-16 SELECTED -
                        * 2 SYNCHS, 000, 125, 252, 377, 000, AND 2 SYNCHS, USING LULOOP AND STEPLU
                        * TO CLOCK THE DATA.    AT THE END OF THE MESSAGE THE
                        * PROGRAM CHECKS FOR BCC = 1 (IN REG 12) INDICATING NO ERROR.
                        *
                        * - CRC-CCITT - 1'S PRESET:
                        * THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-1'S SELECTED. AT
                        * THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
                        *
                        * - CRC-CCITT - 0'S PRESET:
                        * THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-0'S SELECTED. AT
                        * THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 14 - CRC ERROR DETECTION TEST
                        *
                        * - CRC-16, CHAR MODE :
                        * THE FOLLOWING MESSAGE IS SENT IN DDCMP MODE, WITH CRC-16 SELECTED -
                        * 2 SYNCHS, 000, 125, 252, 377, 000, AND 2 SYNCHS, USING LULOOP AND STEPLU
                        * TO CLOCK THE DATA. JUST BEFORE THE FIRST BIT OF THE LAST 000 CHAR IS SENT,
                        * THE IERR BIT IS SET IN REG 17 TO CAUSE A 1 TO BE SENT, INTRODUCING A DATA
                        * ERROR. AT THE END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 0, INDICATING
                        * AN ERROR.
                        *
                        * - CRC-CCITT - 1'S PRESET :
                        * THE ABOVE TEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-1'S SELECTED. AT THE
                        * END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 1, INDICATING AN ERROR.
                        *
                        * - CRC-CCITT - 0'S PRESET :
                        * THE ABOVE TEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-0'S SELECTED. AT THE
                        * END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 1, INDICATING AN ERROR.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 15 - VRC PARITY GENERATION TEST
                        *
                        * SUBTEST 1 - TEST OF CORRECT ODD VRC PARITY GENERATION :
                        * THE LINE UNIT IS PLACED IN CHAR MODE, WITH ODD VRC AND 7-BIT CHARS SELECTED.
                        * THE DATA CHARS IN PATTERN 0 ARE TRANSMITTED, AND AS THE 8TH BIT (PARITY BIT)
                        * OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TXDATA FOR THE PROPER STATE.
                        * FOR THE FIRST 4 CHARS IN PATTERN 0 THE PARITY BIT SHOULD = 1 AND FOR THE
                        * LAST 4 CHARS IT SHOULD = 0.
                        *
                        * SUBTEST 2 - TEST OF CORRECT EVEN VRC PARITY GENERATION :
                        * THE LINE UNIT IS PLACED IN CHAR MODE, WITH EVEN VRC AND 7-BIT CHARS SELECTED.
                        * THE DATA CHARS IN PATTERN 0 ARE TRANSMITTED, AND AS THE 8TH BIT (PARITY BIT)
                        * OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TXDATA FOR THE PROPER STATE.
                        * FOR THE FIRST 4 CHARS IN PATTERN 0 THE PARITY BIT SHOULD = 0 AND FOR THE
```

```
                        * LAST 4 CHARS IT SHOULD = 1.
                        *
                        *    DATA PATTERN Q = 000,120,125,137,040,052,057,177
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 16 - VRC ERROR DETECTION TEST
                        *
                        * SUBTEST 1 - FORCING OF BCC USING ODD VRC
                        * THE LINE UNIT IS PLACED IN CHAR MODE WITH ODD VRC AND 7-BIT CHARS SELECTED.
                        * THE FIRST 8 DATA CHARS IN PATTERN R ARE TRANSMITTED NORMALLY, BUT THE OTHER
                        * 7 CHARS ARE TRANSMITTED WITH BIT 0 STUCK AT 1 (USING IERR BIT). THE PROGRAM
                        * CHECKS FOR BCC = 0 AFTER EACH OF THE FIRST 8 CHARS ARE RECEIVED (INDICATING
                        * NO ERROR) AND CHECKS FOR BCC = 1 AFTER EACH OF THE REMAINING 7 CHARS ARE
                        * RECEIVED (INDICATING AN ERROR).
                        *
                        * SUBTEST 2 - FORCING OF BCC USING EVEN VRC
                        * THE LINE UNIT IS PLACED IN CHAR MODE WITH EVEN VRC AND 7-BIT CHARS SELECTED.
                        * THE FIRST 8 DATA CHARS IN PATTERN R ARE TRANSMITTED NORMALLY, BUT THE OTHER
                        * 7 CHARS ARE TRANSMITTED WITH BIT 0 STUCK AT 1 (USING IERR BIT). THE PROGRAM
                        * CHECKS FOR BCC = 0 AFTER EACH OF THE FIRST 8 CHARS ARE RECEIVED (INDICATING
                        * NO ERROR) AND CHECKS FOR BCC = 1 AFTER EACH OF THE REMAINING 7 CHARS ARE
                        * RECEIVED (INDICATING AN ERROR).
                        *
                        *   DATA PATTERN R = 000,100,120,124,164,172,176,177,000,100,120,124,164,
                        *                    172,176.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 17 - INTEGRAL MODEM INTERFACE TEST - CHAR MODE, CRC
                        *
                        * THE INTEGRAL MODEM IS SELECTED BY THE PROGRAM IN AX3-15, AND A
                        * MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
                        * ON THE LINE UNIT OR AT THE CABLE. THE MESSAGE CONSISTS OF
                        * 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE P-TABLE FOR THE CURRENT
                        * UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
                        * SKIPPED FOR THAT UNIT.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 18 - V.35 MODEM INTERFACE TEST - CHAR MODE, CRC
                        *
                        * THE V.35 MODEM INTERFACE IS SELECTED BY THE PROGRAM IN AX3-15, AND A
                        * MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
                        * ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
```

```
                        * OR A MODEM TEST MODE. THE MESSAGE CONSISTS OF
                        * 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE P-TABLE FOR THE CURRENT
                        * UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
                        * SKIPPED FOR THAT UNIT.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 19 - RS 232C AND RS 423 MODEM INTERFACE TEST - CHAR MODE, CRC
                        *
                        * THE RS232C  RS423 (XYZ) MODEM INTERFACE IS SELECTED BY THE PROGRAM IN
                        * AX3-15, AND A MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURN-
                        * AROUND CONNECTOR ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
                        * OR A MODEM TEST MODE. THE MESSAGE CONSISTS
                        * OF 5 SYNCHS, 000,125,252,377,000. AND 1 SYNCH. IF THE
                        * P-TABLE FOR THE CURRENT UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS
                        * PROVIDED, THE TEST WILL BE SKIPPED FOR THAT UNIT.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 20 - RS 422 MODEM INTERFACE TEST - CHAR MODE, CRC
                        *
                        * THE RS 422 MODEM INTERFACE IS SELECTED BY THE PROGRAM IN AX3-15, AND A
                        * MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
                        * ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
                        * OR A MODEM TEST MODE. THE MESSAGE CONSISTS OF
                        * 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE P-TABLE FOR THE CURRENT
                        * UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
                        * SKIPPED FOR THAT UNIT.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 21 - HALF-DUPLEX BIT (HALF DUPX) TEST
                        *
                        * THIS TEST VERIFIES THAT SETTING HALF-DUPLEX BIT IN REG 13 DOES NOT INHIBIT
                        * LOADING OF THE USYRT TRANSMITTER FROM THE TRANSMITTER SILO.
                        * A MASTER CLEAR IS ISSUED, DDCMP MODE IS ENTERED, AND THE HALF DUPX
                        * BIT IN REG 13 IS SET. A MESSAGE IS LOADED INTO THE TX SILO
                        * CONSISTING OF 2 SYNCHS, 000,125,252,377,000, AND 2 MORE SYNCHS.
                        * THE LINE UNIT IS THEN CLOCKED EXTENSIVELY, AND THE TX SILO IS CHECKED TO
                        * BE UNLOADED (ALL CHARS SHOULD HAVE BEEN REMOVED) AND THE RECEIVER
                        * IS MONITORED TO INSURE THAT NO RCV FLAGS ARE GENERATED.
                        ;*****************************************************************************
```

```
                        ;*****************************************************************************
                        ;   TEST 22 - HALF-DUPLEX RCV DISABLED TEST WITH SILOS DISABLED
                        ;
                        ; THIS TEST SENDS A MESSAGE IN HDX, CHAR MODE, WITH NO ERROR DETECTION, AND
                        ; THE SILOS DISABLED. THE MSG CONSISTS OF 2 SYNCHS AND 2 000 CHARS.
                        ; THE DATA IS SENT WITH LULOOP SET FOR TTL DATA LOOPBACK. THE PROGRAM CHECKS
                        ; THAT THE RECEIVER NEVER BECOMES ACTIVE, BECAUSE THE RCV CLOCK IS INHIBITED
                        ; WHEN THE HDX BIT IS SET.
                        ;*****************************************************************************
                        ;*****************************************************************************
                        ;   TEST 23 - INTERACTION OF MODEM CONTROL BITS
                        ;
                        ; THIS TEST WILL BE RUN ONLY IF THE P-TABLE FOR THIS UNIT INDICATES THAT
                        ; THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED. OTHERWISE, THE TEST WILL
                        ; BE SKIPPED FOR THE UNIT.
                        ; THE FOLLOWING SUBTESTS ARE PERFORMED:
                        ; - A MASTER CLEAR IS DONE AND REG 13 IS READ AND CHECKED FOR INITIALIZED
                        ;   STATE, WITH LULOOP SET TO 1. THEN, LULOOP IS CLEARED AND REG 13 IS READ
                        ;   AND CHECKED FOR THE PROPER STATE, WITH LULOOP CLEARED.
                        ;   REG 13 IS THEN LOADED WITH 0'S, AND READ AND CHECKED FOR THE
                        ;   INITIALIZED STATE.
                        ;   REG 17 IS THEN READ AND CHECKED FOR INITIALIZED STATE.
                        ; - RUN IS SET IN BSEL1, AND REG 13 IS READ AND CHECKED FOR RING SET.
                        ; - POLL IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGQ SET.
                        ; - BPOLL IS SET IN REG 12, ONLY TO LIGHT THE LED FOR THIS SIGNAL.
                        ; - DTR IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR DTR AND MODR SET.
                        ; - SELFR IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGR SET.
                        ; - HDX IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR HDX SET.
                        ; - MAINT1 IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR TEST MODE SET.
                        ; - SELSBY IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR STBY SET.
                        ; - A MASTER CLEAR IS DONE, 2 TSOM'S ARE LOADED ITNO THE TX SILO, THE LINE
                        ;   UNIT IS CLOCKED UNTIL THE TRANSMITTER IS ACTIVE, AND REG 13 IS READ AND
                        ;   CHECKED FOR RTS, CS, CARR SET.
                        ;*****************************************************************************
                        ;*****************************************************************************
                        ;   TEST 24 - DATA TEST - BIT MODE, NO ERR DET
                        ;
                        ; A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH ERROR DETECTION
                        ; INHIBITED. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
                        ; AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        ; THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        ; IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        ; TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        ; TEST WILL NOT BE RUN.
                        ;   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
```

```
                        *              375,373,367,357,337,277,177
                        * 8-BIT CHARACTERS ARE USED.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 25 - DATA TEST - CHAR MODE, NO ERR DET
                        *
                        * A MESSAGE IS INITIATED IN CHAR MODE, WITH ERROR DETECTION
                        * INHIBITED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
                        * AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        *               375,373,367,357,337,277,177
                        * 8-BIT CHARACTERS ARE USED.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 26 - DATA TEST - BIT MODE, CRC-CCITT-1
                        *
                        * A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH CRC-CCITT-1 ERROR
                        * DETECTION. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
                        * AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        *               375,373,367,357,337,277,177
                        * 8-BIT CHARACTERS ARE USED.
                        ;*****************************************************************************
                        ;*****************************************************************************
                            TEST 27 - DATA TEST - BIT MODE, CRC-CCITT-0
                        *
                        * A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH CRC-CCITT-0 ERROR
                        * DETECTION. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
                        * AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
```

```
                        *              375,373,367,357,337,277,177
                        * 8-BIT CHARACTERS ARE USED.
                        ;*****************************************************************

                        ;*****************************************************************
                        ;    TEST 28 - DATA TEST - CHAR MODE, CRC-16
                        *
                        * A MESSAGE IS INITIATED IN CHAR MODE, WITH CRC-16 ERROR
                        * DETECTION. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
                        * AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        *               375,373,367,357,337,277,177
                        * 8-BIT CHARACTERS ARE USED.
                        ;*****************************************************************

                        ;*****************************************************************
                        ;    TEST 29 - DATA TEST - CHAR MODE, ODD VRC
                        *
                        * A MESSAGE IS INITIATED IN CHAR MODE, WITH ODD VRC ERROR DETECTION
                        * SELECTED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
                        * AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        *               375,373,367,357,337,277,177
                        * 7-BIT CHARACTERS ARE USED. (HI BIT OF A PATTERN CHAR IS NOT USED).
                        ;*****************************************************************

                        ;*****************************************************************
                        ;    TEST 30 - DATA TEST - CHAR MODE, EVEN VRC
                        *
                        * A MESSAGE IS INITIATED IN CHAR MODE, WITH EVEN VRC ERROR DETECTION
                        * SELECTED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
                        * AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
                        * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
                        * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
                        * TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
                        * TEST WILL NOT BE RUN.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
```

```
                        *                375,373,367,357,337,277,177
                        * 7-BIT CHARACTERS ARE USED. (HI BIT OF A PATTERN CHAR IS NOT USED).
                        ;*****************************************************************
                        ;*****************************************************************
                        *    TEST 31 - CONTIGUOUS ONES IN SEC. STA. ADRS. MODE, BIT MODE
                        *
                        * IN THIS TEST, A MESSAGE CONSISTING OF 5 ONES CHARS (377 OCT)
                        * IS SENT IN SECONDARY STATION ADDRESS MODE, WITH THE STATION ADRS
                        * FOR THIS LINE = 377. THE PROGRAM CHECKS FOR CORRECT RECEPTION OF
                        * THE FIRST CHARACTER (STATION ADDRESS) AND THE REMAINING 4
                        * ONES CHARACTERS (DATA). THIS TEST EXERCISES THE SECONDARY STATION
                        * ADDRESS LOGIC, AND CHECKS THAT THE SEC. STA. ADRS. CAN BE BIT-STUFFED
                        * AND TRANSMITTED AND RECEIVED CORRECTLY.
                        ;*****************************************************************
                        ;*****************************************************************
                        *    TEST 32 - DDCMP MESSAGE TEST - CHAR MODE
                        *
                        * IN THIS TEST, THREE USYRT MESSAGES ARE SENT TO SIMULATE A DDCMP HEADER,
                        * DDCMP DATA MESSAGE, AND THE START OF A NEW DDCMP HEADER.
                        * FIRST, THE DATA IN PATTERN A IS TRANSMITTED AND RECEIVED
                        * AND THEN CRC (CRC-16) IS SENT, FOLLOWED BY THE DATA IN PATTERN A
                        * AGAIN AND THE CRC ON THAT DATA, AND FINALLY THE DATA IN "MSG1" IS
                        * SENT WITH ITS CORRESPONDING CRC.
                        *   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        *               375,373,367,357,337,277,177
                        *   MSG1 = SYNCH,SYNCH,SYNCH,SYNCH,000,125,252,377,SYNCH,SYNCH
                        ;*****************************************************************
```

8.1 DATA PATTERNS USED

```
                        ***** DATA PATTERN A *****
                        PATA:
                                .BYTE   125
                                .BYTE   252
                                .BYTE   000
                                .BYTE   377
                                .BYTE   001
                                .BYTE   002
                                .BYTE   004
                                .BYTE   010
                                .BYTE   020
```

```
                                        .BYTE   040
                                        .BYTE   100
                                        .BYTE   200
                                        .BYTE   376
                                        .BYTE   375
                                        .BYTE   373
                                        .BYTE   367
                                        .BYTE   357
                                        .BYTE   337
                                        .BYTE   277
                                        .BYTE   177

                                ***** DATA PATTERN Q *****
                                PATQ:   .BYTE   000
                                        .BYTE   120
                                        .BYTE   125
                                        .BYTE   137
                                        .BYTE   040
                                        .BYTE   052
                                        .BYTE   057
                                        .BYTE   177

                                ***** DATA PATTERN R *****
                                PATR:   .BYTE   000
                                        .BYTE   100
                                        .BYTE   120
                                        .BYTE   124
                                        .BYTE   164
                                        .BYTE   172
                                        .BYTE   176
                                        .BYTE   177
                                        .BYTE   000
                                        .BYTE   100
                                        .BYTE   120
                                        .BYTE   124
                                        .BYTE   164
                                        .BYTE   172
                                        .BYTE   176

                                ***** DATA PATTERN S *****
                                PATS:   .BYTE   000
                                        .BYTE   017
                                        .BYTE   036
                                        .BYTE   074
                                        .BYTE   170
                                        .BYTE   360
                                        .BYTE   037
                                        .BYTE   076
                                        .BYTE   174
                                        .BYTE   370
                                        .BYTE   077
                                        .BYTE   176
                                        .BYTE   374
                                        .BYTE   177
                                        .BYTE   376
                                        .BYTE   377
```

```
                                ***** DATA PATTERN T *****
PATT:    .BYTE   000
         .BYTE   125
         .BYTE   252
         .BYTE   176
         .BYTE   177
```

PROGRAM DOCUMENT

1

```
                                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 "IRDY NOT SET" 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 :

                                  CZDMS DVC FTL ERR 00017 ON UNIT 00 TST 034 SUB 000 PC:  006210
                                  IRDY NOT SET
                                  PC OF SUBR CALL:  030044
                                  DEVICE CSR ADDRESS : 160170

                                  FAILING REG:  INBUS/OUTBUS REG 12

                                  LINE UNIT INBUS REGS:
                                  REG10   REG11   REG12   REG13
                                  000     120     000     257
                                      REG14   REG15   REG16   REG17
                                      024     377     377     035

                                  LINE UNIT EXTENDED REGS:
                                  AX0-15  AX0-16  AX1-15  AX1-16
                                  000     000     000     000
                                      AX2-15  AX2-16  AX3-15  AX3-16
                                      000     000     000     000

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

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

                                  CZDMS DVC FTL ERR 00017 ON UNIT 00 TST 034 SUB 000 PC:006210
                                  IRDY NOT SET
                                  PC OF SUBR CALL:  030044
                                  DEVICE CSR ADDRESS : 160170

                                  FAILING REG:  INBUS/OUTBUS REG 12
```

PROGRAM DOCUMENT

```
      1
      2
      3
      4
      5                              @
      6
      7
      8
      9
     10
```

```
                                .TITLE CZDMSD M8203 STATIC TESTS #2
002000                                .=2000



                                .MCALL  SVC
002000                          SVC                             ; INITIALIZE SUPERVISOR MACROS


002000                          BGNMOD  LU2MOD

000001                  $LSTIN= 1
000001                  $LSTTAG= 1
000001                  SVCINS= 1       ; LIST INSTRUCTIONS, SHIFTED RIGHT
000001                  SVCTST= 1       ; LIST TEST TAGS, SHIFTED RIGHT
000001                  SVCSUB= 1       ; LIST SUBTEST TAGS, SHIFTED RIGHT
000001                  SVCGBL= 1       ; LIST GLOBAL TAGS, SHIFTED RIGHT
000001                  SVCTAG= 1       ; LIST OTHER TAGS, SHIFTED RIGHT

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

```
                                .SBTTL  PROGRAM HEADER
                                ;++
                                ; THE PROGRAM HEADER IS THE INTERFACE BETWEEN
                                ; THE DIAGNOSTIC PROGRAM AND THE SUPERVISOR.
                                ;--

 002000                                 POINTER BGNSW,BGNSFT,BGNAU,BGNDU

                                ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                ;       IF ANY OPTIONAL POINTERS ARE TO BE USED IN THE "HEADER", CHANGE
                                ;       "POINTER" TO CONTAIN THE CORRECT ARGUMENTS.  IF ALL OPTIONAL
                                ;       POINTERS ARE TO BE USED, CHANGE "POINTER" TO BE "POINTER ALL".
                                ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

 002000                                 HEADER  CZDMS,D,0,45.,0
 002000                                                                L$NAME::
 002000      103                                                                .ASCII /C/
 002001      132                                                                .ASCII /Z/
 002002      104                                                                .ASCII /D/
 002003      115                                                                .ASCII /M/
 002004      123                                                                .ASCII /S/
 002005      000                                                                .BYTE   0
 002006      000                                                                .BYTE   0
 002007      000                                                                .BYTE   0
 002010                                                                L$REV::
 002010      104                                                                .ASCII  /D/
 002011                                                                L$DEPO::
 002011      060                                                                .ASCII  /0/
 002012                                                                L$UNIT::
 002012  000000                                                                 .WORD   0
 002014                                                                L$TIML::
 002014  000055                                                                 .WORD   45.
 002016                                                                L$HPCP::
 002016  036430                                                                 .WORD   L$HARD
 002020                                                                L$SPCP::
 002020  037374                                                                 .WORD   L$SOFT
 002022                                                                L$HPTP::
 002022  002226                                                                 .WORD   L$HW
 002024                                                                L$SPTP::
 002024  002256                                                                 .WORD   L$SW
 002026                                                                L$LADP::
 002026  040044                                                                 .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$EDIT
002052                                          L$EF::
002052  000000                                          .WORD   0
002054  000000                                          .WORD   0
002056                                          L$SPC::
002056  000000                                          .WORD   0
002060                                          L$DEVP::
002060  003162                                          .WORD   L$DVTYP
002062                                          L$REPP::
002062  000000                                          .WORD   0
002064                                          L$EXP4::
002064  000000                                          .WORD   0
002066                                          L$EXP5::
002066  000000                                          .WORD   0
002070                                          L$AUT::
002070  023222                                          .WORD   L$AU
002072                                          L$DUT::
002072  023140                                          .WORD   L$DU
002074                                          L$LUN::
002074  000000                                          .WORD   0
002076                                          L$DESP::
002076  003170                                          .WORD   L$DESC
002100                                          L$LOAD::
002100  104035                                          EMT     E$LOAD
002102                                          L$ETP::
002102  000000                                          .WORD   0
002104                                          L$ICP::
002104  022104                                          .WORD   L$INIT
002106                                          L$CCP::
002106  023136                                          .WORD   L$CLEAN
002110                                          L$ACP::
002110  023056                                          .WORD   L$AUTO
002112                                          L$PRT::
002112  022076                                          .WORD   L$PROT
002114                                          L$TEST::
002114  000000                                          .WORD   0
002116                                          L$DLY::
002116  000000                                          .WORD   0
002120                                          L$HIME::
002120  000000                                          .WORD   0

                        ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                        ;       CHANGE THE ''HEADER'' TO CONTAIN THE PROPER ARGUMENTS.
                        ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%

                        .EVEN
```

```
      1                         .SBTTL  DISPATCH TABLE
      2
      3                         ;////////////////////////////////////////////////////////////////////////////////
      4                         ;/ THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
      5                         ;/ IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
      6                         ;////////////////////////////////////////////////////////////////////////////////
      7
      8 002122                          DISPATCH 32
        002122  000040                                                          .WORD   32
        002124                                                          L$DISPATCH::
        002124  023224                                                  .WORD   T1
        002126  023354                                                  .WORD   T2
        002130  023730                                                  .WORD   T3
        002132  024266                                                  .WORD   T4
        002134  024350                                                  .WORD   T5
        002136  024440                                                  .WORD   T6
        002140  024634                                                  .WORD   T7
        002142  025404                                                  .WORD   T8
        002144  025644                                                  .WORD   T9
        002146  026050                                                  .WORD   T10
        002150  026204                                                  .WORD   T11
        002152  026656                                                  .WORD   T12
        002154  026772                                                  .WORD   T13
        002156  027330                                                  .WORD   T14
        002160  027740                                                  .WORD   T15
        002162  030412                                                  .WORD   T16
        002164  031114                                                  .WORD   T17
        002166  031376                                                  .WORD   T18
        002170  031650                                                  .WORD   T19
        002172  032032                                                  .WORD   T20
        002174  032214                                                  .WORD   T21
        002176  032312                                                  .WORD   T22
        002200  032522                                                  .WORD   T23
        002202  034030                                                  .WORD   T24
        002204  034220                                                  .WORD   T25
        002206  034410                                                  .WORD   T26
        002210  034600                                                  .WORD   T27
        002212  034770                                                  .WORD   T28
        002214  035160                                                  .WORD   T29
        002216  035344                                                  .WORD   T30
        002220  035530                                                  .WORD   T31
        002222  035642                                                  .WORD   T32
      9
     11                         ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
     12                         ;       CHANGE THE ARGUMENT OF "DISPATCH" TO BE THE
     13                         ;       NUMBER OF HARDWARE TESTS IN YOUR PROGRAM.
     14                         ;XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
     16
     17
     18
     19
     20
```

DEFAULT HARDWARE P-TABLE

```
                                .SBTTL  DEFAULT HARDWARE P-TABLE

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

002224                                  BGNHW   DFPTBL
002224  000013                                                                    .WORD   L10000-L$HW/2
002226                                                                          L$HW::
002226                                                                          DFPTBL::

002226  000007                      .WORD       7         ;MICROPROCESSOR TYPE = M8207
002230  160170                      .WORD  160170         ;M8207 CSR UNIBUS ADDRESS
002232  000300                      .WORD     300         ;M8207 INTERRUPT VECTOR
002234  005000                      .WORD    5000         ;M8207 INTERRUPT PRIORITY LEVEL = 5
002236  000003                      .WORD       3         ;LINE UNIT = M8203
002240  000000                      .WORD     000         ;M8203 REG 11 (E121 SW10,9 , E134 SW9,10)
002242  000000                      .WORD     000         ;M8203 REG 15 (E134 SW1-8)
002244  000000                      .WORD     000         ;M8203 REG 16 (E121 SW1-8)
002246  000000                      .WORD       0         ;H3254&H3255 USED
002250  000004                      .WORD       4         ;BAUD RATE = 56 K
002252  000001                      .WORD       1         ;M8207 RUN SWITCH (E28 SW7) IS ON

002254                                  ENDHW
002254                                                                          L10000:
```

```
                        .SBTTL  SOFTWARE P-TABLE

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

002254                          BGNSW   SFPTBL
002254  000004                                                          .WORD   L10001-L$SW/2
002256                                                                  L$SW::
002256                                                                  SFPTBL::

002256  000000          MIFLAG: .WORD   0       ; =1 IF MAN. INTERVENTION DESIRED, =0 IF NOT
002260  000000          PRNFLG: .WORD   0       ; =1 IF SW PACK AND AX3-15 PRINTOUT ALLOWED ALWAYS
002262  000000          SWIFLG: .WORD   0       ; =1 IF SWITCH PACK VERIFICATION TEST SHOULD BE RUN
002264  000000          TCOUNT: .WORD   0       ;INITIAL MSG TIME-OUT VALUE (0=LONGEST TIME-OUT)

002266                          ENDSW
002266                                                                  L10001:
```

```
                                .SBTTL  GLOBAL EQUATES SECTION

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

002266                                  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
                                ;
000040                          EF.START==      32.                     ; START COMMAND WAS ISSUED
000037                          EF.RESTART==    31.                     ; RESTART COMMAND WAS ISSUED
000036                          EF.CONTINUE==   30.                     ; CONTINUE COMMAND WAS ISSUED
```

```
                000035                  EF.NEW==        29.                     ; A NEW PASS HAS BEEN STARTED
                000034                  EF.PWR==        28.                     ; A POWER-FAIL/POWER-UP OCCURRED
                                        ;
                                        ;
                                        ; PRIORITY LEVEL DEFINITIONS
                                        ;
                000340                  PRI07== 340
                000300                  PRI06== 300
                000240                  PRI05== 240
                000200                  PPI04== 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
 21
 22
 23
 24
 25                                     ;;*************************************************************************
 26                                     ;* PROGRAM EVENT FLAG DEFINITIONS
 27                                     ;;*************************************************************************
 28
 29
 30
 31
 32
 33                                     ;;*************************************************************************
 34                                     ;* MAINTENANCE REGISTER - BSEL1
 35                                     ;;*************************************************************************
 36             000200                  RUN     = BIT7
 37             000100                  MCLR    = BIT6
 38             000020                  STEPLU  = BIT4
 39             000010                  LULOOP  = BIT3
 40             000004                  ROMO    = BIT2
 41             000002                  ROMI    = BIT1
 42             000001                  STEPMP  = BIT0
 43
 44                                     ;;*************************************************************************
 45                                     ;* OBUS REG 10 - TRANSMITTER BUFFER
 46                                     ;;*************************************************************************
```

```
                        TX7     = BIT7
                        TX6     = BIT6
                        TX5     = BIT5
                        TX4     = BIT4
                        TX3     = BIT3
                        TX2     = BIT2
                        TX1     = BIT1
                        TX0     = BIT0

                        ;;*******************************************************************************
                        ;* OBUS REG 11
                        ;;*******************************************************************************
                        OC      = BIT7
                        GOAH    = BIT3
                        ABORT   = BIT2
                        EOM     = BIT1
                        SOM     = BIT0

                        ;;*******************************************************************************
                        ;* OBUS REG 12
                        ;;*******************************************************************************
                        IC      = BIT7
                        BPOLL   = BIT6
                        LULP    = BIT5

                        ;;*******************************************************************************
                        ;* OBUS REG 13
                        ;;*******************************************************************************
                        POLL    = BIT7
                        DTR     = BIT6
                        SELFR   = BIT5
                        HDX     = BIT4
                        MAINT1  = BIT3
                        MAINT2  = BIT2
                        SELSBY  = BIT1

                        ;;*******************************************************************************
                        ;* OBUS REG 14
                        ;;*******************************************************************************
                        TXEN    = BIT6
                        DISSI   = BIT5
                        RDAX    = BIT4
                        WAX     = BIT3
                        ENAX    = BIT2
                        AX2     = BIT1
                        AX1     = BIT0

                        ;;*******************************************************************************
                        ;* OBUS REG 17
                        ;;*******************************************************************************
                        CRC2    = BIT7
                        CRC1    = BIT6
                        IDLE    = BIT5
                        SECA    = BIT4
                        STRIP   = BIT3
                        RDALL   = BIT2
                        IERR    = BIT1
```

```
                                ;;*****************************************************************************
                                ;* IBUS REG 10 - RECEIVER BUFFER
                                ;;*****************************************************************************
000200                          RX7     = BIT7
000100                          RX6     = BIT6
000040                          RX5     = BIT5
000020                          RX4     = BIT4
000010                          RX3     = BIT3
000004                          RX2     = BIT2
000002                          RX1     = BIT1
000001                          RX0     = BIT0

                                ;;*****************************************************************************
                                ;* IBUS REG 11
                                ;;*****************************************************************************
000200                          OC      = BIT7
000100                          OACT    = BIT6
000040                          SW3     = BIT5
000020                          ORDY    = BIT4
000010                          SW2     = BIT3
000004                          SW1     = BIT2
000002                          SW0     = BIT1
000001                          UNRR    = BIT0

                                ;;*****************************************************************************
                                ;* IBUS REG 12
                                ;;*****************************************************************************
000200                          IC      = BIT7
000100                          IACT    = BIT6
000040                          LULP    = BIT5
000020                          IRDY    = BIT4
000010                          OVRR    = BIT3
000004                          RAB     = BIT2
000002                          EBLK    = BIT1
000001                          BCC     = BIT0

                                ;;*****************************************************************************
                                ;* IBUS REG 13
                                ;;*****************************************************************************
000200                          RING    = BIT7
000100                          DTR     = BIT6
000040                          RTS     = BIT5
000020                          HDX     = BIT4
000010                          MODR    = BIT3
000004                          CS      = BIT2
000002                          STBY    = BIT1
000001                          CARR    = BIT0

                                ;;*****************************************************************************
                                ;* IBUS REG 14
                                ;;*****************************************************************************
000200                          READY   = BIT7
000100                          TXEN    = BIT6
000040                          DISSI   = BIT5
000020                          RDAX    = BIT4
```

GLOBAL EQUATES SECTION

```
                        WAX     = BIT3
                        ENAX    = BIT2
                        AX2     = BIT1
                        AX1     = BIT0

                        ;;*****************************************************************************
                        ;* IBUS REG 17
                        ;;*****************************************************************************
000200                  SIGR    = BIT7
000100                  SIGQ    = BIT6
000040                  TXDATA  = BIT5
000020                  COOR    = BIT4
000010                  ICIR    = BIT3
000004                  TESTMD  = BIT2
000002                  MCLK    = BIT1
000001                  DDCMP   = BIT0

                        ;;*****************************************************************************
                        ;* AX0-15 - USYRT REG 0 (READ ONLY)
                        ;;*****************************************************************************
000200                  RX7     = BIT7
000100                  RX6     = BIT6
000040                  RX5     = BIT5
000020                  RX4     = BIT4
000010                  RX3     = BIT3
000004                  RX2     = BIT2
000002                  RX1     = BIT1
000001                  RX0     = BIT0

                        ;;*****************************************************************************
                        ;* AX0-16 - USYRT REG 1 (READ ONLY)
                        ;;*****************************************************************************
000200                  RERR    = BIT7
000100                  ASBC2   = BIT6
000040                  ASBC1   = BIT5
000020                  ASBC0   = BIT4
000010                  ROR     = BIT3
000004                  RABT    = BIT2
000002                  REOM    = BIT1
000001                  RSOM    = BIT0

                        ;;*****************************************************************************
                        ;* AX1-15 - USYRT REG 2
                        ;;*****************************************************************************
000200                  TX7     = BIT7
000100                  TX6     = BIT6
000040                  TX5     = BIT5
000020                  TX4     = BIT4
000010                  TX3     = BIT3
000004                  TX2     = BIT2
000002                  TX1     = BIT1
000001                  TX0     = BIT0

                        ;;*****************************************************************************
                        ;* AX1-16 - USYRT REG 3
                        ;;*****************************************************************************
000200                  TERR    = BIT7
```

```
                                ;;*****************************************************************************
                                ;* AX2-15 - USYRT REG 4
                                ;;*****************************************************************************
000200                          SYN7    = BIT7
000100                          SYN6    = BIT6
000040                          SYN5    = BIT5
000020                          SYN4    = BIT4
000010                          SYN3    = BIT3
000004                          SYN2    = BIT2
000002                          SYN1    = BIT1
000001                          SYN0    = BIT0
000226                          SYNCH   = 226

                                ;;*****************************************************************************
                                ;* AX2-16 - USYRT REG 5
                                ;;*****************************************************************************
000200                          APA     = BIT7
000100                          DDC     = BIT6
000040                          STR     = BIT5
000020                          SEC     = BIT4
000010                          IDL     = BIT3
000004                          CRCTY2  = BIT2
000002                          CRCTY1  = BIT1
000001                          CRCTY0  = BIT0

                                ;;*****************************************************************************
                                ;* AX3-15 - USYRT REG 6
                                ;;*****************************************************************************
000200                          I422    = BIT7
000100                          XYZ     = BIT6
000040                          C32BCC  = BIT5
000020                          V35     = BIT4
000010                          INTGRL  = BIT3
000004                          C32ENB  = BIT2
000002                          OP      = BIT1
000001                          TEST    = BIT0
000372                          AX315U  = I422!XYZ!C32BCC!V35!INTGRL!OP

                                ;;*****************************************************************************
                                ;* AX3-16 - USYRT REG 7
                                ;;*****************************************************************************
000200                          TXLEN2  = BIT7
000100                          TXLEN1  = BIT6
000040                          TXLEN0  = BIT5
000004                          RXLEN2  = BIT2
000002                          RXLEN1  = BIT1
000001                          RXLEN0  = BIT0
```

```
                        ;*****************************************************************************
                        ;* TX CONTROL BITS DEFINED ON WORD BASIS
                        ;*****************************************************************************
004000                  TXGOA   = BIT11
002000                  TXABT   = BIT10
001000                  TXEOM   = BIT9
000400                  TXSOM   = BIT8




                        ;*************************************************************
                        ;* RCV CONTROL BITS DEFINED ON WORD BASIS
                        ;*************************************************************
004000                  RXOVR   = BIT11
002000                  RXABT   = BIT10
001000                  RXEBL   = BIT9
000400                  RXBCC   = BIT8




                        ;*****************************************************************************
                        ;* ADDRESS EQUATES FOR REGISTER STORAGE TABLE (LUREG:)
                        ;*****************************************************************************
002266                  LUR10   = LUREG+0       ;LINE UNIT IBUS REG 10
002270                  LUR11   = LUREG+2       ;LINE UNIT IBUS REG 11
002272                  LUR12   = LUREG+4       ;LINE UNIT IBUS REG 12
002274                  LUR13   = LUREG+6       ;LINE UNIT IBUS REG 13
002276                  LUR14   = LUREG+10      ;LINE UNIT IBUS REG 14
002300                  LUR15   = LUREG+12      ;LINE UNIT IBUS REG 15
002302                  LUR16   = LUREG+14      ;LINE UNIT IBUS REG 16
002304                  LUR17   = LUREG+16      ;LINE UNIT IBUS REG 17
002306                  AX0.15  = LUREG+20      ;USYRT REG 0
002310                  AX0.16  = LUREG+22      ;USYRT REG 1
002312                  AX1.15  = LUREG+24      ;USYRT REG 2
002314                  AX1.16  = LUREG+26      ;USYRT REG 3
002316                  AX2.15  = LUREG+30      ;USYRT REG 4
002320                  AX2.16  = LUREG+32      ;USYRT REG 5
002322                  AX3.15  = LUREG+34      ;USYRT REG 6
002324                  AX3.16  = LUREG+36      ;USYRT REG 7




100000                  CHPCHK  = BIT15

100000                  BCCCHK  = BIT15
100000                  CRCCHK  = BIT15

100000                  TCCHEK  = BIT15
```

```
                                ;*************************************************************************
                                ;* MICROINSTRUCTION DEFINITIONS
                                ;*************************************************************************
021000                          MVIOX   = 021000                ;MOVE IBUS TO OBUS*
122000                          MVIXO   = 122000                ;MOVE IBUS* TO OBUS


                                ;***** ERROR1 BIT FLAG DEFINITIONS *****
000001                          RRDYTO  = BIT0
000002                          WRDYTO  = BIT1
```

```
                                                                    .SBTTL  GLOBAL DATA SECTION
                                                                    ;
                                                                    ;////////////////////////////////////////////////////////////////////////
                                                                    ;/      THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                                                    ;/      IN MORE THAN ONE TEST.
                                                                    ;////////////////////////////////////////////////////////////////////////
                                                                    ;
                                                                    ;;**********************************************************************
                                                                    ;* STORAGE FOR DEVICE REGISTERS
                                                                    ;;**********************************************************************
002266                                                              LUREG:  .BLKW   16.
                                                                    ;
                                                                    ;**********************************************************************
                                                                    ;* MISCELLANEOUS STORAGE
                                                                    ;**********************************************************************
002326  000000                                                      SCRACH: .WORD   0               ;GEN'L PURPOSE SCRATCH WORD
002330  000000                                                      LOGDEV: .WORD   0               ;LOGICAL DEVICE NUMBER
002332  000000                                                      PSTACK: .WORD   0               ;CONTAINS BASE LEVEL PROGRAM STACK POINTER
002334  000000                                                      PRIOR:  .WORD   0               ;CPU PRIORITY FOR PRINTOUT
002336  000000                                                      SUBRPC: .WORD   0               ;PC OF SUBR CALL FOR ERROR REPORTS
002340  000000                                                      INTFLG: .WORD   0               ;INTERRUPT RECEIVED FLAGS
                                                                                                    ;  BIT 0 FOR TX, BIT 1 FOR RCV
002342  000000                                                      ERRFLG: .WORD   0               ;SUBROUTINE ERROR FLAG
002344  000000                                                      TIMFLG: .WORD   0               ;EVENT TIME-OUT FLAG
002346  000000                                                      RETADR: .WORD   0               ;SUBR ERROR RETURN ADDRESS
002350  000000                                                      REDBYT: .WORD   0               ;LO BYTE CONTAINS BYTE READ FROM LU REG
002352  000000                                                      WRIBYT: .WORD   0               ;LO BYTE CONTAINS BYTE TO LOAD INTO LU REG
002354  000000                                                      RAX15:  .WORD   0               ;LO BYTE CONTAINS BYTE READ FROM REG 15
002356  000000                                                      RAX16:  .WORD   0               ;LO BYTE CONTAINS BYTE READ FROM REG 16
002360  000000                                                      WAX15:  .WORD   0               ;LO BYTE CONTAINS BYTE TO LOAD INTO REG 15
002362  000000                                                      WAX16:  .WORD   0               ;LO BYTE CONTAINS BYTE TO LOAD INTO REG 16
002364  000000                                                      REGNUM: .WORD   0               ;NUMBER (10-17) OF LINE UNIT REG BEING TESTED
002366  000000                                                      AXNUM:  .WORD   0               ;NUMBER (0-7) OF EXTENDED REG BYTE BEING TESTED
002370  000000                                                      GOODAT: .WORD   0               ;STORAGE FOR EXPECTED DATA
002372  000000                                                      BADDAT: .WORD   0               ;STORAGE FOR ACTUAL DATA
002374  000000                                                      LOADAT: .WORD   0               ;CONTAINS TEST DATA LOADED INTO REG
002376  000000                                                      FRSTIM: .WORD   0               ;FLAG=0 IF PROGRAM JUST LOADED
002400  000000                                                      FRSPAS: .WORD   0               ;FLAG=0 IF FIRST PASS AFTER LOAD
002402  000000                                                      STARES: .WORD   0               ;FLAG=0 IF FIRST TIME THRU AFTER STA OR RES
002404  000000                                                      SAVE4:  .WORD   0               ;SAVE LOC 4 HERE (ERROR TRAP VECTOR)
002406  000000                                                      SAVE6:  .WORD   0               ;SAVE LOC 6 HERE (ERROR TRAP VECTOR)
002410  000000                                                      ERROR1: .WORD   0               ;SUBR ERROR BIT FLAGS (DEF'D IN GLOBAL EQUATES)
002412  000000                                                      TXWORD: .WORD   0               ;BITS 0-11 CONTAIN DATA TO LOAD INTO TX SILO
002414  000000                                                      RXWORD: .WORD   0               ;BITS 0-11 CONTAIN DATA READ FROM RCV SILO
002416  000000                                                      DISILO: .WORD   0               ;CONTAINS CURRENT STATE OF DISSI IN BIT 5
002420  000000                                                      CHPTYP: .WORD   0               ;USYRT CHIP TYPE, =0 FOR SIG, ELSE =1
002422  000000                                                      MODINT: .WORD   0               ;MODEM INTERFACE SELECTION
002424  000000                                                      SAVLEN: .WORD   0               ;SAVED TX AND RCV CHAR LENGTHS
002426  000000                                                      DEVMAP: .WORD   0               ;BIT MAP OF ACTIVE DEVICES
002430  000000                                                      DEVPTR: .WORD   0               ;DEVICE MAP BIT POINTER
002432  000000                                                      UNIT:   .WORD   0               ;CONTAINS UNIT NUMBER (1 TO N)
002434  000000                                                      TSTNUM: .WORD   0               ;CONTAINS TEST NUMBER FOR SOME TESTS

                                                                    ;;********  CURRENT DEVICE PARAMETERS  ************
002436  160170                                                      MPCSR:  .WORD   160170          ;POINTER TO MICROPROCESSOR CSR'S
002440  160171                                                      BSEL1:  .WORD   160171          ;POINTER TO BSEL1
002442                                                              BSEL4:
```

GLOBAL DATA SECTION

```
     58 002442  160174          SEL4:   .WORD   160174          ;POINTER TO SEL4
     59 002444  160176          SEL6:   .WORD   160176          ;POINTER TO SEL6
     60 002446  000300          MPIVEC: .WORD      300          ;MICROPROCESSOR INPUT INTERRUPT VECTOR
     61 002450  000304          MPOVEC: .WORD      304          ;MICROPROCESSOR OUTPUT INTERRUPT VECTOR
     62 002452  000240          MPRIOR: .WORD      240          ;MICROPROCESSOR DEVICE PRIORITY
     63 002454  000000          LUSWI1: .WORD        0          ;LINE UNIT SWITCH PACK #1
     64 002456  000000          LUSWI2: .WORD        0          ;LINE UNIT SWITCH PACK #2
     65 002460  000000          LUSWI3: .WORD        0          ;LINE UNIT SWITCH PACK #3
     66 002462  000000          TSTCON: .WORD        0          ;TEST CONNECTOR INDICATOR
     67 002464  000004          BDRATE: .WORD        4          ;BAUD RATE
     68
     69                         ;***** STORAGE FOR DATA READ IN ADDRESS TESTS *****
     70 002466      000         REDDAT: .BYTE   0
     71 002467      000                 .BYTE   0
     72 002470      000                 .BYTE   0
     73 002471      000                 .BYTE   0
     74 002472      000                 .BYTE   0
     75 002473      000                 .BYTE   0
     76 002474      000                 .BYTE   0
     77 002475      000                 .BYTE   0
     78
     79                         ;;****  GEN'L PURPOSE SCRATCH STORAGE  *****
     80 002476  000000          REG0:   .WORD   0
     81 002500  000000          REG1:   .WORD   0
     82 002502  000000          REG2:   .WORD   0
     83 002504  000000          REG3:   .WORD   0
     84 002506  000000          REG4:   .WORD   0
     85 002510  000000          REG5:   .WORD   0
     86 002512  000000          REG6:   .WORD   0
     87 002514  000000          REG7:   .WORD   0
     88
     89                         ;;****  SCRATCH STORAGE FOR MESSAGE REPORTING   *****
     90 002516  000000          TMP0:   .WORD   0
     91 002520  000000          TMP1:   .WORD   0
     92 002522  000000          TMP2:   .WORD   0
     93 002524  000000          TMP3:   .WORD   0
     94 002526  000000          TMP4:   .WORD   0
     95 002530  000000          TMP5:   .WORD   0
     96 002532  000000          TMP6:   .WORD   0
     97 002534  000000          TMP7:   .WORD   0
     98
     99                         ;***** INBUS LU REG BIT MASKS FOR UNPREDICTABLE BITS *****
    100 002536                  UPBITS:
    101 002536      000                 .BYTE   000             ;MASK FOR REG 10
    102 002537      056                 .BYTE   056             ;MASK FOR REG 11
    103 002540      000                 .BYTE   000             ;MASK FOR REG 12
    104 002541      257                 .BYTE   257             ;MASK FOR REG 13
    105 002542      100                 .BYTE   100             ;MASK FOR REG 14
    106 002543      377                 .BYTE   377             ;MASK FOR REG 15
    107 002544      377                 .BYTE   377             ;MASK FOR REG 16
    108 002545      306                 .BYTE   306             ;MASK FOR REG 17
    109
    110 002546      200         R14NRW: .BYTE   200             ;REG 14 NON-R/W BITS
    111
    112                         ;***** MASKS FOR EXTENDED REGISTER NON-READ/WRITE BITS *****
    113 002547                  ANBITS:
    114 002547      377                 .BYTE   377             ;MASK FOR AX0-15
```

GLOBAL DATA SECTION

```
    115 002550  377                     .BYTE   377             ;MASK FOR AX0-16
    116 002551  000                     .BYTE   000             ;MASK FOR AX1-15
    117 002552  360                     .BYTE   360             ;MASK FOR AX1-16
    118 002553  000                     .BYTE   000             ;MASK FOR AX2-15
    119 002554  000                     .BYTE   000             ;MASK FOR AX2-16
    120 002555  004                     .BYTE   004             ;MASK FOR AX3-15
    121 002556  030                     .BYTE   030             ;MASK FOR AX3-16
    122
    123                         ;***** DATA PATTERN A *****
    124 002557                  PATA:
    125 002557  125                     .BYTE   125
    126 002560  252                     .BYTE   252
    127 002561  000                     .BYTE   000
    128 002562  377                     .BYTE   377
    129 002563  001                     .BYTE   001
    130 002564  002                     .BYTE   002
    131 002565  004                     .BYTE   004
    132 002566  010                     .BYTE   010
    133 002567  020                     .BYTE   020
    134 002570  040                     .BYTE   040
    135 002571  100                     .BYTE   100
    136 002572  200                     .BYTE   200
    137 002573  376                     .BYTE   376
    138 002574  375                     .BYTE   375
    139 002575  373                     .BYTE   373
    140 002576  367                     .BYTE   367
    141 002577  357                     .BYTE   357
    142 002600  337                     .BYTE   337
    143 002601  277                     .BYTE   277
    144 002602  177                     .BYTE   177
    145
    146                         ;***** DATA PATTERN B *****
    147 002603                  PATB:
    148 002603  000                     .BYTE   000
    149 002604  000                     .BYTE   000
    150 002605  040                     .BYTE   040
    151 002606  100                     .BYTE   100
    152 002607  220                     .BYTE   220
    153 002610  000                     .BYTE   000
    154 002611  000                     .BYTE   000
    155 002612  051                     .BYTE   051
    156
    157
    158                         ;***** DATA PATTERN Q *****
    159 002613  000             PATQ:   .BYTE   000
    160 002614  120                     .BYTE   120
    161 002615  125                     .BYTE   125
    162 002616  137                     .BYTE   137
    163 002617  040                     .BYTE   040
    164 002620  052                     .BYTE   052
    165 002621  057                     .BYTE   057
    166 002622  177                     .BYTE   177
    167
    168                         ;***** DATA PATTERN R *****
    169 002623  000             PATR:   .BYTE   000
    170 002624  100                     .BYTE   100
    171 002625  120                     .BYTE   120
```

```
                                                                    D 5
    172 002626      124                         .BYTE   124
    173 002627      164                         .BYTE   164
    174 002630      172                         .BYTE   172
    175 002631      176                         .BYTE   176
    176 002632      177                         .BYTE   177
    177 002633      000                         .BYTE   000
    178 002634      100                         .BYTE   100
    179 002635      120                         .BYTE   120
    180 002636      124                         .BYTE   124
    181 002637      164                         .BYTE   164
    182 002640      172                         .BYTE   172
    183 002641      176                         .BYTE   176
    184
    185                                 ;***** DATA PATTERN S *****
    186 002642      000                 PATS:   .BYTE   000
    187 002643      017                         .BYTE   017
    188 002644      036                         .BYTE   036
    189 002645      074                         .BYTE   074
    190 002646      170                         .BYTE   170
    191 002647      360                         .BYTE   360
    192 002650      037                         .BYTE   037
    193 002651      076                         .BYTE   076
    194 002652      174                         .BYTE   174
    195 002653      370                         .BYTE   370
    196 002654      077                         .BYTE   077
    197 002655      176                         .BYTE   176
    198 002656      374                         .BYTE   374
    199 002657      177                         .BYTE   177
    200 002660      376                         .BYTE   376
    201 002661      377                         .BYTE   377
    202
    203                                 ;***** DATA PATTERN T *****
    204 002662      000                 PATT:   .BYTE   000
    205 002663      125                         .BYTE   125
    206 002664      252                         .BYTE   252
    207 002665      176                         .BYTE   176
    208 002666      177                         .BYTE   177
    209
    210 002667                          ENDPAT:
    211                                 .EVEN
    212
    213
    214
    215
    216
    217                                 ;***  TEST MESSAGES TO BE TRANSMITTED  ***
    218
    219 002670  000400                  MSG1:   TXSOM
    220 002672  000400                          TXSOM
    221 002674  000000                          000
    222 002676  000125                          125
    223 002700  000252                          252
    224 002702  000377                          377
    225 002704  000000                          000
    226 002706  001000                          TXEOM
    227 002710  001000                          TXEOM
    228 002712  001000                          TXEOM
```

GLOBAL DATA SECTION

```
    229 002714  001000                        TXEOM
    230
    231 002716  000400                MSG2:   TXSOM
    232 002720  000400                        TXSOM
    233 002722  000000                        000
    234 002724  000377                        377
    235 002726  001000                        TXEOM
    236 002730  001000                        TXEOM
    237
    238 002732  000001                MSG3:   001
    239 002734  000001                        001
    240 002736  000001                        001
    241 002740  000001                        001
    242 002742  002000                        TXABT
    243 002744  000400                        TXSOM
    244 002746  000400                        TXSOM
    245 002750  000003                        003
    246 002752  000003                        003
    247 002754  000003                        003
    248 002756  000003                        003
    249 002760  000003                        003
    250
    251
    252
    253
    254
    255                             ;*** RECEIVED DATA BUFFER (64. WORDS) ***
    256 002762                      RCVBUF: .BLKW   64.
    257
    258
    259
    260
    261
    262
    263
    264
    265
    266
```

```
                                 .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
                                 ;;*****************************************************************************
003162                                   DEVTYP  <M8203>
003162                                                                                   L$DVTYP::
003162     115     070     062                                                                   .ASCIZ  /M8203/
003165     060     063     000
                                                                                                 .EVEN

                                 ;;*******************************************************************************
                                 ;* TITLE OF PROGRAM
                                 ;;*******************************************************************************
003170                                   DESCRIPT        <M8203 STATIC LOGIC TESTS - PART 2 OF 2>
003170                                                                                   L$DESC::
003170     115     070     062                                                                   .ASCIZ  /M8203 STATIC LOGIC
003173     060     063     040
003176     123     124     101
003201     124     111     103
003204     040     114     117
003207     107     111     103
003212     040     124     105
003215     123     124     123
003220     040     055     040
003223     120     101     122
003226     124     040     062
003231     040     117     106
003234     040     062     000
                                                                                                 .EVEN


                                 ;
                                 ; FORMAT STATEMENTS USED IN PRINT CALLS
                                 ;

                                 ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                 ;     INSERT THE FORMAT STATEMENTS USED IN THE VARIOUS PRINT CALLS.
                                 ;     USE THE .ASCIZ STATEMENT.
                                 ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
                                .SBTTL  GLOBAL SUBROUTINES

                                ;+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                                ;       THE GLOBAL SUBROUTINES ARE CALLED BY MORE THAN ONE TEST
                                ;-----------------------------------------------------------------------------------------------
                                ;
                                ;
                                ;
                                ;
                                ;*********************************************************************************************
                                ;* STPCLK - THIS SUBROUTINE FORCES THE DMC11 OR KMC11 MICROPROCESSOR TO
                                ;*       EXECUTE AN INSTRUCTION WHICH IS PASSED IN THE WORD FOLLOWING THE CALL.
                                ;*********************************************************************************************
003240                          STPCLK:
003240  152777  000006  177172          BISB    #ROMO!ROMI,@BSEL1       ;SET ROMO, ROMI BITS IN BSEL1
003246  017677  000000  177170          MOV     @(SP),@SEL6     ;PUT INSTRUCTION INTO SEL6
003254  152777  000007  177156          BISB    #ROMO!ROMI!STEPMP,@BSEL1 ;SET ROMO, ROMI, STEPMP IN BSEL1
003262  142777  000007  177150          BICB    #ROMO!ROMI!STEPMP,@BSEL1 ;CLEAR ROMO, ROMI, STEPMP IN BSEL1
003270  062716  000002                  ADD     #2,(SP)         ;FIX UP RETURN PC
003274  000207                          RTS     PC              ;RETURN
                                ;
                                ;
                                ;
                                ;
                                ;*********************************************************************************************
                                ;* MSTCLR - THIS SUBROUTINE ISSUES A MASTER CLEAR AND SETS LULOOP
                                ;*********************************************************************************************
003276                          MSTCLR:
003276  010146                          MOV     R1,-(SP)        ;SAVE R1
003300  013746  002364                  MOV     REGNUM,-(SP)    ;SAVE LU REG. NO.
003304  112777  000100  177126          MOVB    #MCLR,@BSEL1    ;SET MASTER CLEAR BIT
003312  142777  000300  177120          BICB    #RUN!MCLR,@BSEL1 ;CLEAR RUN AND MCLR BITS
003320  012701  000024                  MOV     #20.,R1         ;INITIALIZE STALL COUNTER
003324  000240                  2$:     NOP                     ;STALL IN LOOP FOR SEVERAL MICRO-SEC
003326  005301                          DEC     R1
003330  001375                          BNE     2$
003332  152777  000010  177100          BISB    #LULOOP,@BSEL1  ;SET LU LOOP
003340  012737  000013  002364          MOV     #13,REGNUM      ;SET LU REG NO. = 13
003346  005037  002352                  CLR     WRIBYT
003352  004737  003450                  JSR     PC,WRITLU       ;CLEAR REG 13
003356  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
003362  012601                          MOV     (SP)+,R1        ;RESTORE R1
003364  005037  002424                  CLR     SAVLEN          ;CLEAR SAVED CHAR LENGTH FROM SETUP
003370  000207                          RTS     PC              ;RETURN
                                ;
                                ;
                                ;
                                ;
                                ;*********************************************************************************************
                                ;* READLU - THIS SUBROUTINE FORCES THE DMC11 OR KMC11 MICROPROCESSOR
                                ;*       TO EXECUTE AN INSTRUCTION WHICH READS THE LINE UNIT REG WHOSE
                                ;*       NUMBER IS PASSED IN REGNUM, INTO REDBYT.
                                ;*********************************************************************************************
003372                          READLU:
```

GLOBAL SUBROUTINES

```
     58 003372  010146                        MOV     R1,-(SP)        ;SAVE R1
     59 003374  013701  002364                MOV     REGNUM,R1       ;GET LINE UNIT REG NUMBER
     60 003400  006301                        ASL     R1              ;SHIFT INTO SOURCE BITS 4-7
     61 003402  006301                        ASL     R1
     62 003404  006301                        ASL     R1
     63 003406  006301                        ASL     R1
     64 003410  052701  000004                BIS     #4,R1           ;SET DESTINATION = BSEL4
     65 003414  052701  021000                BIS     #MVIOX,R1       ;SET REST OF MOVE INSTRUCTION
     66 003420  010137  003430                MOV     R1,2$           ;SET INSTRUCTION AS SUBROUTINE ARGUMENT
     67 003424  004737  003240                JSR     PC,STPCLK       ;EXECUTE MOVE INSTRUCTION
     68 003430  000000              2$:       .WORD   0               ;INSTRUCTION GOES HERE
     69 003432  117737  177004  002350        MOVB    @BSEL4,REDBYT   ;GET LU REG CONTENTS INTO REDBYT
     70 003440  105037  002351                CLRB    REDBYT+1        ;CLR HI BYTE OF STORAGE
     71 003444  012601                        MOV     (SP)+,R1        ;RESTORE R1
     72 003446  000207                        RTS     PC              ;RETURN
     73
     74
     75
     76
     77
     78                                 ;*********************************************************************
     79                                 ;* WRITLU - THIS SUBROUTINE FORCES THE DMC11 OR KMC11 MICROPROCESSOR TO
     80                                 ;*      EXECUTE AN INSTRUCTION WHICH LOADS THE BYTE CONTAINED IN WRIBYT
     81                                 ;*      INTO THE LU REG WHOSE NUMBER IS PASSED IN REGNUM.
     82                                 ;*********************************************************************
     83 003450                          WRITLU:
     84 003450  010146                          MOV     R1,-(SP)        ;SAVE R1
     85 003452  013701  002364                  MOV     REGNUM,R1       ;GET LINE UNIT REG NUMBER
     86 003456  052701  000100                  BIS     #100,R1         ;SET SOURCE = BSEL4
     87 003462  052701  122000                  BIS     #MVIXO,R1       ;SET REST OF MOVE INSTRUCTION
     88 003466  010137  003510                  MOV     R1,2$           ;SET INSTRUCTION AS SUBROUTINE ARGUMENT
     89 003472  105037  002353                  CLRB    WRIBYT+1        ;CLR HI BYTE OF STORAGE
     90 003476  113777  002352  176736         MOVB    WRIBYT,@BSEL4   ;LOAD BYTE INTO BSEL4
     91 003504  004737  003240                  JSR     PC,STPCLK       ;EXECUTE MOVE INSTRUCTION
     92 003510  000000              2$:         .WORD   0
     93 003512  012601                          MOV     (SP)+,R1        ;RESTORE R1
     94 003514  000207                          RTS     PC              ;RETURN
     95
     96
     97
     98
     99
    100                                 ;*********************************************************************
    101                                 ;* GETREG - THIS SUBROUTINE READS THE LINE UNIT REGISTERS 10-17 INTO THE
    102                                 ;*      REGISTER STORAGE TABLE (LUREG:).
    103                                 ;*********************************************************************
    104 003516  010146                  GETREG: MOV     R1,-(SP)        ;SAVE R1
    105 003520  013746  002364                  MOV     REGNUM,-(SP)    ;SAVE CURRENT REG NO.
    106 003524  012701  002266                  MOV     #LUR10,R1       ;INIT POINTER TO REG STORAGE TABLE
    107 003530  012737  000010  002364          MOV     #10,REGNUM      ;INIT LU REG NO. TO 10
    108 003536  004737  003372          3$:     JSR     PC,READLU       ;READ A LINE UNIT REG
    109 003542  113721  002350                  MOVB    REDBYT,(R1)+    ;PUT BYTE READ INTO TABLE
    110 003546  105021                          CLRB    (R1)+           ;CLEAR UPPER BYTE OF TABLE ENTRY
    111 003550  005237  002364                  INC     REGNUM          ;INCREMENT REG NO.
    112 003554  023727  002364  000020         CMP     REGNUM,#20      ;SEE IF ALL REGS READ YET
    113 003562  002765                          BLT     3$              ;BR IF NOT
    114 003564  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE CURRENT REG NO.
```

```
    115 003570  012601                        MOV     (SP)+,R1        ;RESTORE R1
    116 003572  000207                        RTS     PC              ;RETURN
    117
    118
    119
    120
    121
    122                                 ;*****************************************************************************
    123                                 ;* LOOPIN - THIS SUBROUTINE PLACES THE MICROPROCESSOR IN A LOOP ON AN
    124                                 ;*      INSTRUCTION, BY MOVING THE INSTRUCTION FROM THE WORD FOLLOWING THE CALL
    125                                 ;*      INTO SEL6, AND SETTING RUN AND ROMI IN BSEL1. THE SUBROUTINE RETURNS
    126                                 ;*      WITH THE MICROPROCESSOR STUCK IN THE LOOP, AND IF IT IS DESIRED TO
    127                                 ;*      TERMINATE THE LOOP, THE PDP-11 PROGRAM MUST CLEAR THE RUN BIT IN
    128                                 ;*      BSEL1, OR CALL SUBROUTINE MSTCLR TO DO THIS.
    129                                 ;*****************************************************************************
    130 003574                          LOOPIN:
    131 003574  152777  000006  176636          BISB    #ROMO!ROMI,@BSEL1       ;SET ROMO, ROMI BITS IN BSEL1
    132 003602  017677  000000  176634          MOV     @(SP),@SEL6     ;PUT MICROINSTRUCTION INTO SEL6
    133 003610  152777  000206  176622          BISB    #RUN!ROMO!ROMI,@BSEL1 ;SET RUN, ROMO, ROMI IN BSEL1
    134 003616  062716  000002                  ADD     #2,(SP)         ;FIX UP RETURN PC
    135 003622  000207                          RTS     PC              ;RETURN WITH MICROPROCESSOR STUCK IN SINGLE
    136                                                                 ;    INSTRUCTION LOOP
    137
    138
    139
    140
    141
    142                                 ;*****************************************************************************
    143                                 ;* READAX - THIS SUBROUTINE READS THE USYRT REG PAIR WHOSE NUMBER (0-3)
    144                                 ;*      IS PASSED IN BITS 1,2 OF AXNUM ON ENTRY, AND RETURNS THE BYTES READ IN
    145                                 ;*      RAX15 AND RAX16. IF THE LINE UNIT DOES NOT RESPOND WITH READY IN REG 14,
    146                                 ;*      RRDYTO BIT IS SET IN ERROR1 ON RETURN.
    147                                 ;*****************************************************************************
    148 003624  010146                  READAX: MOV     R1,-(SP)        ;SAVE R1
    149 003626  013746  002364                  MOV     REGNUM,-(SP)    ;STORE CURRENT REG NO.
    150 003632  042737  000001  002410          BIC     #RRDYTO,ERROR1  ;CLEAR ERROR BIT
    151 003640  012737  000014  002364          MOV     #14,REGNUM      ;SET LU REG NO. = 14
    152 003646  113737  002366  002352          MOVB    AXNUM,WRIBYT    ;SET UP AX REG NO. BITS
    153 003654  006237  002352                  ASR     WRIBYT
    154 003660  152737  000024  002352          BISB    #RDAX!ENAX,WRIBYT ;SET UP BITS TO LOAD INTO REG 14
    155 003666  053737  002416  002352          BIS     DISILO,WRIBYT   ;SET PROPER STATE OF DISSI BIT
    156 003674  004737  003450                  JSR     PC,WRITLU       ;SET RDAX AND ENAX IN REG 14
    157 003700  005001                          CLR     R1              ;INIT TIMER
    158 003702  004737  003372          6$:     JSR     PC,READLU       ;READ REG 14
    159 003706  132737  000200  002350          BITB    #READY,REDBYT   ;SEE IF READY BIT SET IN REG 14 YET
    160 003714  001006                          BNE     9$              ;BR IF READY SET
    161 003716  005201                          INC     R1              ;INCR TIMER
    162 003720  001370                          BNE     6$              ;BR IF TIMER DIDN'T TIME OUT YET
    163 003722  052737  000001  002410          BIS     #RRDYTO,ERROR1  ;SET ERROR FLAG FOR TIME OUT ON READ RDY
    164 003730  000424                          BR      12$             ;BR TO RETURN
    165 003732  012737  000015  002364  9$:     MOV     #15,REGNUM      ;SET REG NO. = 15
    166 003740  004737  003372                  JSR     PC,READLU       ;READ REG 15
    167 003744  113737  002350  002354          MOVB    REDBYT,RAX15    ;STORE REG AX-15
    168 003752  105037  002355                  CLRB    RAX15+1         ;CLR HI BYTE OF STORAGE
    169 003756  012737  000016  002364          MOV     #16,REGNUM      ;SET REG NO. = 16
    170 003764  004737  003372                  JSR     PC,READLU       ;READ REG 16
    171 003770  113737  002350  002356          MOVB    REDBYT,RAX16    ;STORE REG AX-16
```

```
                                                CLRB    RAX16+1         ;CLR HI BYTE OF STORAGE
                                        12$:    MOV     (SP)+,REGNUM    ;RESTORE CURRENT REG NO.
                                                MOV     (SP)+,R1        ;RESTORE R1
                                                RTS     PC              ;RETURN


                                ;*******************************************************************************
                                ;* WRITAX - THIS SUBROUTINE WRITES THE USYRT REG PAIR WHOSE NUMBER (0-3) IS
                                ;*      PASSED IN BITS 1,2 OF AXNUM ON ENTRY, WITH THE DATA FROM WAX15 AND
                                ;*      WAX16. IF LINE UNIT DOES NOT RESPOND WITH READY IN REG 14, WRDYTO BIT
                                ;*      IS SET IN ERROR1 ON RETURN.
                                ;*******************************************************************************
                                WRITAX: MOV     R1,-(SP)        ;SAVE R1
                                        MOV     REGNUM,-(SP)    ;SAVE CURRENT REG NO.
                                        BIC     #WRDYTO,ERROR1  ;CLEAR ERROR BIT
                                        MOV     #14,REGNUM      ;SET LU REG NO. = 14
                                        MOVB    AXNUM,WRIBYT    ;SET AX REG NO. BITS
                                        ASR     WRIBYT
                                        BIS     DISILO,WRIBYT   ;SET PROPER STATE OF DISSI BIT
                                        JSR     PC,WRITLU       ;SET AX NO. BITS IN REG 14
                                        MOV     #15,REGNUM      ;SET REG NO. = 15
                                        CLRB    WAX15+1         ;CLR HI BYTE OF STORAGE
                                        MOVB    WAX15,WRIBYT    ;SET UP BYTE TO WRITE INTO REG 15
                                        JSR     PC,WRITLU       ;WRITE BYTE INTO REG 15
                                        INC     REGNUM          ;SET REG NO. = 16
                                        CLRB    WAX16+1         ;CLR HI BYTE OF STORAGE
                                        MOVB    WAX16,WRIBYT    ;SET UP BYTE TO WRITE INTO REG 16
                                        JSR     PC,WRITLU       ;WRITE BYTE INTO REG 16
                                        MOV     #14,REGNUM      ;SET REG NO. = 14
                                        MOVB    AXNUM,WRIBYT    ;SET AX REG NO. BITS
                                        ASR     WRIBYT
                                        BISB    #ENAX!WAX,WRIBYT ;SET UP BITS TO LOAD INTO REG 14
                                        BIS     DISILO,WRIBYT   ;SET PROPER STATE OF DISSI BIT
                                        JSR     PC,WRITLU       ;SET ENAX AND WAX IN REG 14
                                        CLR     R1              ;INIT PROGRAM TIMER
                                6$:     JSR     PC,READLU       ;READ REG 14
                                        BITB    #READY,REDBYT   ;SEE IF READY BIT SET IN REG 14 YET
                                        BNE     9$              ;BR IF READY SET
                                        INC     R1              ;INCR TIMER
                                        BNE     6$              ;BR IF TIMER DIDN'T TIME OUT YET
                                        BIS     #WRDYTO,ERROR1  ;SET ERROR FLAG BIT FOR TIME OUT ON WRITE RDY
                                9$:     MOV     (SP)+,REGNUM    ;RESTORE CURRENT REG NO.
                                        MOV     (SP)+,R1        ;RESTORE R1
                                        RTS     PC              ;RETURN


                                ;*******************************************************************************
                                ;* GETALL - THIS SUBROUTINE READS THE LINE UNIT REGS 10-17 AND THE EXTENDED
                                ;*      REGISTERS AX0-AX3 INTO REGISTER STORAGE TABLE (LUREG:).
                                ;*******************************************************************************
                                GETALL: MOV     R1,-(SP)        ;SAVE R1
                                        MOV     AXNUM,-(SP)     ;SAVE CURRENT AX REG BYTE NO.
```

GLOBAL SUBROUTINES

```
                                        MOV     #DH5,TMP0       ;SET AX LO BYTE NO.
                                        BIT     #BIT0,AXNUM     ;SEE IF LO OR HI BYTE
                                        BEQ     1$              ;BR IF LO BYTE
                                        MOV     #DH6,TMP0       ;SET AX HI BYTE NO.
                                1$:     JSR     PC,GETREG       ;READ AND STORE REGS 10-17
                                        BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
                                        MOV     #AX0.15,R1      ;INIT POINTER TO REG STORAGE TABLE
                                        CLR     AXNUM           ;INIT AX REG BYTE NO. TO 0
                                3$:     JSR     PC,READAX       ;READ 2 AX REG BYTES
                                        MOVB    RAX15,(R1)+     ;PUT LO BYTE READ INTO TABLE
                                        CLRB    (R1)+           ;CLEAR UPPER BYTE OF TABLE ENTRY
                                        MOVB    RAX16,(R1)+     ;PUT HI BYTE READ INTO TABLE
                                        CLRB    (R1)+           ;CLEAR UPPER BYTE OF TABLE ENTRY
                                        ADD     #2,AXNUM        ;INCR AX REG BYTE NO.
                                        CMP     AXNUM,#10       ;SEE IF ALL REGS READ YET
                                        BLT     3$              ;BR IF NOT
                                        MOV     (SP)+,AXNUM     ;RESTORE CURRENT AX REG BYTE NO.
                                        MOV     (SP)+,R1        ;RESTORE R1
                                        MOV     AXNUM,TMP1
                                        ASR     TMP1            ;GET EXTENDED REG NO. FOR PRINTOUT
                                        RTS     PC              ;RETURN


;*****************************************************************************
;* OSIRDY - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF ORDY (REG 11)
;*      AND OCOR (REG 17) AND REPORTS AN ERROR IF EITHER IS NOT PROPERLY SET
;*      AS PASSED IN BIT 0 (ORDY) AND BIT 1 (OCOR) OF THE WORD FOLLOWING THE
;*      CALL.
;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST, AT THE ADDRESS IN
;*      RETADR.
;*****************************************************************************
OSIRDY: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
        MOV     SUBRPC,-(SP)
        TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
        BNE     1$              ;BR IF YES
        MOV     4(SP),SUBRPC
        SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
1$:     MOV     #11,REGNUM      ;SET REG NO. TO 11
        JSR     PC,READLU       ;READ REG 11
        BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF ORDY
        BEQ     3$              ;BR IF EXPECTED ORDY = 0
        BITB    #ORDY,REDBYT    ;SEE IF ORDY = 1
        BNE     9$              ;BR IF ORDY = 1
        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
;REPORT ORDY NOT SET
        ERRDF   7,EM7,ERR4
                                                                TRAP    C$ERDF
                                                                .WORD   7
                                                                .WORD   EM7
                                                                .WORD   ERR4
        BR      16$             ;TAKE ERROR RETURN
3$:     BITB    #ORDY,REDBYT    ;SEE IF ORDY = 0
        BEQ     9$              ;BR IF ORDY = 0
        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
```

```
                                        ;REPORT ORDY NOT CLEARED
                                                ERRDF   8,EM8,ERR4
004500                                                                                  TRAP    C$ERDF
004500  104455                                                                        .WORD   8
004502  000010                                                                        .WORD   EM8
004504  013360                                                                        .WORD   ERR4
004506  016434
004510  000436                                BR      16$             ;TAKE ERROR RETURN
004512  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
004520  004737  003372                  JSR     PC,READLU       ;READ LU REG 17
004524  132776  000002  000004          BITB    #BIT1,@4(SP)    ;GET EXPECTED STATE OF OCOR
004532  001413                          BEQ     12$             ;BR IF EXPECTED OCOR = 0
004534  132737  000020  002350          BITB    #OCOR,REDBYT    ;SEE IF OCOR = 1
004542  001031                          BNE     20$             ;BR IF OCOR = 1
004544  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OCOR NOT SET
                                                ERRDF   9,EM9,ERR4
004550                                                                                  TRAP    C$ERDF
004550  104455                                                                        .WORD   9
004552  000011                                                                        .WORD   EM9
004554  013401                                                                        .WORD   ERR4
004556  016434
004560  000412                                BR      16$             ;TAKE ERROR RETURN
004562  132737  000020  002350  12$:     BITB    #OCOR,REDBYT    ;SEE IF OCOR = 0
004570  001416                          BEQ     20$             ;BR IF OCOR = 0
004572  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OCOR NOT CLEARED
                                                ERRDF   10,EM10,ERR4
004576                                                                                  TRAP    C$ERDF
004576  104455                                                                        .WORD   10
004600  000012                                                                        .WORD   EM10
004602  013416                                                                        .WORD   ERR4
004604  016434
004606  016637  000002  002364  16$:     MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
004614  013706  002332                  MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
004620  013746  002346                  MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
004624  000407                          BR      23$
004626  062766  000002  000004  20$:     ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
004634  012637  002336                  MOV     (SP)+,SUBRPC
004640  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
004644  000207                  23$:    RTS     PC              ;RETURN


;*****************************************************************************
;* WAIT50 - THIS SUBROUTINE STALLS FOR AT LEAST 50 MICRO-SEC, AND THEN RETURNS.
;*****************************************************************************
004646  010146                  WAIT50: MOV     R1,-(SP)        ;SAVE R1
004650  012701  000310                  MOV     #200.,R1        ;INIT COUNTER
004654  005301                  3$:     DEC     R1              ;DECREMENT COUNTER
004656  001376                          BNE     3$              ;BR IF NOT DONE YET
004660  012601                          MOV     (SP)+,R1        ;RESTORE R1
004662  000207                          RTS     PC              ;RETURN
```

GLOBAL SUBROUTINES

```
                                ;*****************************************************************************
                                ;* STALL - THIS SUBROUTINE STALLS FOR ABOUT A MICRO-SEC.
                                ;*****************************************************************************
004664  000240                STALL:  NOP
004666  000240                        NOP
004670  000240                        NOP
004672  000207                        RTS     PC


                                ;*****************************************************************************
                                ;* LDTXSI - THIS SUBROUTINE LOADS THE TX SILO (REGS 10,11) WITH THE DATA PASSED
                                ;*      IN BITS 0-11 OF TXWORD.
                                ;*****************************************************************************
004674  013746  002364          LDTXSI: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
004700  042737  170000  002412        BIC     #170000,TXWORD  ;CLEAR UNUSED BITS
004706  012737  000011  002364        MOV     #11,REGNUM      ;SET REG NO. = 11
004714  113737  002413  002352        MOVB    TXWORD+1,WRIBYT ;SET DATA TO BE WRITTEN INTO REG 11
004722  004737  003450                JSR     PC,WRITLU       ;LOAD DATA INTO REG 11
004726  012737  000010  002364        MOV     #10,REGNUM      ;SET REG NO. = 10
004734  113737  002412  002352        MOVB    TXWORD,WRIBYT   ;SET DATA TO BE WRITTEN INTO REG 10
004742  004737  003450                JSR     PC,WRITLU       ;LOAD DATA INTO REG 10
004746  012637  002364                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
004752  000207                        RTS     PC              ;RETURN


                                ;*****************************************************************************
                                ;* STPLU - THIS SUBROUTINE CLOCKS THE LINE UNIT FOR THE NO. OF CYCLES PASSED
                                ;*      IN BITS 0-14 OF THE WORD FOLLOWING THE CALL.
                                ;*      IF BIT 15 = 1, A CHECK IS MADE TO DETERMINE IF THE USYRT CHIP TYPE
                                ;*      REQUIRES DECREMENTING THE NO. OF CYCLES BY 1.
                                ;*****************************************************************************
004754  010146                STPLU:  MOV     R1,-(SP)        ;SAVE R1
004756  017601  000002                MOV     @2(SP),R1       ;GET DESIRED NO. OF CYCLES
004762  001426                        BEQ     6$              ;IF DESIRED CYCLES = 0, RETURN
004764  100006                        BPL     2$              ;BR IF CHIP TYPE CHECK NOT NECESSARY
004766  042701  100000                BIC     #BIT15,R1       ;CLEAR FLAG BIT
004772  005737  002420                TST     CHPTYP          ;SEE IF SIG USYRT
004776  001401                        BEQ     2$              ;BR IF YES
005000  005301                        DEC     R1              ;DECREMENT CYCLE COUNT
005002  152777  000010  175430  2$:   BISB    #LULOOP,@BSEL1  ;SET LU LOOP BIT
005010  152777  000020  175422  3$:   BISB    #STEPLU,@BSEL1  ;SET THE STEPLU BIT (CLOCK THE TRANSMITTER)
005016  004737  004664                JSR     PC,STALL        ;STALL
005022  142777  000020  175410        BICB    #STEPLU,@BSEL1  ;CLEAR THE STEPLU BIT (CLOCK THE RECEIVER)
005030  004737  004664                JSR     PC,STALL        ;STALL
005034  005301                        DEC     R1              ;DECREMENT CYCLE COUNTER
005036  001364                        BNE     3$              ;BR IF NOT DONE YET
005040  062766  000002  000002  6$:   ADD     #2,2(SP)        ;FIX UP RETURN PC
005046  012601                        MOV     (SP)+,R1        ;RESTORE R1
005050  000207                        RTS     PC              ;RETURN
```

```
                                        ;*****************************************************************************
                                        ;* OACTIV - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF OACT (REG 11) AND
                                        ;*      REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE STATE OF BIT 0 IN THE
                                        ;*      WORD FOLLOWING THE CALL.
                                        ;*****************************************************************************
005052  013746  002364          OACTIV: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
005056  013746  002336                  MOV     SUBRPC,-(SP)
005062  005737  002336                  TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
005066  001006                          BNE     1$              ;BR IF YES
005070  016637  000004  002336          MOV     4(SP),SUBRPC
005076  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
005104  012737  000011  002364  1$:     MOV     #11,REGNUM      ;SET REG NO. = 11
005112  004737  003372                  JSR     PC,READLU       ;READ REG 11
005116  032776  000001  000004          BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF OACT
005124  001413                          BEQ     3$              ;BR IF EXPECTED OAC1 = 0
005126  132737  000100  002350          BITB    #OACT,REDBYT    ;SEE IF OACT = 1
005134  001031                          BNE     9$              ;BR IF OACT = 1
005136  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT OACT NOT SET
005142                                  ERRDF   11,EM11,ERR4
005142  104455                                                                  TRAP    C$ERDF
005144  000013                                                                  .WORD   11
005146  013437                                                                  .WORD   EM11
005150  016434                                                                  .WORD   ERR4
005152  000412                          BR      6$              ;TAKE ERROR RETURN
005154  132737  000100  002350  3$:     BITB    #OACT,REDBYT    ;SEE IF OACT = 0
005162  001416                          BEQ     9$              ;BR IF OACT = 0
005164  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT OACT NOT CLEARED
005170                                  ERRDF   12,EM12,ERR4
005170  104455                                                                  TRAP    C$ERDF
005172  000014                                                                  .WORD   12
005174  013454                                                                  .WORD   EM12
005176  016434                                                                  .WORD   ERR4
005200  016637  000002  002364  6$:     MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
005206  013706  002332                  MOV     PSTACK,SP       ;RESTORE PROGRAM STACK TO BASE LEVEL
005212  013746  002346                  MOV     RETADR,-(SP)    ;FIX UP ERROR RETURN PC
005216  000407                          BR      12$
005220  062766  000002  000004  9$:     ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
005226  012637  002336                  MOV     (SP)+,SUBRPC
005232  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
005236  000207                  12$:    RTS     PC              ;RETURN


                                        ;*****************************************************************************
                                        ;* INITRN - THIS SUBROUTINE INITIATES TRANSMISSION OF A MESSAGE, BY DOING A
                                        ;*      MASTER CLEAR, LOADING AX2-15 AND REG 17 WITH THE DATA PASSED IN THE 2
                                        ;*      WORDS FOLLOWING THE CALL, LOADING 2 SOM CHARS INTO THE TX SILO, AND
                                        ;*      CLOCKING THE LINE UNIT UNTIL THE FIRST SYNCH OR FLAG HAS BEEN SERIALIZED
                                        ;*      IN THE USYRT. THE PROGRAM MONITORS ORDY,OCOR, AND OACT FOR VALID STATES.
                                        ;*      THROUGHOUT THE PROCESS.
```

GLOBAL SUBROUTINES

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                        ;*      IF THE SUBROUTINE DETECTS AN ERROR, A RETURN IS MADE TO THE TEST, AT THE
                        ;*      ADDRESS CONTAINED IN RETADR.
                        ;*****************************************************************************
005240  010146          INITRN: MOV     R1,-(SP)        ;SAVE R1
005242  013746  002364          MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
005246  013746  002366          MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
005252  016637  000006  002336  MOV     6(SP),SUBRPC
005260  162737  000004  002336  SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
005266  004737  003276          JSR     PC,MSTCLR       ;ISSUE A MASTER CLEAR
005272  004737  004362          JSR     PC,OSIRDY       ;CHECK ORDY=1, OCOR=0
005276  000001                  1
005300  004737  005052          JSR     PC,OACTIV       ;CHK OACT=0
005304  000000                  0
005306  012737  000004  002366  MOV     #4,AXNUM        ;SET AX BYTE NO. = 4 FOR AX2
005314  117637  000006  002360  MOVB    @6(SP),WAX15    ;SET DATA BYTE TO LOAD INTO AX2-15
005322  012737  000400  002412  MOV     #TXSOM,TXWORD   ;SET TSOM BIT
005330  113737  002360  002412  MOVB    WAX15,TXWORD    ;SET SYNCH CHAR
005336  005037  002362          CLR     WAX16
005342  004737  004012          JSR     PC,WRITAX       ;LOAD AX2
005346  012737  000017  002364  MOV     #17,REGNUM      ;SET REG NO. = 17
005354  062766  000002  000006  ADD     #2,6(SP)        ;INCR POINTER TO NEXT DATA BYTE
005362  117637  000006  002352  MOVB    @6(SP),WRIBYT   ;SET DATA BYTE TO LOAD INTO REG 17
005370  004737  003450          JSR     PC,WRITLU       ;LOAD REG 17
005374  004737  004674          JSR     PC,LDTXSI       ;LOAD THE SILO WITH SOM CHAR
005400  004737  004674          JSR     PC,LDTXSI       ;LOAD ANOTHER SOM INTO SILO
005404  004737  004646          JSR     PC,WAIT50       ;WAIT FOR DATA TO RIPPLE
005410  004737  004362          JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=1
005414  000003                  3
005416  004737  005052          JSR     PC,OACTIV       ;CHK FOR OACT = 0
005422  000000                  0
005424  005001                  CLR     R1              ;INIT CYCLE COUNTER
005426  012737  000011  002364  MOV     #11,REGNUM      ;SET LU REG NO. = 11
005434  152777  000010  174776  6$:     BISB    #LULOOP,@BSEL1  ;SET LINE UNIT LOOP BIT
005442  152777  000020  174770          BISB    #STEPLU,@BSEL1  ;SET CLOCK BIT
005450  004737  004664          JSR     PC,STALL        ;STALL FOR MICRO-SEC
005454  004737  003372          JSR     PC,READLU       ;READ REG 11
005460  132737  000100  002350  BITB    #OACT,REDBYT    ;SEE IF OACT = 1 YET
005466  001014                  BNE     9$              ;BR IF OACT = 1
005470  142777  000020  174742  BICB    #STEPLU,@BSEL1  ;CLEAR CLOCK BIT
005476  004737  004664          JSR     PC,STALL        ;STALL FOR A MICRO-SEC
005502  005201                  INC     R1              ;INCR CYCLE COUNT
005504  020127  000003          CMP     R1,#3           ;SEE IF 3 CYCLES DONE YET
005510  002751                  BLT     6$              ;BR IF NOT
005512  004737  005052          JSR     PC,OACTIV       ;CHK FOR OACT = 1
005516  000001                  1
005520  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
005526  005037  002420          CLR     CHPTYP          ;CLEAR USYRT CHIP INDICATOR
005532  004737  003372          JSR     PC,READLU       ;READ REG 17
005536  132737  000020  002350  BITB    #OCOR,REDBYT    ;CHK FOR OCOR CLEARED YET
005544  001403                  BEQ     12$             ;BR IF YES - IT IS SIG CHIP
005546  012737  000001  002420  MOV     #1,CHPTYP       ;SET INDICATOR FOR OTHER CHIP TYPE
005554  142777  000020  174656  12$:    BICB    #STEPLU,@BSEL1  ;CLEAR CLOCK BIT
005562  004737  004664          JSR     PC,STALL        ;STALL FOR MICRO-SEC
005566  004737  004362          JSR     PC,OSIRDY       ;CHK FOR ORDY = 1, OCOR = 0
005572  000001                  1
005574  062766  000002  000006  ADD     #2,6(SP)        ;FIX UP RETURN PC
005602  012637  002366          MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
```

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                        MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
                        MOV     (SP)+,R1        ;RESTORE R1
                        CLR     SUBRPC          ;CLEAR SUBR CALL PC
                        RTS     PC              ;RETURN


                ;*******************************************************************************
                ;* TXCHAR - THIS SUBROUTINE INITIATES TRANSMISSION OF A CHARACTER, BY LOADING
                ;*      THE TX SILO WITH DATA PASSED IN BITS 0-11 OF THE WORD FOLLOWING THE CALL
                ;*      AND CLOCKS THE LINE UNIT WITH THE NUMBER OF CYCLES PASSED IN BITS 0-14
                ;*      OF THE SECOND WORD FOLLOWING THE CALL. IF BIT 15 = 1, A CHK IS MADE TO
                ;*      DETERMINE IF THE USYRT CHIP TYPE REQUIRES DECREMENTING THE NO. OF CYCLES
                ;*      BY 1. THE PROGRAM CHECKS FOR VALID STATES OF ORDY,
                ;*      OCOR, AND OACT THROUGHOUT THE PROCESS.
                ;*      IF AN ERROR IS DETECTED, A RETURN IS MADE TO THE TEST, AT THE ADDRESS
                ;*      CONTAINED IN RETADR.
                ;*******************************************************************************
                TXCHAR: MOV     R1,-(SP)        ;SAVE R1
                        MOV     R2,-(SP)        ;SAVE R2
                        MOV     4(SP),SUBRPC
                        SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
                        MOV     @4(SP),TXWORD   ;GET DATA TO BE TRANSMITTED
                        JSR     PC,LDTXSI       ;LOAD THE TX SILO WITH THE DATA
                        JSR     PC,WAIT50       ;WAIT FOR DATA TO RIPPLE DOWN SILO
                        ADD     #2,4(SP)        ;INCR POINTER
                        CLR     R1              ;INIT CYCLE COUNT
                        MOV     @4(SP),R2       ;GET DESIRED NO. OF CYCLES
                        TST     R2              ;SEE IF CHIP TYPE CHK SHOULD BE MADE
                        BPL     9$              ;BR IF NOT
                        BIC     #BIT15,R2       ;CLEAR FLAG BIT
                        TST     CHPTYP          ;SEE IF SIG USYRT
                        BEQ     9$              ;BR IF YES
                        DEC     R2              ;DECREMENT NO. OF CYCLES
                9$:     JSR     PC,OACTIV       ;CHK OACT = 1
                        1
                        CMP     R1,R2           ;SEE IF REQUIRED CYCLES DONE YET
                        BEQ     12$             ;BR IF YES
                        JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=1
                        3
                        JSR     PC,STPLU        ;STEP LU ONE CYCLE
                        1
                        INC     R1              ;INCR CYCLE COUNT
                        BR      9$
                12$:    JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=0
                        1
                        ADD     #2,4(SP)        ;FIX UP RETURN PC
                        CLR     SUBRPC          ;CLEAR SUBR CALL PC
                        MOV     (SP)+,R2        ;RESTORE R2
                        MOV     (SP)+,R1        ;RESTORE R1
                        RTS     PC              ;RETURN
```

```
                        ;*****************************************************************************
                        ;* ISIRDY - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF ICIR (REG 17)
                        ;*      AND IRDY (REG 12) AND REPORTS AN ERROR IF EITHER IS NOT PROPERLY SET
                        ;*      AS PASSED IN BIT 0 (ICIR) AND BIT 1 (IRDY) OF THE WORD FOLLOWING THE
                        ;*      CALL.
                        ;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS
                        ;*      IN RETADR.
                        ;*****************************************************************************
005774 013746 002364    ISIRDY: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
006000 013746 002336            MOV     SUBRPC,-(SP)
006004 005737 002336            TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
006010 001006                   BNE     1$              ;BR IF YES
006012 016637 000004 002336     MOV     4(SP),SUBRPC
006020 162737 000004 002336     SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
006026 012737 000012 002364 1$: MOV     #12,REGNUM      ;SET REG NO. TO 12
006034 004737 003372            JSR     PC,READLU       ;READ REG 12
006040 032776 000002 000004     BIT     #BIT1,@4(SP)    ;GET EXPECTED STATE OF IRDY
006046 001413                   BEQ     3$              ;BR IF EXPECTED IRDY = 0
006050 132737 000020 002350     BITB    #IRDY,REDBYT    ;SEE IF IRDY = 1
006056 001022                   BNE     9$              ;BR IF IRDY = 1
006060 004737 004226            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT IRDY NOT SET
006064                          ERRDF   17,EM17,ERR4
006064 104455                                                   TRAP    C$ERDF
006066 000021                                                   .WORD   17
006070 013475                                                   .WORD   EM17
006072 016434                                                   .WORD   ERR4
006074 000451                   BR      16$             ;TAKE ERROR EXIT
006076 132737 000020 002350 3$: BITB    #IRDY,REDBYT    ;SEE IF IRDY = 0
006104 001407                   BEQ     9$              ;BR IF IRDY = 0
006106 004737 004226            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT IRDY NOT CLEARED
006112                          ERRDF   18,EM18,ERR4
006112 104455                                                   TRAP    C$ERDF
006114 000022                                                   .WORD   18
006116 013512                                                   .WORD   EM18
006120 016434                                                   .WORD   ERR4
006122 000436                   BR      16$             ;TAKE ERROR RETURN
006124 012737 000017 002364 9$: MOV     #17,REGNUM      ;SET REG NO. = 17
006132 004737 003372            JSR     PC,READLU       ;READ REG 17
006136 132776 000001 000004     BITB    #BIT0,@4(SP)    ;GET EXPECTED STATE OF ICIR
006144 001413                   BEQ     12$             ;BR IF EXPECTED ICIR = 0
006146 132737 000010 002350     BITB    #ICIR,REDBYT    ;SEE IF ICIR = 1
006154 001031                   BNE     20$             ;BR IF ICIR = 1
006156 004737 004226            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT ICIR NOT SET
006162                          ERRDF   19,EM19,ERR4
006162 104455                                                   TRAP    C$ERDF
006164 000023                                                   .WORD   19
006166 013533                                                   .WORD   EM19
006170 016434                                                   .WORD   ERR4
006172 000412                   BR      16$             ;TAKE ERROR RETURN
006174 132737 000010 002350 12$: BITB   #ICIR,REDBYT    ;SEE IF ICIR = 0
006202 001416                   BEQ     20$             ;BR IF ICIR = 0
006204 004737 004226            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT ICIR NOT CLEARED
```

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                                                                                                                    E 6
    592 006210                                          ERRDF   20,EM20,ERR4
        006210  104455                                                                                    TRAP    C$ERDF
        006212  000024                                                                                    .WORD   20
        006214  013550                                                                                    .WORD   EM20
        006216  016434                                                                                    .WORD   ERR4
    593 006220  016637  000002  002364  16$:    MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
    594 006226  013706  002332                  MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
    595 006232  013746  002346                  MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
    596 006236  000407                          BR      23$
    597 006240  062766  000002  000004  20$:    ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
    598 006246  012637  002336                  MOV     (SP)+,SUBRPC
    599 006252  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
    600 006256  000207                  23$:    RTS     PC              ;RETURN
    601
    602
    603
    604
    605
    606                                         ;*******************************************************************************
    607                                         ;* IACTIV - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF IACT (REG 12) AND
    608                                         ;*      REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE STATE OF BIT 0 IN THE
    609                                         ;*      WORD FOLLOWING THE CALL.
    610                                         ;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS IN
    611                                         ;*      RETADR.
    612                                         ;*******************************************************************************
    613 006260  013746  002364          IACTIV: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
    614 006264  013746  002336                  MOV     SUBRPC,-(SP)
    615 006270  005737  002336                  TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
    616 006274  001006                          BNE     1$              ;BR IF YES
    617 006276  016637  000004  002336          MOV     4(SP),SUBRPC
    618 006304  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
    619 006312  012737  000012  002364  1$:     MOV     #12,REGNUM      ;SET REG NO. = 12
    620 006320  004737  003372                  JSR     PC,READLL       ;READ REG 12
    621 006324  032776  000001  000004          BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF IACT
    622 006332  001413                          BEQ     3$              ;BR IF EXPECTED IACT = 0
    623 006334  132737  000100  002350          BITB    #IACT,REDBYT    ;SEE IF IACT = 1
    624 006342  001031                          BNE     9$              ;BR IF IACT = 1
    625 006344  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    626                                 ;REPORT IACT NOT SET
    627 006350                                  ERRDF   21,EM21,ERR4
        006350  104455                                                                                    TRAP    C$ERDF
        006352  000025                                                                                    .WORD   21
        006354  013571                                                                                    .WORD   EM21
        006356  016434                                                                                    .WORD   ERR4
    628 006360  000412                          BR      6$              ;TAKE ERROR EXIT
    629 006362  132737  000100  002350  3$:     BITB    #IACT,REDBYT    ;SEE IF IACT = 0
    630 006370  001416                          BEQ     9$              ;BR IF IACT = 0
    631 006372  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    632                                 ;REPORT IACT NOT CLEARED
    633 006376                                  ERRDF   22,EM22,ERR4
        006376  104455                                                                                    TRAP    C$ERDF
        006400  000026                                                                                    .WORD   22
        006402  013606                                                                                    .WORD   EM22
        006404  016434                                                                                    .WORD   ERR4
    634 006406  016637  000002  002364  6$:     MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
    635 006414  013706  002332                  MOV     PSTACK,SP       ;RESTORE PROGRAM STACK TO BASE LEVEL
    636 006420  013746  002346                  MOV     RETADR,-(SP)    ;FIX UP ERROR RETURN PC
```

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    637 006424  000407                          BR      12$
    638 006426  062766  000002  000004  9$:     ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
    639 006434  012637  002336                  MOV     (SP)+,SUBRPC
    640 006440  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
    641 006444  000207                  12$:    RTS     PC              ;RETURN
    642
    643
    644
    645
    646
    647                                 ;*************************************************************************
    648                                 ;* RSEOM - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF RSOM AND REOM IN
    649                                 ;* AX0-16, AND REPORTS AN ERROR IF EITHER IS NOT SET TO THE STATE PASSED IN BITS
    650                                 ;* 0,1, RESPECTIVELY, OF THE WORD FOLLOWING THE CALL.
    651                                 ;* IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS IN RETADR.
    652                                 ;*************************************************************************
    653 006446  013746  002366          RSEOM:  MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
    654 006452  013746  002336                  MOV     SUBRPC,-(SP)
    655 006456  005737  002336                  TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
    656 006462  001006                          BNE     1$              ;BR IF YES
    657 006464  016637  000004  002336          MOV     4(SP),SUBRPC
    658 006472  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
    659 006500  012737  000001  002366  1$:     MOV     #1,AXNUM        ;SET AX BYTE NO. FOR AX0-16
    660 006506  004737  003624                  JSR     PC,READAX       ;READ AX0
    661 006512  032776  000001  000004          BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF RSOM
    662 006520  001413                          BEQ     3$              ;BR IF EXPECTED RSOM = 0
    663 006522  132737  000001  002356          BITB    #RSOM,RAX16     ;SEE IF RSOM = 1
    664 006530  001022                          BNE     9$              ;BR IF RSOM = 1
    665 006532  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    666                                 ;REPORT RSOM NOT SET
    667 006536                                  ERRDF   29,EM29,ERR6
        006536  104455                                                  TRAP    C$ERDF
        006540  000035                                                  .WORD   29
        006542  013650                                                  .WORD   EM29
        006544  017624                                                  .WORD   ERR6
    668 006546  000444                          BR      16$             ;TAKE ERROR EXIT
    669 006550  132737  000001  002356  3$:     BITB    #RSOM,RAX16     ;SEE IF RSOM = 0
    670 006556  001407                          BEQ     9$              ;BR IF RSOM = 0
    671 006560  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    672                                 ;REPORT RSOM NOT CLEARED
    673 006564                                  ERRDF   28,EM28,ERR6
        006564  104455                                                  TRAP    C$ERDF
        006566  000034                                                  .WORD   28
        006570  013627                                                  .WORD   EM28
        006572  017624                                                  .WORD   ERR6
    674 006574  000431                          BR      16$             ;TAKE ERROR RETURN
    675 006576  132776  000002  000004  9$:     BITB    #BIT1,@4(SP)    ;GET EXPECTED STATE OF REOM
    676 006604  001413                          BEQ     12$             ;BR IF EXPECTED REOM = 0
    677 006606  132737  000002  002356          BITB    #REOM,RAX16     ;SEE IF REOM = 1
    678 006614  001031                          BNE     20$             ;BR IF REOM = 1
    679 006616  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    680                                 ;REPORT REOM NOT SET
    681 006622                                  ERRDF   31,EM31,ERR6
        006622  104455                                                  TRAP    C$ERDF
        006624  000037                                                  .WORD   31
        006626  013706                                                  .WORD   EM31
        006630  017624                                                  .WORD   ERR6
```

```
                                        BR      16$             ;TAKE ERROR RETURN
                                12$:    BITB    #REOM,RAX16     ;SEE IF REOM = 0
                                        BEQ     20$             ;BR IF REOM = 0
                                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT REOM NOT CLEARED
                                        ERRDF   30,EM30,ERR6
006650                                                                  TRAP    C$ERDF
006652                                                                  .WORD   30
006654                                                                  .WORD   EM30
006656                                                                  .WORD   ERR6
                                16$:    MOV     2(SP),AXNUM     ;RESTORE AX BYTE NO.
                                        MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
                                        MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
                                        BR      23$
                                20$:    ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
                                        MOV     (SP)+,SUBRPC
                                        MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
                                23$:    RTS     PC              ;RETURN


                        ;*******************************************************************************
                        ;* RDRXSI - THIS SUBROUTINE READS THE RCV SILO (REGS 10,12) AND RETURNS THE
                        ;*      SILO ENTRY IN BITS 0-11 OF RXWORD.
                        ;*******************************************************************************
                        RDRXSI: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
                                MOV     #12,REGNUM      ;SET REG NO. = 12
                                JSR     PC,READLU       ;READ LU REG 12
                                MOVB    REDBYT,RXWORD+1 ;GET HI BITS OF SILO ENTRY
                                BIC     #170000,RXWORD  ;CLEAR UNUSED BITS
                                MOV     #10,REGNUM      ;SET REG NO. = 10
                                JSR     PC,READLU       ;READ REG 10
                                MOVB    REDBYT,RXWORD   ;GET LOW BITS OF SILO ENTRY
                                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
                                RTS     PC              ;RETURN


                        ;*******************************************************************************
                        ;* RCV1ST - THIS SUBROUTINE RECEIVES THE FIRST CHAR OF A MESSAGE, AND MONITORS
                        ;*      STATUS OF THE RECEIVER. FIRST, A CHECK IS MADE FOR IACT = 0, IRDY = 0,
                        ;*      ICIR = 1, AND RSOM = 0. THEN, THE LINE UNIT IS CLOCKED USING
                        ;*      STEPLU UNTIL IRDY = 1. THE PROGRAM CHECKS FOR THIS TO OCCUR WITHIN 3
                        ;*      CYCLES AFTER THE NO. OF CYCLES PASSED IN THE WORD FOLLOWING THE CALL.
                        ;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST, AT THE ADDRESS
                        ;*      CONTAINED IN RETADR.
                        ;*******************************************************************************
                        RCV1ST: MOV     R1,-(SP)        ;SAVE R1
                                MOV     R3,-(SP)        ;SAVE R3
                                MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
                                MOV     6(SP),SUBRPC
                                SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
                                MOV     #12,REGNUM      ;SET LU REG NO. = 12
```

GLOBAL SUBROUTINES

```
735 007032  005001                        CLR     R1              ;INIT CYCLE COUNT TO 0
736 007034  017603  000006                MOV     @6(SP),R3       ;GET CYCLE COUNT LIMIT
737 007040  062703  000003                ADD     #3,R3
738 007044  005776  000006                TST     @6(SP)          ;SEE IF DESIRED CYCLES = 0
739 007050  001414                        BEQ     8$              ;BR IF YES
740 007052  004737  006260                JSR     PC,IACTIV       ;CHK FOR IACT = 0
741 007056  000000                        0
742 007060  004737  005774                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 0
743 007064  000001                        1
744 007066  004737  006446                JSR     PC,RSEOM        ;CHK RSOM = 0, REOM = 0 IN AX0-16
745 007072  000000                        0
746 007074  004737  004754          6$:   JSR     PC,STPLU        ;CLOCK LU FOR 1 CYCLE
747 007100  000001                        1
748 007102  004737  004646          8$:   JSR     PC,WAIT50       ;ALLOW SILO DATA TO RIPPLE
749 007106  005201                        INC     R1              ;INCREMENT CYCLE COUNT
750 007110  004737  003372                JSR     PC,READLU       ;READ REG 12
751 007114  132737  000020  002350        BITB    #IRDY,REDBYT    ;SEE IF IRDY = 1 YET
752 007122  001005                        BNE     9$              ;BR IF IRDY = 1
753 007124  020103                        CMP     R1,R3           ;SEE IF LIMIT EXCEEDED
754 007126  002762                        BLT     6$              ;BR IF NOT YET
755 007130  004737  005774                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 1
756 007134  000003                        3
757 007136  020176  000006          9$:   CMP     R1,@6(SP)       ;SEE IF LESS THAN REQUIRED CYCLES
758 007142  002003                        BGE     12$             ;BR IF NOT
759 007144  004737  005774                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 0
760 007150  000001                        1
761 007152  004737  006260          12$:  JSR     PC,IACTIV       ;CHK FOR IACT = 1
762 007156  000001                        1
763 007160  004737  005774                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 1
764 007164  000003                        3
765 007166  062766  000002  000006        ADD     #2,6(SP)        ;FIX UP RETURN PC
766 007174  012637  002364                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
767 007200  012603                        MOV     (SP)+,R3        ;RESTORE R3
768 007202  012601                        MOV     (SP)+,R1        ;RESTORE R1
769 007204  005037  002336                CLR     SUBRPC          ;CLEAR SUBR CALL PC
770 007210  000207                        RTS     PC              ;RETURN
771
772
773
774
775
776                                 ;*****************************************************************************
777                                 ;* STPERR - THIS SUBROUTINE LOADS THE CONTENTS OF THE FIRST WORD FOLLOWING THE
778                                 ;*      CALL INTO REG 17, AND SETS THE IERR BIT, AND CLOCKS THE LINE UNIT
779                                 ;*      FOR THE NO. OF CYCLES PASSED IN THE 2ND WORD FOLLOWING THE CALL. THEN,
780                                 ;*      IT RESTORES REG 17 TO ITS ORIGINAL CONTENTS, CLEARING THE IERR BIT.
781                                 ;*****************************************************************************
782 007212  013746  002364          STPERR: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
783 007216  012737  000017  002364        MOV     #17,REGNUM      ;SET LU REG NO. = 17
784 007224  017637  000002  002352        MOV     @2(SP),WRIBYT
785 007232  152737  000002  002352        BISB    #IERR,WRIBYT
786 007240  004737  003450                JSR     PC,WRITLU       ;SET IERR BIT IN REG 17
787 007244  062766  000002  000002        ADD     #2,2(SP)        ;INCREMENT SUBR ARGUMENT POINTER
788 007252  017637  000002  007264        MOV     @2(SP),3$       ;GET DESIRED NO. OF CYCLES
789 007260  004737  004754                JSR     PC,STPLU        ;CLOCK LU FOR DESIRED NO. OF CYCLES
790 007264  000000                3$:     .WORD   0               ;NO. OF CYCLES GOES HERE
791 007266  142737  000002  002352        BICB    #IERR,WRIBYT
```

```
                                                                                                                    I 6
    792 007274  004737  003450                      JSR     PC,WRITLU       ;CLEAR IERR BIT IN REG 17
    793 007300  062766  000002  000002              ADD     #2,2(SP)        ;FIX UP RETURN PC
    794 007306  012637  002364                      MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
    795 007312  000207                              RTS     PC              ;RETURN
    796
    797
    798
    799
    800
    801                                     ;*****************************************************************************
    802                                     ;* CKDATA - THIS SUBROUTINE READS THE RCV SILO AND COMPARES THE SILO ENTRY
    803                                     ;*       TO BITS 0-11 OF THE FIRST WORD FOLLOWING THE CALL. IF THERE IS A
    804                                     ;*       MISMATCH, THE ERROR IS REPORTED AND A RETURN IS MADE TO THE TEST AT THE
    805                                     ;*       ADDRESS CONTAINED IN RETADR. IF BIT 15 = 0 IN THE FIRST WORD
    806                                     ;*       FOLLOWING THE CALL, THE SUBROUTINE WILL NOT CHECK THE BCC BIT (SILO
    807                                     ;*       BIT 8). IF THERE ARE NO ERRORS, THE LINE UNIT IS CLOCKED FOR THE
    808                                     ;*       NUMBER OF CYCLES PASSED IN THE SECOND WORD FOLLOWING THE CALL.
    809                                     ;*****************************************************************************
    810 007314  010146                      CKDATA: MOV     R1,-(SP)        ;SAVE R1
    811 007316  013746  002364                      MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
    812 007322  016637  000004  002336              MOV     4(SP),SUBRPC
    813 007330  162737  000004  002336              SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
    814 007336  017601  000004                      MOV     @4(SP),R1       ;GET EXPECTED SILO ENTRY
    815 007342  042701  170000                      BIC     #170000,R1      ;CLEAR UNUSED BITS FOR COMPARE
    816 007346  004737  006720                      JSR     PC,RDRXSI       ;READ RCV SILO
    817 007352  023727  002424  000347              CMP     SAVLEN,#TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0
    818 007360  001005                              BNE     4$              ;BR IF CHAR LENGTH NOT = 7
    819 007362  042701  000200                      BIC     #BIT7,R1        ;MASK OFF 8TH BIT
    820 007366  042737  000200  002414              BIC     #BIT7,RXWORD
    821 007374  120137  002414          4$:         CMPB    R1,RXWORD       ;COMPARE EXPECTED BITS 0-7 TO ACTUAL
    822 007400  001445                              BEQ     6$              ;BR IF MATCH
    823 007402  005037  002370                      CLR     GOODAT
    824 007406  110137  002370                      MOVB    R1,GOODAT       ;GET EXPECTED DATA
    825 007412  005037  002372                      CLR     BADDAT
    826 007416  113737  002414  002372              MOVB    RXWORD,BADDAT   ;GET ACTUAL DATA
    827 007424  012737  000011  002364              MOV     #11,REGNUM      ;SET REG NO. = 11
    828 007432  004737  003372                      JSR     PC,READLU       ;READ REG 11
    829 007436  132737  000001  002350              BITB    #UNRR,REDBYT    ;SEE IF TX UNDERRUN ERROR
    830 007444  001410                              BEQ     5$              ;BR IF NOT,TO REPORT DATA ERROR
    831 007446  004737  004226                      JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    832                                     ;REPORT TX UNDERRUN ERROR
    833 007452                                      ERRDF   54,EM54,ERR4
        007452  104455                                                                  TRAP    C$ERDF
        007454  000066                                                                  .WORD   54
        007456  014617                                                                  .WORD   EM54
        007460  016434                                                                  .WORD   ERR4
    834 007462  000137  010144                      JMP     36$             ;TAKE ERROR EXIT
    835 007466  012737  000010  002364  5$:         MOV     #10,REGNUM      ;SET REG NO. = 10
    836 007474  004737  004226                      JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    837                                     ;REPORT RCV'D DATA MISCOMPARE
    838 007500                                      ERRDF   34,EM34,ERR8
        007500  104455                                                                  TRAP    C$ERDF
        007502  000042                                                                  .WORD   34
        007504  013723                                                                  .WORD   EM34
        007506  020734                                                                  .WORD   ERR8
    839 007510  000137  010144                      JMP     36$             ;TAKE ERROR EXIT
    840 007514  000301                  6$:         SWAB    R1
```

```
                                                                                                                    J 6
CZDMSD M8203 STATIC TESTS #2    MACRO V03.01 7-AUG-80 11:18:21 PAGE 17-16                                           SEQ   74
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    841 007516  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. FOR ERROR REPORTS
    842 007524  120137  002415                  CMPB    R1,RXWORD+1     ;COMPARE EXPECTED SILO BITS 8-11 TO ACTUAL
    843 007530  001002                          BNE     7$              ;BR IF MISMATCH
    844 007532  000137  010120                  JMP     22$             ;CONTINUE
    845 007536  005037  002370          7$:     CLR     GOODAT
    846 007542  110137  002370                  MOVB    R1,GOODAT       ;SET EXPECTED DATA
    847 007546  005037  002372                  CLR     BADDAT
    848 007552  113737  002415  002372          MOVB    RXWORD+1,BADDAT ;SET ACTUAL DATA
    849 007560  032776  100000  000004          BIT     #BCCCHK,@4(SP)  ;SEE IF BCC SHOULD BE IGNORED
    850 007566  001433                          BEQ     10$             ;BR IF YES
    851 007570  132701  000001                  BITB    #BCC,R1         ;SEE IF EXPECTED BIT = 1
    852 007574  001014                          BNE     8$              ;BR IF YES
    853 007576  132737  000001  002415          BITB    #BCC,RXWORD+1   ;SEE IF ACTUAL BIT = 0
    854 007604  001424                          BEQ     10$             ;BR IF YES
    855 007606  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    856                             ;REPORT BCC NOT CLEARED
    857 007612                                  ERRDF   35,EM35,ERR8
        007612  104455                                                                      TRAP    C$ERDF
        007614  000043                                                                      .WORD   35
        007616  013751                                                                      .WORD   EM35
        007620  020734                                                                      .WORD   ERR8
    858 007622  000137  010144                  JMP     36$             ;TAKE ERROR EXIT
    859 007626  132737  000001  002415  8$:     BITB    #BCC,RXWORD+1   ;SEE IF ACTUAL BIT = 1
    860 007634  001010                          BNE     10$             ;BR IF YES
    861 007636  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    862                             ;REPORT BCC NOT SET
    863 007642                                  ERRDF   36,EM36,ERR8
        007642  104455                                                                      TRAP    C$ERDF
        007644  000044                                                                      .WORD   36
        007646  013771                                                                      .WORD   EM36
        007650  020734                                                                      .WORD   ERR8
    864 007652  000137  010144                  JMP     36$             ;TAKE ERROR EXIT
    865 007656                          10$:
    866 007656  132701  000002                  BITB    #EBLK,R1        ;SEE IF EXPECTED BIT = 1
    867 007662  001014                          BNE     12$             ;BR IF YES
    868 007664  132737  000002  002415          BITB    #EBLK,RXWORD+1  ;SEE IF ACTUAL BIT = 0
    869 007672  001424                          BEQ     14$             ;BR IF YES
    870 007674  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    871                             ;REPORT EBLK NOT CLEARED
    872 007700                                  ERRDF   37,EM37,ERR8
        007700  104455                                                                      TRAP    C$ERDF
        007702  000045                                                                      .WORD   37
        007704  014005                                                                      .WORD   EM37
        007706  020734                                                                      .WORD   ERR8
    873 007710  000137  010144                  JMP     36$             ;TAKE ERROR EXIT
    874 007714  132737  000002  002415  12$:    BITB    #EBLK,RXWORD+1  ;SEE IF ACTUAL BIT = 1
    875 007722  001010                          BNE     14$             ;BR IF YES
    876 007724  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    877                             ;REPORT EBLK NOT SET
    878 007730                                  ERRDF   38,EM38,ERR8
        007730  104455                                                                      TRAP    C$ERDF
        007732  000046                                                                      .WORD   38
        007734  014026                                                                      .WORD   EM38
        007736  020734                                                                      .WORD   ERR8
    879 007740  000137  010144                  JMP     36$             ;TAKE ERROR EXIT
    880 007744                          14$:
    881 007744  132701  000004                  BITB    #RAB,R1         ;SEE IF EXPECTED BIT = 1
```

```
    882 007750  001014                        BNE     16$             ;BR IF YES
    883 007752  132737  000004  002415        BITB    #RAB,RXWORD+1   ;SEE IF ACTUAL BIT = 0
    884 007760  001424                        BEQ     18$             ;BR IF YES
    885 007762  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    886                             ;REPORT RAB NOT CLEARED
    887 007766                      ;       ERRDF   39,EM39,ERR8
        007766  104455                                                  TRAP    C$ERDF
        007770  000047                                                  .WORD   39
        007772  014043                                                  .WORD   EM39
        007774  020734                                                  .WORD   ERR8
    888 007776  000137  010144                JMP     36$             ;TAKE ERROR EXIT
    889 010002  132737  000004  002415  16$:  BITB    #RAB,RXWORD+1   ;SEE IF ACTUAL BIT = 1
    890 010010  001010                        BNE     18$             ;BR IF YES
    891 010012  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    892                             ;REPORT RAB NOT SET
    893 010016                      ;       ERRDF   40,EM40,ERR8
        010016  104455                                                  TRAP    C$ERDF
        010020  000050                                                  .WORD   40
        010022  014063                                                  .WORD   EM40
        010024  020734                                                  .WORD   ERR8
    894 010026  000137  010144                JMP     36$             ;TAKE ERROR EXIT
    895 010032                      18$:
    896 010032  132701  000010                BITB    #OVRR,R1        ;SEE IF EXPECTED BIT = 1
    897 010036  001014                        BNE     20$             ;BR IF YES
    898 010040  132737  000010  002415        BITB    #OVRR,RXWORD+1  ;SEE IF ACTUAL BIT = 0
    899 010046  001424                        BEQ     22$             ;BR IF YES
    900 010050  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    901                             ;REPORT OVRR NOT CLEARED
    902 010054                      ;       ERRDF   41,EM41,ERR8
        010054  104455                                                  TRAP    C$ERDF
        010056  000051                                                  .WORD   41
        010060  014077                                                  .WORD   EM41
        010062  020734                                                  .WORD   ERR8
    903 010064  000137  010144                JMP     36$             ;TAKE ERROR EXIT
    904 010070  132737  000010  002415  20$:  BITB    #OVRR,RXWORD+1  ;SEE IF ACTUAL BIT = 1
    905 010076  001010                        BNE     22$             ;BR IF YES
    906 010100  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    907                             ;REPORT OVRR NOT SET
    908 010104                      ;       ERRDF   42,EM42,ERR8
        010104  104455                                                  TRAP    C$ERDF
        010106  000052                                                  .WORD   42
        010110  014120                                                  .WORD   EM42
        010112  020734                                                  .WORD   ERR8
    909 010114  000137  010144                JMP     36$             ;TAKE ERROR EXIT
    910 010120                      22$:
    911 010120  062766  000002  000004        ADD     #2,4(SP)        ;INCR SUBROUTINE ARGUMENT POINTER
    912 010126  017637  000004  010140        MOV     @4(SP),24$      ;GET DESIRED CYCLE COUNT
    913 010134  004737  004754                JSR     PC,STPLU        ;CLOCK LU FOR DESIRED CYCLES
    914 010140  000000                  24$:  .WORD   0
    915 010142  000407                        BR      38$             ;TAKE ERROR-FREE EXIT
    916 010144  011637  002364          36$:  MOV     (SP),REGNUM     ;RESTORE LU REG NO.
    917 010150  013706  002332                MOV     PSTACK,SP       ;RESTORE PROGRAM STACK TO BASE LEVEL
    918 010154  013746  002346                MOV     RETADR,-(SP)    ;FIX UP ERROR RETURN PC
    919 010160  000406                        BR      40$
    920 010162  062766  000002  000004  38$:  ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
    921 010170  012637  002364                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
    922 010174  012601                        MOV     (SP)+,R1        ;RESTORE R1
```

```
                                                ;*****************************************************************************
                                                ;* LODATA - THIS SUBROUTINE LOADS THE TRANSMITTER SILO WITH 5 SOM'S, THE DATA
                                                ;*      IN PATTERN A REPEATED 2 TIMES (40 CHARS), AND 2 EOM'S. IN ADDITION, THE
                                                ;*      DATA CHARS ARE ALSO LOADED INTO THE RECEIVED MSG BUFFER (RCVBUF:), AS
                                                ;*      EXPECTED DATA FOR LATER COMPARISON.
                                                ;*****************************************************************************
010176  005037  002336          40$:    CLR     SUBRPC          ;CLEAR SUBROUTINE PC
010202  000207                  LODATA: RTS     PC              ;RETURN
010204  010146                          MOV     R1,-(SP)        ;SAVE R1
010206  010346                          MOV     R3,-(SP)        ;SAVE R3
010210  010446                          MOV     R4,-(SP)        ;SAVE R4
010212  004737  010746                  JSR     PC,LODSIL       ;LOAD 5 SOM'S INTO TX SILO
010216  000400                          TXSOM
010220  000005                          5
010222  012701  000002                  MOV     #2,R1           ;INIT COUNTER
010226  012704  002762                  MOV     #RCVBUF,R4      ;GET POINTER TO RCV BUF
010232  012703  002557          3$:     MOV     #PATA,R3        ;GET POINTER TO DATA PATTERN
010236  005037  002412          6$:     CLR     TXWORD
010242  112337  002412                  MOVB    (R3)+,TXWORD    ;GET A DATA CHAR
010246  013724  002412                  MOV     TXWORD,(R4)+    ;LOAD A DATA CHAR INTO RCV BUF
010252  004737  004674                  JSR     PC,LDTXSI       ;LOAD DATA CHAR INTO TX SILO
010256  020327  002603                  CMP     R3,#PATB        ;SEE IF AT END OF PATTERN A YET
010262  103765                          BLO     6$              ;BR IF NOT YET
010264  005301                          DEC     R1              ;DECREMENT COUNTER
010266  001361                          BNE     3$              ;BR IF NOT DONE YET
010270  052764  100400  177776          BIS     #CRCCHK!RXBCC,-2(R4) ;SET UP TO CHK BCC = 1 ON LAST DATA CHAR
010276  012737  001000  002412          MOV     #TXEOM,TXWORD
010304  004737  004674                  JSR     PC,LDTXSI       ;LOAD AN EOM INTO TX SILO
010310  004737  004674                  JSR     PC,LDTXSI       ;LOAD ANOTHER EOM
010314  012604                          MOV     (SP)+,R4        ;RESTORE R4
010316  012603                          MOV     (SP)+,R3        ;RESTORE R3
010320  012601                          MOV     (SP)+,R1        ;RESTORE R1
010322  000207                          RTS     PC              ;RETURN


                                        ;*****************************************************************************
                                        ;* SETUP - THIS SUBROUTINE LOADS THE FIRST WORD AFTER THE CALL INTO AX2-15
                                        ;*      (SYNCH CHAR), LOADS THE SECOND WORD AFTER THE CALL INTO REG 17
                                        ;*      LOADS THE THIRD WORD INTO AX3-15, AND LOADS THE FOURTH WORD INTO AX3-16.
                                        ;*****************************************************************************
010324  013746  002366          SETUP:  MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
010330  013746  002364                  MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
010334  012737  000004  002366          MOV     #4,AXNUM        ;SET AX BYTE NO. FOR AX2
010342  017637  000004  002360          MOV     @4(SP),WAX15
010350  005037  002362                  CLR     WAX16
010354  004737  004012                  JSR     PC,WRITAX       ;SET SYNCH CHAR IN AX2-15, CLEAR AX2-16
010360  012737  000017  002364          MOV     #17,REGNUM      ;SET LU REG NO. = 17
010366  062766  000002  000004          ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
010374  017637  000004  002352          MOV     @4(SP),WRIBY
```

GLOBAL SUBROUTINES

```
                                                JSR     PC,WRITLU       ;LOAD REG 17
                                                MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
                                                ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
                                                MOV     @4(SP),WAX15
                                                ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
                                                MOV     @4(SP),WAX16
                                                MOV     WAX16,SAVLEN    ;STORE TX AND RCV CHAR LENGTHS
                                                BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
                                                JSR     PC,WRITAX       ;LOAD AX3-15, AX3-16
                                                BISB    #LULOOP,@BSEL1  ;SET LULOOP
                                                ADD     #2,4(SP)        ;FIX RETURN PC
                                                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
                                                MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
                                                CLR     SUBRPC          ;CLEAR SUBROUTINE PC STORAGE
                                                RTS     PC              ;RETURN


                        ;*******************************************************************************
                        ;* LODMSG - THIS SUBROUTINE LOADS THE NO. OF WORDS PASSED IN THE SECOND WORD
                        ;*       FOLLOWING THE CALL FROM THE MSG BUFFER WHOSE ADDRESS IS IN THE FIRST
                        ;*       WORD FOLLOWING THE CALL, INTO THE TRANSMITTER SILO.
                        ;*******************************************************************************
                        LODMSG: MOV     R1,-(SP)        ;SAVE R1
                                MOV     R2,-(SP)        ;SAVE R2
                                MOV     @4(SP),R1       ;GET MSG POINTER INTO R1
                                ADD     #2,4(SP)        ;INCR ARG POINTER
                                MOV     @4(SP),R2       ;GET WORD COUNT INTO R2
                                ADD     #2,4(SP)        ;FIX UP RETURN PC
                        6$:     MOV     (R1)+,TXWORD    ;GET NEXT MSG WORD
                                JSR     PC,LDTXSI       ;LOAD A WORD INTO TX SILO
                                DEC     R2              ;DECR COUNT
                                BNE     6$              ;BR IF NOT DONE YET
                                JSR     PC,WAIT50       ;WAIT FOR SILO TO RIPPLE
                                MOV     (SP)+,R2        ;RESTORE R2
                                MOV     (SP)+,R1        ;RESTORE R1
                                RTS     PC              ;RETURN


                        ;*******************************************************************************
                        ;* LDBYTS - THIS SUBROUTINE LOADS THE NO. OF BYTES PASSED IN THE SECOND WORD
                        ;*       FOLLOWING THE CALL FROM THE MSG BUFFER WHOSE ADDRESS IS IN THE FIRST
                        ;*       WORD FOLLOWING THE CALL, INTO THE LOW BYTE OF THE TX SILO. FOR EACH
                        ;*       BYTE LOADED, A 0 IS LOADED INTO THE HI 4 BITS OF THE TX SILO.
                        ;*******************************************************************************
                        LDBYTS: MOV     R1,-(SP)        ;SAVE R1
                                MOV     R2,-(SP)        ;SAVE R2
                                MOV     @4(SP),R1       ;GET DATA POINTER INTO R1
                                ADD     #2,4(SP)        ;INCR ARGUMENT POINTER
                                MOV     @4(SP),R2       ;GET BYTE COUNT INTO R2
                                ADD     #2,4(SP)        ;FIX UP RETURN PC
                        6$:     MOVB    (R1)+,TXWORD    ;GET NEXT DATA BYTE
```

```
1037 010630  105037  002413                CLRB    TXWORD+1        ;CLEAR HI BYTE
1038 010634  004737  004674                JSR     PC,LDTXSI       ;LOAD A SILO ENTRY
1039 010640  005302                        DEC     R2              ;DECR BYTE COUNT
1040 010642  001370                        BNE     6$              ;BR IF NOT DONE YET
1041 010644  004737  004646                JSR     PC,WAIT50       ;WAIT FOR SILO TO RIPPLE
1042 010650  012602                        MOV     (SP)+,R2        ;RESTORE R2
1043 010652  012601                        MOV     (SP)+,R1        ;RESTORE R1
1044 010654  000207                        RTS     PC              ;RETURN
1045
1046
1047
1048
1049
1050                                ;*****************************************************************************
1051                                ;* LDMSG1 - THIS SUBROUTINE LOADS THE TRANSMITTER SILO WITH MSG1, AND LOADS
1052                                ;*      THE DATA CHARS INTO THE RCV MSG BUFFER (RCVBUF:), AS EXPECTED DATA
1053                                ;*      FOR LATER COMPARISON.
1054                                ;*****************************************************************************
1055 010656  010146                LDMSG1: MOV     R1,-(SP)        ;SAVE R1
1056 010660  010246                        MOV     R2,-(SP)        ;SAVE R2
1057 010662  004737  010746                JSR     PC,LODSIL       ;LOAD 3 SOM'S INTO TX SILO
1058 010666  000400                        TXSOM
1059 010670  000003                        3
1060 010672  004737  010516                JSR     PC,LODMSG       ;LOAD MSG1 INTO TX SILO (WITH 2 SOM'S, 1 EOM)
1061 010676  002670                        MSG1
1062 010700  000010                        8.
1063 010702  012701  002674                MOV     #MSG1+4,R1      ;GET POINTER TO MSG1
1064 010706  012702  002762                MOV     #RCVBUF,R2      ;GET POINTER TO MSG BUF
1065 010712  012122                3$:     MOV     (R1)+,(R2)+     ;LOAD A CHAR INTO MSG BUF
1066 010714  020127  002706                CMP     R1,#MSG1+14.    ;SEE IF DID LAST DATA CHAR YET
1067 010720  103774                        BLO     3$              ;BR IF NOT
1068 010722  052762  100400  177776        BIS     #CRCCHK!RXBCC,-2(R2) ;SET EXPECTED BCC
1069 010730  012722  000160                MOV     #160,(R2)+      ;LOAD HI CRC BYTE
1070 010734  012722  000034                MOV     #034,(R2)+      ;LOAD LO CRC BYTE
1071 010740  012602                        MOV     (SP)+,R2        ;RESTORE R2
1072 010742  012601                        MOV     (SP)+,R1        ;RESTORE R1
1073 010744  000207                        RTS     PC              ;RETURN
1074
1075
1076
1077
1078
1079                                ;*****************************************************************************
1080                                ;* LODSIL - THIS SUBROUTINE REPEATEDLY LOADS THE DATA PASSED IN THE FIRST WORD
1081                                ;*      FOLLOWING THE CALL INTO THE TX SILO, FOR THE NO. OF TIMES PASSED IN THE
1082                                ;*      SECOND WORD FOLLOWING THE CALL.
1083                                ;*****************************************************************************
1084 010746  010146                LODSIL: MOV     R1,-(SP)        ;SAVE R1
1085 010750  017637  000002  002412        MOV     @2(SP),TXWORD   ;GET DATA
1086 010756  062766  000002  000002        ADD     #2,2(SP)        ;INCR ARGUMENT POINTER
1087 010764  017601  000002                MOV     @2(SP),R1       ;GET COUNT
1088 010770  004737  004674        3$:     JSR     PC,LDTXSI       ;LOAD WORD INTO TX SILO
1089 010774  005301                        DEC     R1              ;DECR COUNT
1090 010776  001374                        BNE     3$              ;BR IF NOT ALL LOADED YET
1091 011000  004737  004646                JSR     PC,WAIT50       ;ALLOW SILO DATA TO RIPPLE
1092 011004  062766  000002  000002        ADD     #2,2(SP)        ;FIX UP RETURN PC
1093 011012  012601                        MOV     (SP)+,R1        ;RESTORE R1
```

```
 1094 011014  000207                        RTS     PC              ;RETURN
 1095
 1096
 1097
 1098
 1099
 1100                                ;*******************************************************************************
 1101                                ;* CKLPBK - THIS SUBROUTINE DETERMINES IF THE TEST CALLING IT CAN BE RUN. THE
 1102                                ;*      TEST PASSES THE DESIRED MODEM INTERFACE TYPE IN THE WORD FOLLOWING THE
 1103                                ;*      CALL, AND IF THE PROPER EXTERNAL LOOPBACK HAS BEEN PROVIDED BY THE
 1104                                ;*      OPERATOR FOR THAT INTERFACE, AND IF THE BAUD RATE IS CORRECT, A NORMAL
 1105                                ;*      RETURN IS MADE TO RUN THE TEST. IF NOT, A RETURN IS MADE TO THE TEST,
 1106                                ;*      AT THE ADDRESS IN RETADR (RETADR CONTAINS THE TEST EXIT ADDRESS, SO
 1107                                ;*      THE TEST GETS SKIPPED).
 1108                                ;*      IF BIT 15 IS SET IN THE WORD FOLLOWING THE CALL, THE TEST WILL NOT
 1109                                ;*      BE RUN UNLESS THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED. IF THE
 1110                                ;*      TEST IS TO BE RUN, THE SUBROUTINE RETURNS THE MODEM SELECT BITS FOR
 1111                                ;*      AX3-15 IN MODINT. IF NECESSARY, THE SUBROUTINE WILL SET MAINT1, MAINT2,
 1112                                ;*      OR DTR.
 1113                                ;*      IF THE PROGRAM PASSES '0' IN THE WORD FOLLOWING THE CALL, THE SUBROUTINE
 1114                                ;*      WILL ATTEMPT TO RUN WHICHEVER MODEM INTERFACE IS SELECTED BY CABLE,
 1115                                ;*      SWITCH, OR TEST CONNECTOR. IF SUCCESSFUL, THE SELECTED INTERFACE WILL
 1116                                ;*      BE PASSED BACK TO THE TEST IN MODINT.
 1117                                ;*******************************************************************************
 1118 011016  013746  002364        CKLPBK: MOV     REGNUM,-(SP)    ;SAVE REG NO.
 1119 011022  013746  002366                MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
 1120 011026  010246                        MOV     R2,-(SP)        ;SAVE R2
 1121 011030  016637  000006  002336        MOV     6(SP),SUBRPC
 1122 011036  162737  000004  002336        SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
 1123 011044  012737  000333  002422        MOV     #1422!XYZ!V35!INTGRL!OP!TEST,MODINT ;INIT MODEM SELECT BITS
 1124 011052  032776  100000  000006        BIT     #TCCHEK,@6(SP)  ;SEE IF H3254,5 CHECK IS DESIRED
 1125 011060  001405                        BEQ     1$              ;BR IF NOT
 1126 011062  005737  002462                TST     TSTCON          ;SEE IF H3254,5 INSTALLED
 1127 011066  001074                        BNE     7$              ;BR IF NOT, TO SKIP TEST
 1128 011070  000137  012122                JMP     32$             ;BR TO RUN TEST
 1129                                ;IF NO EXTERNAL LPBK, SKIP TEST
 1130 011074  023727  002462  000004  1$:   CMP     TSTCON,#4       ;SEE IF NO LPBK
 1131 011102  001466                        BEQ     7$              ;BR IF NO LPBK, TO SKIP TEST
 1132 011104  142777  000010  171326        BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
 1133 011112  012737  000006  002366        MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3-15
 1134 011120  004737  003624                JSR     PC,READAX       ;READ AX3-15
 1135
 1136                                ;*** SEE IF AN INTERFACE IS REQUESTED ***
 1137
 1138 011124  027627  000006  000010        CMP     @6(SP),#INTGRL  ;SEE IF INTEGRAL MODEM REQUESTED
 1139 011132  001422                        BEQ     4$              ;BR IF INTGRL MODEM REQUESTED
 1140 011134  027627  000006  000020        CMP     @6(SP),#V35     ;SEE IF V.35 REQUESTED
 1141 011142  001512                        BEQ     10$             ;BR IF V.35 REQUESTED
 1142 011144  027627  000006  000200        CMP     @6(SP),#1422    ;SEE IF 422 REQUESTED
 1143 011152  001002                        BNE     2$              ;BR IF 422 NOT REQUESTED
 1144 011154  000137  011454                JMP     14$             ;422 REQUESTED
 1145 011160  027627  000006  000100  2$:   CMP     @6(SP),#XYZ     ;SEE IF XYZ REQUESTED
 1146 011166  001002                        BNE     3$              ;BR IF XYZ NOT REQUESTED
 1147 011170  000137  011510                JMP     17$             ;XYZ REQUESTED
 1148 011174  000137  011602        3$:     JMP     21$             ;NONE REQUESTED, FIND AN INTERFACE TO TEST
 1149
 1150                                ;SEE IF INTEGRAL MODEM CAN BE RUN
```

```
1151 011200  005737  002462          4$:     TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1152 011204  001050                          BNE     8$              ;BR IF NOT
1153 011206  023727  002464  000004  5$:     CMP     BDRATE,#4       ;SEE IF BAUD RATE > OR = 56K
1154 011214  002405                          BLT     6$              ;BR IF BAUD RATE TOO SLOW FOR INTGRL MODM
1155 011216  042737  000010  002422          BIC     #INTGRL,MODINT  ;ASSERT INTEGRAL MODEM
1156 011224  000137  012122                  JMP     32$             ;GO TO RUN TEST
1157                                 ;PRINT 'BAUD RATE INCORRECT"
1158 011230                          6$:
1159 011230  023727  002402  000001          CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1160 011236  001026                          BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1161 011240                                  PRINTF  #FMT25
     011240  012746  013174                                                  MOV     #FMT25,-(SP)
     011244  012746  000001                                                  MOV     #1,-(SP)
     011250  010600                                                          MOV     SP,R0
     011252  104417                                                          TRAP    C$PNTF
     011254  062706  000004                                                  ADD     #4,SP
1162                                 ;PRINT "TEST XX NOT RUN"
1163 011260                          7$:
1164 011260  023727  002402  000001          CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1165 011266  001012                          BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1166 011270                                  PRINTF  #FMT19,TSTNUM
     011270  013746  002434                                                  MOV     TSTNUM,-(SP)
     011274  012746  013143                                                  MOV     #FMT19,-(SP)
     011300  012746  000002                                                  MOV     #2,-(SP)
     011304  010600                                                          MOV     SP,R0
     011306  104417                                                          TRAP    C$PNTF
     011310  062706  000006                                                  ADD     #6,SP
1167 011314  013766  002346  000006  40$:     MOV     RETADR,6(SP)    ;SET TEST EXIT ADDRESS FOR ERRORS
1168 011322  000137  012130                  JMP     33$             ;GO TO SKIP TEST
1169 011326  032737  000010  002354  8$:     BIT     #INTGRL,RAX15   ;SEE IF INTEGRAL MODEM IS SELECTED
1170 011334  001324                          BNE     5$              ;BR IF YES, TO CHECK BAUD RATE
1171                                 ;PRINT 'MODEM INTERFACE NOT SELECTED"
1172 011336                          9$:
1173 011336  023727  002402  000001          CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1174 011344  001363                          BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1175 011346                                  PRINTF  #FMT26
     011346  012746  013224                                                  MOV     #FMT26,-(SP)
     011352  012746  000001                                                  MOV     #1,-(SP)
     011356  010600                                                          MOV     SP,R0
     011360  104417                                                          TRAP    C$PNTF
     011362  062706  000004                                                  ADD     #4,SP
1176 011366  000734                          BR      7$              ;GO TO PRINT "TEST NOT RUN"
1177
1178                                 ;SEE IF V.35 CAN BE RUN
1179 011370  032737  000200  002354  10$:    BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1180 011376  001357                          BNE     9$              ;BR IF YES, TO SKIP TEST
1181 011400  005737  002462                  TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1182 011404  001010                          BNE     12$             ;BR IF H3254 AND H3255 NOT USED
1183 011406  012737  000004  002352  11$:    MOV     #MAINT2,WRIBYT  ;SET MAINT2 FOR MANUFACTURING TEST CONN.
1184 011414  042737  000020  002422          BIC     #V35,MODINT     ;ASSERT V.35
1185 011422  000137  011704                  JMP     42$             ;GO SET DTR AND RUN THE TEST
1186 011426  032737  000020  002354  12$:    BIT     #V35,RAX15      ;SEE IF V.35 IS SELECTED
1187 011434  001405                          BEQ     13$             ;BR IF NOT
1188 011436  042737  000020  002422          BIC     #V35,MODINT     ;ASSERT V.35
1189 011444  000137  011700                  JMP     27$             ;GO SET DTR AND RUN THE TEST
1190 011450  000137  011336          13$:    JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1191
```

```
1192                                        ;SEE IF 422 CAN BE RUN
1193 011454  005737  002462          14$:    TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1194 011460  001005                          BNE     16$             ;BR IF NOT
1195 011462  042737  000200  002422  15$:    BIC     #I422,MODINT    ;ASSERT 422
1196 011470  000137  011700                  JMP     27$             ;GO TO RUN TEST
1197 011474  032737  000200  002354  16$:    BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1198 011502  001367                          BNE     15$             ;IF YES, GO ASSERT 422 AND RUN TEST
1199 011504  000137  011336                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1200
1201                                        ;SEE IF XYZ CAN BE RUN
1202 011510  032737  000200  002354  17$:    BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1203 011516  001402                          BEQ     18$             ;BR IF NOT
1204 011520  000137  011336                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1205 011524  032737  000100  002354  18$:    BIT     #XYZ,RAX15      ;SEE IF XYZ IS SELECTED
1206 011532  001002                          BNE     19$             ;BR IF YES
1207 011534  000137  011336                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1208 011540  023727  002464  000004  19$:    CMP     BDRATE,#4       ;SEE IF BAUD RATE < OR = 56K
1209 011546  003402                          BLE     20$             ;BR IF YES
1210 011550  000137  011230                  JMP     6$              ;BAUD RATE TOO FAST FOR XYZ
1211 011554  042737  000100  002422  20$:    BIC     #XYZ,MODINT     ;ASSERT XYZ
1212 011562  005737  002462                  TST     TSTCON          ;SEE IF H3254,5 BEING USED
1213 011566  001044                          BNE     27$             ;BR IF NOT
1214 011570  012737  000004  002352          MOV     #MAINT2,WRIBYT
1215 011576  000137  011704                  JMP     42$             ;GO SET MAINT2 FOR MANUFACTURING TEST CONN.
1216
1217                                        ;*** NO INTERFACE REQUESTED - FIND ONE TO TEST ***
1218
1219 011602  032737  000010  002354  21$:    BIT     #INTGRL,RAX15   ;SEE IF INTEGRAL MODEM SELECTED
1220 011610  001402                          BEQ     22$             ;BR IF NOT
1221 011612  000137  011206                  JMP     5$              ;SEE IF INTEGRAL MODEM CAN BE RUN
1222 011616  032737  000020  002354  22$:    BIT     #V35,RAX15      ;SEE IF V.35 SELECTED
1223 011624  001402                          BEQ     23$             ;BR IF NOT
1224 011626  000137  011370                  JMP     10$             ;GO SEE IF V.35 CAN BE RUN
1225 011632  032737  000200  002354  23$:    BIT     #I422,RAX15     ;SEE IF 422 SELECTED
1226 011640  001402                          BEQ     24$             ;BR IF NOT
1227 011642  000137  011462                  JMP     15$             ;GO ASSERT AND RUN 422
1228 011646  005737  002462          24$:    TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1229 011652  001002                          BNE     25$             ;BR IF NOT
1230 011654  000137  011406                  JMP     11$             ;GO ASSERT AND RUN V.35 BY DEFAULT
1231 011660  032737  000100  002354  25$:    BIT     #XYZ,RAX15      ;SEE IF XYZ SELECTED
1232 011666  001402                          BEQ     26$             ;BR IF NOT
1233 011670  000137  011540                  JMP     19$             ;GO SEE IF XYZ CAN BE RUN
1234 011674  000137  011336          26$:    JMP     9$              ;GO SKIP TEST
1235
1236                                        ;*** SET MAINT1 OR MAINT2 IF NEEDED, AND SET DTR ***
1237
1238                                        ;SET MAINT1 IF LOCAL LOOPBACK DESIRED
1239 011700  005037  002352          27$:    CLR     WRIBYT          ;INIT DATA TO BE WRITTEN
1240 011704  012737  000013  002364  42$:    MOV     #13,REGNUM      ;SET REG NO. = 13
1241 011712  023727  002462  000002          CMP     TSTCON,#2       ;SEE IF MODEM LOCAL LPBK DESIRED
1242 011720  001032                          BNE     29$             ;BR IF NOT, TO CHK REMOTE LPBK
1243 011722  112737  000010  002352          MOVB    #MAINT1,WRIBYT
1244 011730  004737  003450                  JSR     PC,WRITLU       ;SET MAINT1 IN REG 13
1245 011734  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
1246 011742  012702  000000                  MOV     #0,R2           ;INIT TIMER
1247 011746  004737  003372          28$:    JSR     PC,READLU       ;READ REG 17
1248 011752  132737  000004  002350          BITB    #TESTMD,REDBYT  ;SEE IF TEST MODE BIT SET IN REG 17 YET
```

```
1249 011760  001050                        BNE     31$             ;BR IF YES, TO SET DTR
1250 011762  005202                        INC     R2              ;INCREMENT TIMER
1251 011764  001370                        BNE     28$             ;BR IF NO TIME-OUT YET
1252 011766  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1253                              ;REPORT TEST MODE NOT SET BY MAINT1
1254 011772                                ERRDF   52,EM52,ERR4
     011772  104455                                                                TRAP    C$ERDF
     011774  000064                                                                .WORD   52
     011776  014527                                                                .WORD   EM52
     012000  016434                                                                .WORD   ERR4
1255 012002  000137  011260                JMP     7$              ;BR TO SKIP TEST
1256                              ;SET MAINT2 IF REMOTE LOOPBACK DESIRED
1257 012006  023727  002462  000003  29$:   CMP     TSTCON,#3       ;SEE IF MODEM REMOTE LPBK DESIRED
1258 012014  001032                        BNE     31$             ;BR IF NOT, TO SET DTR
1259 012016  112737  000004  002352        MOVB    #MAINT2,WRIBYT
1260 012024  004737  003450                JSR     PC,WRITLU       ;SET MAINT2 IN REG 13
1261 012030  012737  000017  002364        MOV     #17,REGNUM      ;SET REG NO. = 17
1262 012036  012702  000000                MOV     #0,R2           ;INIT TIMER
1263 012042  004737  003372        30$:    JSR     PC,READLU       ;READ REG 17
1264 012046  132737  000004  002350        BITB    #TESTMD,REDBYT  ;SEE IF TEST MODE BIT SET IN REG 17 YET
1265 012054  001012                        BNE     31$             ;BR IF YES, TO SET DTR
1266 012056  005202                        INC     R2              ;INCREMENT TIMER
1267 012060  001370                        BNE     30$             ;BR IF NO TIME-OUT YET
1268 012062  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1269                              ;REPORT TEST MODE NOT SET BY MAINT2
1270 012066                                ERRDF   53,EM53,ERR4
     012066  104455                                                                TRAP    C$ERDF
     012070  000065                                                                .WORD   53
     012072  014563                                                                .WORD   EM53
     012074  016434                                                                .WORD   ERR4
1271 012076  000137  011260                JMP     7$              ;BR TO SKIP TEST
1272                              ;SET DTR
1273 012102  012737  000013  002364  31$:   MOV     #13,REGNUM      ;SET REG NO. = 13
1274 012110  152737  000100  002352        BISB    #DTR,WRIBYT     ;SET DTR BIT TO BE WRITTEN
1275 012116  004737  003450                JSR     PC,WRITLU       ;LOAD REG 13
1276
1277                              ;*** BRANCH HERE TO RUN TEST ***
1278 012122  062766  000002  000006  32$:   ADD     #2,6(SP)        ;INCREMENT RETURN ADRS
1279
1280                              ;*** BRANCH HERE TO SKIP TEST ***
1281 012130  012602                33$:    MOV     (SP)+,R2        ;RESTORE R2
1282 012132  012637  002366                MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
1283 012136  012637  002364                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
1284 012142  152777  000010  170270        BISB    #LULOOP,@BSEL1  ;SET LULOOP
1285 012150  005037  002336                CLR     SUBRPC          ;CLEAR SUBROUTINE CALL PC
1286 012154  000207                        RTS     PC              ;RETURN
1287
1288
1289
1290
1291
1292                              ;*****************************************************************************
1293                              ;* CHKABT - THIS SUBROUTINE READS AX0-16 AND CHECKS FOR RAB, REOM SET. IF
1294                              ;*      EITHER IS NOT SET, A RETURN IS MADE TO THE TEST, AT THE ADDRESS
1295                              ;*      CONTAINED IN RETADR.
1296                              ;*****************************************************************************
1297 012156  013746  002366        CHKABT: MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
```

GLOBAL SUBROUTINES

```
1298 012162  016637  000002  002336          MOV     2(SP),SUBRPC
1299 012170  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
1300 012176  005037  002366                  CLR     AXNUM           ;SET AX0 ADDRESS
1301 012202  004737  003624                  JSR     PC,READAX       ;READ REG AX0
1302 012206  032737  000004  002356          BIT     #RABT,RAX16     ;CHK FOR RAB SET
1303 012214  001007                          BNE     6$              ;BR IF RAB SET
1304 012216  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1305                              ;REPORT RAB NOT SET
1306 012222                                  ERRDF   40,EM40,ERR6
     012222  104455                                                  TRAP    C$ERDF
     012224  000050                                                  .WORD   40
     012226  014063                                                  .WORD   EM40
     012230  017624                                                  .WORD   ERR6
1307 012232  000412                          BR      8$
1308 012234  032737  000002  002356  6$:     BIT     #REOM,RAX16     ;CHK FOR REOM SET
1309 012242  001015                          BNE     9$              ;BR IF REOM SET
1310 012244  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1311                              ;REPORT REOM NOT SET
1312 012250                                  ERRDF   31,EM31,ERR6
     012250  104455                                                  TRAP    C$ERDF
     012252  000037                                                  .WORD   31
     012254  013706                                                  .WORD   EM31
     012256  017624                                                  .WORD   ERR6
1313 012260  011637  002366          8$:     MOV     (SP),AXNUM      ;RESTORE AX BYTE NO.
1314 012264  013706  002332                  MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
1315 012270  013746  002346                  MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
1316 012274  000402                          BR      16$
1317 012276  012637  002366          9$:     MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
1318 012302  000207                  16$:    RTS     PC              ;RETURN
1319
1320
1321
1322
1323
```

```
                                .SBTTL  GLOBAL ERROR REPORT SECTION

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

 012304  045  124  045  FMT1:   .ASCIZ  /%T%06%N/
 012307  117  066  045
 012312  116  000
 012314  045  116  045  FMT2:   .ASCIZ  /%N%AFAILING REG: /
 012317  101  106  101
 012322  111  114  111
 012325  116  107  040
 012330  122  105  107
 012333  072  040  000
 012336  045  101  105  FMT3:   .ASCIZ  /%AEXPECTED: %03%S5%AACTUAL: %03%N/
 012341  130  120  105
 012344  103  124  105
 012347  104  072  040
 012352  045  117  063
 012355  045  123  065
 012360  045  101  101
 012363  103  124  125
 012366  101  114  072
 012371  040  045  117
 012374  063  045  116
 012377  000
 012400  045  116  045  FMT4:   .ASCIZ  /%N%T%N%T%N/
 012403  124  045  116
 012406  045  124  045
 012411  116  000
 012413  045  117  063  FMT5:   .ASCIZ  /%03%S5%03%S5%03%S5%03%N/
 012416  045  123  065
 012421  045  117  063
 012424  045  123  065
 012427  045  117  063
 012432  045  123  065
 012435  045  117  063
 012440  045  116  000
 012443  045  123  064  FMT6:   .ASCIZ  /%S4%03%S5%03%S5%03%S5%03%N/
 012446  045  117  063
 012451  045  123  065
 012454  045  117  063
 012457  045  123  065
 012462  045  117  063
 012465  045  123  065
 012470  045  117  063
 012473  045  116  000
 012476  045  124  045  FMT7:   .ASCIZ  /%T%02%N/
 012501  117  062  045
 012504  116  000
 012506  045  101  105  FMT8:   .ASCIZ  /%AEXTENDED REG AX%01%A-%T%N/
 012511  130  124  105
 012514  116  104  105
 012517  104  040  122
```

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                012522  105     107     040
                012525  101     130     045
                012530  117     061     045
                012533  101     055     045
                012536  124     045     116
                012541  000
    17          012542  045     124     045     FMT9:   .ASCIZ  /%T%N/
                012545  116     000
    18          012547  045     101     120     FMT10:  .ASCIZ  /%APC OF SUBR CALL: %06%N/
                012552  103     040     117
                012555  106     040     123
                012560  125     102     122
                012563  040     103     101
                012566  114     114     072
                012571  040     045     117
                012574  066     045     116
                012577  000
    19          012600  045     101     122     FMT11:  .ASCIZ  /%AREG %02%A LOADED WITH: %03%N/
                012603  105     107     040
                012606  045     117     062
                012611  045     101     040
                012614  114     117     101
                012617  104     105     104
                012622  040     127     111
                012625  124     110     072
                012630  040     045     117
                012633  063     045     116
                012636  000
    20          012637  045     101     115     FMT12:  .ASCIZ  /%AM8203 REG 11 (E121 SW10,9 , E134 SW9,10) = %03%N/
                012642  070     062     060
                012645  063     040     122
                012650  105     107     040
                012653  061     061     040
                012656  050     105     061
                012661  062     061     040
                012664  123     127     061
                012667  060     054     071
                012672  040     054     040
                012675  105     061     063
                012700  064     040     123
                012703  127     071     054
                012706  061     060     051
                012711  040     075     040
                012714  045     117     063
                012717  045     116     000
    21          012722  045     101     115     FMT13:  .ASCIZ  /%AM8203 REG 15 (E134 SW1-8) = %03%N/
                012725  070     062     060
                012730  063     040     122
                012733  105     107     040
                012736  061     065     040
                012741  050     105     061
                012744  063     064     040
                012747  123     127     061
                012752  055     070     051
                012755  040     075     040
                012760  045     117     063
                012763  045     116     000
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     22 012766  045  101  115  FMT14:  .ASCIZ  /%AM8203 REG 16 (E121 SW1-8) = %03%N/
        012771  070  062  060
        012774  063  040  122
        012777  105  107  040
        013002  061  066  040
        013005  050  105  061
        013010  062  061  040
        013013  123  127  061
        013016  055  070  051
        013021  040  075  040
        013024  045  117  063
        013027  045  116  000
     23 013032  045  101  115  FMT15:  .ASCIZ  /%AMODEM INTERFACE REG (Ax3-15) = %03%N/
        013035  117  104  105
        013040  115  040  111
        013043  116  124  105
        013046  122  106  101
        013051  103  105  040
        013054  122  105  107
        013057  040  050  101
        013062  130  063  055
        013065  061  065  051
        013070  040  075  040
        013073  045  117  063
        013076  045  116  000
     24 013101  045  116  045  FMT18:  .ASCIZ  /%N%AFOR DEVICE AT ADRS  %06%A ,%N/
        013104  101  106  117
        013107  122  040  104
        013112  105  126  111
        013115  103  105  040
        013120  101  124  040
        013123  101  104  122
        013126  123  040  040
        013131  045  117  066
        013134  045  101  040
        013137  054  045  116
        013142  000
     25 013143  045  116  045  FMT19:  .ASCIZ  /%N%ATEST %D2%A NOT RUN%N/
        013146  101  124  105
        013151  123  124  040
        013154  045  104  062
        013157  045  101  040
        013162  116  117  124
        013165  040  122  125
        013170  116  045  116
        013173  000
     26 013174  045  116  045  FMT25:  .ASCIZ  /%N%ABAUD RATE INCORRECT/
        013177  101  102  101
        013202  125  104  040
        013205  122  101  124
        013210  105  040  111
        013213  116  103  117
        013216  122  122  105
        013221  103  124  000
     27 013224  045  116  045  FMT26:  .ASCIZ  /%N%AMODEM INTERFACE NOT SELECTED/
        013227  101  115  117
        013232  104  105  115
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        013235      040      111      116
        013240      124      105      122
        013243      106      101      103
        013246      105      040      116
        013251      117      124      040
        013254      123      105      114
        013257      105      103      124
        013262      105      104      000
    28
    29
    30
    31 013265      122      105      107  EM2:    .ASCIZ  /REG NOT INITIALIZED BY MST CLR/
       013270      040      116      117
       013273      124      040      111
       013276      116      111      124
       013301      111      101      114
       013304      111      132      105
       013307      104      040      102
       013312      131      040      115
       013315      123      124      040
       013320      103      114      122
       013323      000
    32 013324      122      105      107  EM3:    .ASCIZ  /REG MISCOMPARE/
       013327      040      115      111
       013332      123      103      117
       013335      115      120      101
       013340      122      105      000
    33 013343      117      122      104  EM7:    .ASCIZ  /ORDY NOT SET/
       013346      131      040      116
       013351      117      124      040
       013354      123      105      124
       013357      000
    34 013360      117      122      104  EM8:    .ASCIZ  /ORDY NOT CLEARED/
       013363      131      040      116
       013366      117      124      040
       013371      103      114      105
       013374      101      122      105
       013377      104      000
    35 013401      117      103      117  EM9:    .ASCIZ  /OCOR NOT SET/
       013404      122      040      116
       013407      117      124      040
       013412      123      105      124
       013415      000
    36 013416      117      103      117  EM10:   .ASCIZ  /OCOR NOT CLEARED/
       013421      122      040      116
       013424      117      124      040
       013427      103      114      105
       013432      101      122      105
       013435      104      000
    37 013437      117      101      103  EM11:   .ASCIZ  /OACT NOT SET/
       013442      124      040      116
       013445      117      124      040
       013450      123      105      124
       013453      000
    38 013454      117      101      103  EM12:   .ASCIZ  /OACT NOT CLEARED/
       013457      124      040      116
       013462      117      124      040
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        013465      103     114     105
        013470      101     122     105
        013473      104     000
     39 013475      111     122     104  EM17:   .ASCIZ  /IRDY NOT SET/
        013500      131     040     116
        013503      117     124     040
        013506      123     105     124
        013511      000
     40 013512      111     122     104  EM18:   .ASCIZ  /IRDY NOT CLEARED/
        013515      131     040     116
        013520      117     124     040
        013523      103     114     105
        013526      101     122     105
        013531      104     000
     41 013533      111     103     111  EM19:   .ASCIZ  /ICIR NOT SET/
        013536      122     040     116
        013541      117     124     040
        013544      123     105     124
        013547      000
     42 013550      111     103     111  EM20:   .ASCIZ  /ICIR NOT CLEARED/
        013553      122     040     116
        013556      117     124     040
        013561      103     114     105
        013564      101     122     105
        013567      104     000
     43 013571      111     101     103  EM21:   .ASCIZ  /IACT NOT SET/
        013574      124     040     116
        013577      117     124     040
        013602      123     105     124
        013605      000
     44 013606      111     101     103  EM22:   .ASCIZ  /IACT NOT CLEARED/
        013611      124     040     116
        013614      117     124     040
        013617      103     114     105
        013622      101     122     105
        013625      104     000
     45 013627      122     123     117  EM28:   .ASCIZ  /RSOM NOT CLEARED/
        013632      115     040     116
        013635      117     124     040
        013640      103     114     105
        013643      101     122     105
        013646      104     000
     46 013650      122     123     117  EM29:   .ASCIZ  /RSOM NOT SET/
        013653      115     040     116
        013656      117     124     040
        013661      123     105     124
        013664      000
     47 013665      122     105     117  EM30:   .ASCIZ  /REOM NOT CLEARED/
        013670      115     040     116
        013673      117     124     040
        013676      103     114     105
        013701      101     122     105
        013704      104     000
     48 013706      122     105     117  EM31:   .ASCIZ  /REOM NOT SET/
        013711      115     040     116
        013714      117     124     040
        013717      123     105     124
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        013722  000
     49 013723  122     103     126  EM34:   .ASCIZ  /RCV'D DATA MISCOMPARE/
        013726  047     104     040
        013731  104     101     124
        013734  101     040     115
        013737  111     123     103
        013742  117     115     120
        013745  101     122     105
        013750  000
     50 013751  102     103     103  EM35:   .ASCIZ  /BCC NOT CLEARED/
        013754  040     116     117
        013757  124     040     103
        013762  114     105     101
        013765  122     105     104
        013770  000
     51 013771  102     103     103  EM36:   .ASCIZ  /BCC NOT SET/
        013774  040     116     117
        013777  124     040     123
        014002  105     124     000
     52 014005  105     102     114  EM37:   .ASCIZ  /EBLK NOT CLEARED/
        014010  113     040     116
        014013  117     124     040
        014016  103     114     105
        014021  101     122     105
        014024  104     000
     53 014026  105     102     114  EM38:   .ASCIZ  /EBLK NOT SET/
        014031  113     040     116
        014034  117     124     040
        014037  123     105     124
        014042  000
     54 014043  122     101     102  EM39:   .ASCIZ  /RAB NOT CLEARED/
        014046  040     116     117
        014051  124     040     103
        014054  114     105     101
        014057  122     105     104
        014062  000
     55 014063  122     101     102  EM40:   .ASCIZ  /RAB NOT SET/
        014066  040     116     117
        014071  124     040     123
        014074  105     124     000
     56 014077  117     126     122  EM41:   .ASCIZ  /OVRR NOT CLEARED/
        014102  122     040     116
        014105  117     124     040
        014110  103     114     105
        014113  101     122     105
        014116  104     000
     57 014120  117     126     122  EM42:   .ASCIZ  /OVRR NOT SET/
        014123  122     040     116
        014126  117     124     040
        014131  123     105     124
        014134  000
     58 014135  122     105     107  EM43:   .ASCIZ  /REG 11 SWITCHES INCORRECT/
        014140  040     061     061
        014143  040     123     127
        014146  111     124     103
        014151  110     105     123
        014154  040     111     116
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        014157  103  117  122
        014162  122  105  103
        014165  124  000
    59  014167  122  105  107  EM44:   .ASCIZ  /REG 15 SWITCHES INCORRECT/
        014172  040  061  065
        014175  040  123  127
        014200  111  124  103
        014203  110  105  123
        014206  040  111  116
        014211  103  117  122
        014214  122  105  103
        014217  124  000
    60  014221  122  105  107  EM45:   .ASCIZ  /REG 16 SWITCHES INCORRECT/
        014224  040  061  066
        014227  040  123  127
        014232  111  124  103
        014235  110  105  123
        014240  040  111  116
        014243  103  117  122
        014246  122  105  103
        014251  124  000
    61  014253  122  103  126  EM46:   .ASCIZ  /RC. SILO NOT CLEARED BY IC/
        014256  040  123  111
        014261  114  117  040
        014264  116  117  124
        014267  040  103  114
        014272  105  101  122
        014275  105  104  040
        014300  102  131  040
        014303  111  103  000
    62  014306  101  123  123  EM47:   .ASCIZ  /ASSEMB BIT COUNT INCORRECT/
        014311  105  115  102
        014314  040  102  111
        014317  124  040  103
        014322  117  125  116
        014325  124  040  111
        014330  116  103  117
        014333  122  122  105
        014336  103  124  000
    63  014341  117  104  104  EM48:   .ASCIZ  /ODD VRC PARITY BIT NOT SET/
        014344  040  126  122
        014347  103  040  120
        014352  101  122  111
        014355  124  131  040
        014360  102  111  124
        014363  040  116  117
        014366  124  040  123
        014371  105  124  000
    64  014374  117  104  104  EM49:   .ASCIZ  /ODD VRC PARITY BIT NOT CLEARED/
        014377  040  126  122
        014402  103  040  120
        014405  101  122  111
        014410  124  131  040
        014413  102  111  124
        014416  040  116  117
        014421  124  040  103
        014424  114  105  101
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                                                                N 7
        014427  122  105  104
        014432  000
    65  014433  105  126  105  EM50:   .ASCIZ  /EVEN VRC PARITY BIT NOT SET/
        014436  116  040  126
        014441  122  103  040
        014444  120  101  122
        014447  111  124  131
        014452  040  102  111
        014455  124  040  116
        014460  117  124  040
        014463  123  105  124
        014466  000
    66  014467  105  126  105  EM51:   .ASCIZ  /EVEN VRC PARITY BIT NOT CLEARED/
        014472  116  040  126
        014475  122  103  040
        014500  120  101  122
        014503  111  124  131
        014506  040  102  111
        014511  124  040  116
        014514  117  124  040
        014517  103  114  105
        014522  101  122  105
        014525  104  000
    67  014527  124  105  123  EM52:   .ASCIZ  /TEST MODE NOT SET BY MAINT1/
        014532  124  040  115
        014535  117  104  105
        014540  040  116  117
        014543  124  040  123
        014546  105  124  040
        014551  102  131  040
        014554  115  101  111
        014557  116  124  061
        014562  000
    68  014563  124  105  123  EM53:   .ASCIZ  /TEST MODE NOT SET BY MAINT2/
        014566  124  040  115
        014571  117  104  105
        014574  040  116  117
        014577  124  040  123
        014602  105  124  040
        014605  102  131  040
        014610  115  101  111
        014613  116  124  062
        014616  000
    69  014617  124  130  040  EM54:   .ASCIZ  /TX UNDERRUN ERROR/
        014622  125  116  104
        014625  105  122  122
        014630  125  116  040
        014633  105  122  122
        014636  117  122  000
    70  014641  104  124  122  EM55:   .ASCIZ  /DTR NOT SET/
        014644  040  116  117
        014647  124  040  123
        014652  105  124  000
    71  014655  122  111  116  EM56:   .ASCIZ  /RING NOT SET/
        014660  107  040  116
        014663  117  124  040
        014666  123  105  124
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      014671  000
   72 014672  115  117  104  EM57:  .ASCIZ  /MODR NOT SET/
      014675  122  040  116
      014700  117  124  040
      014703  123  105  124
      014706  000
   73 014707  110  104  130  EM58:  .ASCIZ  /HDX NOT SET/
      014712  040  116  117
      014715  124  040  123
      014720  105  124  000
   74 014723  123  124  102  EM59:  .ASCIZ  /STBY NOT SET/
      014726  131  040  116
      014731  117  124  040
      014734  123  105  124
      014737  000
   75 014740  122  124  123  EM60:  .ASCIZ  /RTS NOT SET/
      014743  040  116  117
      014746  124  040  123
      014751  105  124  000
   76 014754  103  123  040  EM61:  .ASCIZ  /CS NOT SET/
      014757  116  117  124
      014762  040  123  105
      014765  124  000
   77 014767  103  101  122  EM62:  .ASCIZ  /CARR NOT SET/
      014772  122  040  116
      014775  117  124  040
      015000  123  105  124
      015003  000
   78 015004  123  111  107  EM63:  .ASCIZ  /SIGQ NOT SET/
      015007  121  040  116
      015012  117  124  040
      015015  123  105  124
      015020  000
   79 015021  123  111  107  EM64:  .ASCIZ  /SIGR NOT SET/
      015024  122  040  116
      015027  117  124  040
      015032  123  105  124
      015035  000
   80 015036  122  124  123  EM65:  .ASCIZ  /RTS NOT CLEARED/
      015041  040  116  117
      015044  124  040  103
      015047  114  105  101
      015052  122  105  104
      015055  000
   81 015056  103  101  122  EM66:  .ASCIZ  /CARR NOT CLEARED/
      015061  122  040  116
      015064  117  124  040
      015067  103  114  105
      015072  101  122  105
      015075  104  000
   82
   83
   84
   85 015077  111  116  102  DH1:   .ASCIZ  &INBUS/OUTBUS REG &
      015102  125  123  057
      015105  117  125  124
      015110  102  125  123
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        015113  040  122  105
        015116  107  040  000
    86  015121  114  111  116  DH2:   .ASCIZ  /LINE UNIT INBUS REGS :/
        015124  105  040  125
        015127  116  111  124
        015132  040  111  116
        015135  102  125  123
        015140  040  122  105
        015143  107  123  040
        015146  072  000
    87  015150  122  105  107  DH3:   .ASCIZ  /REG10   REG11   REG12   REG13/
        015153  061  060  040
        015156  040  040  122
        015161  105  107  061
        015164  061  040  040
        015167  040  122  105
        015172  107  061  062
        015175  040  040  040
        015200  122  105  107
        015203  061  063  000
    88  015206  040  040  040  DH4:   .ASCIZ  /    REG14   REG15   REG16   REG17/
        015211  040  122  105
        015214  107  061  064
        015217  040  040  040
        015222  122  105  107
        015225  061  065  040
        015230  040  040  122
        015233  105  107  061
        015236  066  040  040
        015241  040  122  105
        015244  107  061  067
        015247  000
    89  015250  061  065  000  DH5:   .ASCIZ  /15/
    90  015253  061  066  000  DH6:   .ASCIZ  /16/
    91  015256  114  111  116  DH7:   .ASCIZ  /LINE UNIT EXTENDED REGS :/
        015261  105  040  125
        015264  116  111  124
        015267  040  105  130
        015272  124  105  116
        015275  104  105  104
        015300  040  122  105
        015303  107  123  040
        015306  072  000
    92  015310  101  130  060  DH8:   .ASCIZ  /AX0-15  AX0-16  AX1-15  AX1-16/
        015313  055  061  065
        015316  040  040  101
        015321  130  060  055
        015324  061  066  040
        015327  040  101  130
        015332  061  055  061
        015335  065  040  040
        015340  101  130  061
        015343  055  061  066
        015346  000
    93  015347  040  040  040  DH9:   .ASCIZ  /    AX2-15  AX2-16  AX3-15  AX3-16/
        015352  040  101  130
        015355  062  055  061
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        015360     065     040     040
        015363     101     130     062
        015366     055     061     066
        015371     040     040     101
        015374     130     063     055
        015377     061     065     040
        015402     040     101     130
        015405     063     055     061
        015410     066     000
    94
    95                                  .EVEN
    96
    97
    98
    99
   100
   101 015412                           BGNMSG  ERR1
        015412                                                  ERR1::
   102 015412                           PRINTB  #FMT1,#ADDRES,MPCSR
        015412  013746  002436                                          MOV     MPCSR,-(SP)
        015416  012746  036544                                          MOV     #ADDRES,-(SP)
        015422  012746  012304                                          MOV     #FMT1,-(SP)
        015426  012746  000003                                          MOV     #3,-(SP)
        015432  010600                                                  MOV     SP,R0
        015434  104414                                                  TRAP    C$PNTB
        015436  062706  000010                                          ADD     #10,SP
   103 015442                           ENDMSG
        015442                                                  L10002:
        015442  104423                                                  TRAP    C$MSG
   104
   105
   106
   107 015444                           BGNMSG  ERR2
        015444                                                  ERR2::
   108 015444                           PRINTB  #FMT1,#ADDRES,MPCSR
        015444  013746  002436                                          MOV     MPCSR,-(SP)
        015450  012746  036544                                          MOV     #ADDRES,-(SP)
        015454  012746  012304                                          MOV     #FMT1,-(SP)
        015460  012746  000003                                          MOV     #3,-(SP)
        015464  010600                                                  MOV     SP,R0
        015466  104414                                                  TRAP    C$PNTB
        015470  062706  000010                                          ADD     #10,SP
   109 015474                           PRINTB  #FMT2
        015474  012746  012314                                          MOV     #FMT2,-(SP)
        015500  012746  000001                                          MOV     #1,-(SP)
        015504  010600                                                  MOV     SP,R0
        015506  104414                                                  TRAP    C$PNTB
        015510  062706  000004                                          ADD     #4,SP
   110 015514                           PRINTB  #FMT7,#DH1,REGNUM
        015514  013746  002364                                          MOV     REGNUM,-(SP)
        015520  012746  015077                                          MOV     #DH1,-(SP)
        015524  012746  012476                                          MOV     #FMT7,-(SP)
        015530  012746  000003                                          MOV     #3,-(SP)
        015534  010600                                                  MOV     SP,R0
        015536  104414                                                  TRAP    C$PNTB
        015540  062706  000010                                          ADD     #10,SP
   111 015544                           PRINTB  #FMT3,GOODAT,BADDAT
```

```
                                                                                                    E 8
        015544  013746  002372                                                          MOV     BADDAT,-(SP)
        015550  013746  002370                                                          MOV     GOODAT,-(SP)
        015554  012746  012336                                                          MOV     #FMT3,-(SP)
        015560  012746  000003                                                          MOV     #3,-(SP)
        015564  010600                                                                  MOV     SP,R0
        015566  104414                                                                  TRAP    C$PNTB
        015570  062706  000010                                                          ADD     #10,SP
    112 015574                          PRINTX  #FMT4,#DH2,#DH3
        015574  012746  015150                                                          MOV     #DH3,-(SP)
        015600  012746  015121                                                          MOV     #DH2,-(SP)
        015604  012746  012400                                                          MOV     #FMT4,-(SP)
        015610  012746  000003                                                          MOV     #3,-(SP)
        015614  010600                                                                  MOV     SP,R0
        015616  104415                                                                  TRAP    C$PNTX
        015620  062706  000010                                                          ADD     #10,SP
    113 015624                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        015624  013746  002274                                                          MOV     LUR13,-(SP)
        015630  013746  002272                                                          MOV     LUR12,-(SP)
        015634  013746  002270                                                          MOV     LUR11,-(SP)
        015640  013746  002266                                                          MOV     LUR10,-(SP)
        015644  012746  012413                                                          MOV     #FMT5,-(SP)
        015650  012746  000005                                                          MOV     #5,-(SP)
        015654  010600                                                                  MOV     SP,R0
        015656  104415                                                                  TRAP    C$PNTX
        015660  062706  000014                                                          ADD     #14,SP
    114 015664                          PRINTX  #FMT9,#DH4
        015664  012746  015206                                                          MOV     #DH4,-(SP)
        015670  012746  012542                                                          MOV     #FMT9,-(SP)
        015674  012746  000002                                                          MOV     #2,-(SP)
        015700  010600                                                                  MOV     SP,R0
        015702  104415                                                                  TRAP    C$PNTX
        015704  062706  000006                                                          ADD     #6,SP
    115 015710                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        015710  013746  002304                                                          MOV     LUR17,-(SP)
        015714  013746  002302                                                          MOV     LUR16,-(SP)
        015720  013746  002300                                                          MOV     LUR15,-(SP)
        015724  013746  002276                                                          MOV     LUR14,-(SP)
        015730  012746  012443                                                          MOV     #FMT6,-(SP)
        015734  012746  000005                                                          MOV     #5,-(SP)
        015740  010600                                                                  MOV     SP,R0
        015742  104415                                                                  TRAP    C$PNTX
        015744  062706  000014                                                          ADD     #14,SP
    116 015750                          ENDMSG
        015750                                                          L10003:
        015750  104423                                                                 TRAP    C$MSG
    117
    118
    119
    120
    121
    122 015752                          BGNMSG  ERR3
        015752                                                          ERR3::
    123 015752                          PRINTB  #FMT1,#ADDRES,MPCSR
        015752  013746  002436                                                          MOV     MPCSR,-(SP)
        015756  012746  036544                                                          MOV     #ADDRES,-(SP)
        015762  012746  012304                                                          MOV     #FMT1,-(SP)
        015766  012746  000003                                                          MOV     #3,-(SP)
```

```
                                                                                                                    F 8
        015772  010600                                                                                      MOV     SP,R0
        015774  104414                                                                                      TRAP    C$PNTB
        015776  062706  000010                                                                              ADD     #10,SP
    124 016002                          PRINTB  #FMT2
        016002  012746  012314                                                                              MOV     #FMT2,-(SP)
        016006  012746  000001                                                                              MOV     #1,-(SP)
        016012  010600                                                                                      MOV     SP,R0
        016014  104414                                                                                      TRAP    C$PNTB
        016016  062706  000004                                                                              ADD     #4,SP
    125 016022                          PRINTB  #FMT8,TMP1,TMP0
        016022  013746  002516                                                                              MOV     TMP0,-(SP)
        016026  013746  002520                                                                              MOV     TMP1,-(SP)
        016032  012746  012506                                                                              MOV     #FMT8,-(SP)
        016036  012746  000003                                                                              MOV     #3,-(SP)
        016042  010600                                                                                      MOV     SP,R0
        016044  104414                                                                                      TRAP    C$PNTB
        016046  062706  000010                                                                              ADD     #10,SP
    126 016052                          PRINTB  #FMT3,GOODAT,BADDAT
        016052  013746  002372                                                                              MOV     BADDAT,-(SP)
        016056  013746  002370                                                                              MOV     GOODAT,-(SP)
        016062  012746  012336                                                                              MOV     #FMT3,-(SP)
        016066  012746  000003                                                                              MOV     #3,-(SP)
        016072  010600                                                                                      MOV     SP,R0
        016074  104414                                                                                      TRAP    C$PNTB
        016076  062706  000010                                                                              ADD     #10,SP
    127 016102                          PRINTX  #FMT4,#DH2,#DH3
        016102  012746  015150                                                                              MOV     #DH3,-(SP)
        016106  012746  015121                                                                              MOV     #DH2,-(SP)
        016112  012746  012400                                                                              MOV     #FMT4,-(SP)
        016116  012746  000003                                                                              MOV     #3,-(SP)
        016122  010600                                                                                      MOV     SP,R0
        016124  104415                                                                                      TRAP    C$PNTX
        016126  062706  000010                                                                              ADD     #10,SP
    128 016132                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        016132  013746  002274                                                                              MOV     LUR13,-(SP)
        016136  013746  002272                                                                              MOV     LUR12,-(SP)
        016142  013746  002270                                                                              MOV     LUR11,-(SP)
        016146  013746  002266                                                                              MOV     LUR10,-(SP)
        016152  012746  012413                                                                              MOV     #FMT5,-(SP)
        016156  012746  000005                                                                              MOV     #5,-(SP)
        016162  010600                                                                                      MOV     SP,R0
        016164  104415                                                                                      TRAP    C$PNTX
        016166  062706  000014                                                                              ADD     #14,SP
    129 016172                          PRINTX  #FMT9,#DH4
        016172  012746  015206                                                                              MOV     #DH4,-(SP)
        016176  012746  012542                                                                              MOV     #FMT9,-(SP)
        016202  012746  000002                                                                              MOV     #2,-(SP)
        016206  010600                                                                                      MOV     SP,R0
        016210  104415                                                                                      TRAP    C$PNTX
        016212  062706  000006                                                                              ADD     #6,SP
    130 016216                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        016216  013746  002304                                                                              MOV     LUR17,-(SP)
        016222  013746  002302                                                                              MOV     LUR16,-(SP)
        016226  013746  002300                                                                              MOV     LUR15,-(SP)
        016232  013746  002276                                                                              MOV     LUR14,-(SP)
        016236  012746  012443                                                                              MOV     #FMT6,-(SP)
        016242  012746  000005                                                                              MOV     #5,-(SP)
```

```
                                                                                                                    G 8
        016246  010600                                                                                      MOV     SP,R0
        016250  104415                                                                                      TRAP    C$PNTX
        016252  062706  000014                                                                              ADD     #14,SP
    131 016256                          PRINTX  #FMT4,#DH7,#DH8
        016256  012746  015310                                                                              MOV     #DH8 -(SP)
        016262  012746  015256                                                                              MOV     #DH7,-(SP)
        016266  012746  012400                                                                              MOV     #FMT4,-(SP)
        016272  012746  000003                                                                              MOV     #3,-(SP)
        016276  010600                                                                                      MOV     SP,R0
        016300  104415                                                                                      TRAP    C$PNTX
        016302  062706  000010                                                                              ADD     #10,SP
    132 016306                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        016306  013746  002314                                                                              MOV     AX1.16,-(SP)
        016312  013746  002312                                                                              MOV     AX1.15,-(SP)
        016316  013746  002310                                                                              MOV     AX0.16,-(SP)
        016322  013746  002306                                                                              MOV     AX0.15,-(SP)
        016326  012746  012413                                                                              MOV     #FMT5,-(SP)
        016332  012746  000005                                                                              MOV     #5,-(SP)
        016336  010600                                                                                      MOV     SP,R0
        016340  104415                                                                                      TRAP    C$PNTX
        016342  062706  000014                                                                              ADD     #14,SP
    133 016346                          PRINTX  #FMT9,#DH9
        016346  012746  015347                                                                              MOV     #DH9,-(SP)
        016352  012746  012542                                                                              MOV     #FMT9,-(SP)
        016356  012746  000002                                                                              MOV     #2,-(SP)
        016362  010600                                                                                      MOV     SP,R0
        016364  104415                                                                                      TRAP    C$PNTX
        016366  062706  000006                                                                              ADD     #6,SP
    134 016372                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        016372  013746  002324                                                                              MOV     AX3.16,-(SP)
        016376  013746  002322                                                                              MOV     AX3.15,-(SP)
        016402  013746  002320                                                                              MOV     AX2.16,-(SP)
        016406  013746  002316                                                                              MOV     AX2.15,-(SP)
        016412  012746  012443                                                                              MOV     #FMT6,-(SP)
        016416  012746  000005                                                                              MOV     #5,-(SP)
        016422  010600                                                                                      MOV     SP,R0
        016424  104415                                                                                      TRAP    C$PNTX
        016426  062706  000014                                                                              ADD     #14,SP
    135 016432                          ENDMSG
        016432                                                                              L10004:
        016432  104423                                                                                      TRAP    C$MSG
    136
    137
    138
    139
    140
    141 016434                          BGNMSG  ERR4
        016434                                                                              ERR4::
    142 016434                          PRINTB  #FMT10,SUBRPC
        016434  013746  002336                                                                              MOV     SUBRPC,-(SP)
        016440  012746  012547                                                                              MOV     #FMT10,-(SP)
        016444  012746  000002                                                                              MOV     #2,-(SP)
        016450  010600                                                                                      MOV     SP,R0
        016452  104414                                                                                      TRAP    C$PNTB
        016454  062706  000006                                                                              ADD     #6,SP
    143 016460                          PRINTB  #FMT1,#ADDRES,MPCSR
        016460  013746  002436                                                                              MOV     MPCSR,-(SP)
```

```
        016464  012746  036544                                          MOV     #ADDRES,-(SP)
        016470  012746  012304                                          MOV     #FMT1,-(SP)
        016474  012746  000003                                          MOV     #3,-(SP)
        016500  010600                                                  MOV     SP,R0
        016502  104414                                                  TRAP    C$PNTB
        016504  062706  000010                                          ADD     #10,SP
    144 016510                          PRINTB  #FMT2
        016510  012746  012314                                          MOV     #FMT2,-(SP)
        016514  012746  000001                                          MOV     #1,-(SP)
        016520  010600                                                  MOV     SP,R0
        016522  104414                                                  TRAP    C$PNTB
        016524  062706  000004                                          ADD     #4,SP
    145 016530                          PRINTB  #FMT7,#DH1,REGNUM
        016530  013746  002364                                          MOV     REGNUM,-(SP)
        016534  012746  015077                                          MOV     #DH1,-(SP)
        016540  012746  012476                                          MOV     #FMT7,-(SP)
        016544  012746  000003                                          MOV     #3,-(SP)
        016550  010600                                                  MOV     SP,R0
        016552  104414                                                  TRAP    C$PNTB
        016554  062706  000010                                          ADD     #10,SP
    146 016560                          PRINTX  #FMT4,#DH2,#DH3
        016560  012746  015150                                          MOV     #DH3,-(SP)
        016564  012746  015121                                          MOV     #DH2,-(SP)
        016570  012746  012400                                          MOV     #FMT4,-(SP)
        016574  012746  000003                                          MOV     #3,-(SP)
        016600  010600                                                  MOV     SP,R0
        016602  104415                                                  TRAP    C$PNTX
        016604  062706  000010                                          ADD     #10,SP
    147 016610                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        016610  013746  002274                                          MOV     LUR13,-(SP)
        016614  013746  002272                                          MOV     LUR12,-(SP)
        016620  013746  002270                                          MOV     LUR11,-(SP)
        016624  013746  002266                                          MOV     LUR10,-(SP)
        016630  012746  012413                                          MOV     #FMT5,-(SP)
        016634  012746  000005                                          MOV     #5,-(SP)
        016640  010600                                                  MOV     SP,R0
        016642  104415                                                  TRAP    C$PNTX
        016644  062706  000014                                          ADD     #14,SP
    148 016650                          PRINTX  #FMT9,#DH4
        016650  012746  015206                                          MOV     #DH4,-(SP)
        016654  012746  012542                                          MOV     #FMT9,-(SP)
        016660  012746  000002                                          MOV     #2,-(SP)
        016664  010600                                                  MOV     SP,R0
        016666  104415                                                  TRAP    C$PNTX
        016670  062706  000006                                          ADD     #6,SP
    149 016674                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        016674  013746  002304                                          MOV     LUR17,-(SP)
        016700  013746  002302                                          MOV     LUR16,-(SP)
        016704  013746  002300                                          MOV     LUR15,-(SP)
        016710  013746  002276                                          MOV     LUR14,-(SP)
        016714  012746  012443                                          MOV     #FMT6,-(SP)
        016720  012746  000005                                          MOV     #5,-(SP)
        016724  010600                                                  MOV     SP,R0
        016726  104415                                                  TRAP    C$PNTX
        016730  062706  000014                                          ADD     #14,SP
    150 016734                          PRINTX  #FMT4,#DH7,#DH8
        016734  012746  015310                                          MOV     #DH8,-(SP)
```

```
        016740  012746  015256                                                  MOV     #DH7,-(SP)
        016744  012746  012400                                                  MOV     #FMT4,-(SP)
        016750  012746  000003                                                  MOV     #3,-(SP)
        016754  010600                                                          MOV     SP,R0
        016756  104415                                                          TRAP    C$PNTX
        016760  062706  000010                                                  ADD     #10,SP
    151 016764                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        016764  013746  002314                                                  MOV     AX1.16,-(SP)
        016770  013746  002312                                                  MOV     AX1.15,-(SP)
        016774  013746  002310                                                  MOV     AX0.16,-(SP)
        017000  013746  002306                                                  MOV     AX0.15,-(SP)
        017004  012746  012413                                                  MOV     #FMT5,-(SP)
        017010  012746  000005                                                  MOV     #5,-(SP)
        017014  010600                                                          MOV     SP,R0
        017016  104415                                                          TRAP    C$PNTX
        017020  062706  000014                                                  ADD     #14,SP
    152 017024                          PRINTX  #FMT9,#DH9
        017024  012746  015347                                                  MOV     #DH9,-(SP)
        017030  012746  012542                                                  MOV     #FMT9,-(SP)
        017034  012746  000002                                                  MOV     #2,-(SP)
        017040  010600                                                          MOV     SP,R0
        017042  104415                                                          TRAP    C$PNTX
        017044  062706  000006                                                  ADD     #6,SP
    153 017050                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        017050  013746  002324                                                  MOV     AX3.16,-(SP)
        017054  013746  002322                                                  MOV     AX3.15,-(SP)
        017060  013746  002320                                                  MOV     AX2.16,-(SP)
        017064  013746  002316                                                  MOV     AX2.15,-(SP)
        017070  012746  012443                                                  MOV     #FMT6,-(SP)
        017074  012746  000005                                                  MOV     #5,-(SP)
        017100  010600                                                          MOV     SP,R0
        017102  104415                                                          TRAP    C$PNTX
        017104  062706  000014                                                  ADD     #14,SP
    154 017110                          ENDMSG
        017110                                                          L10005:
        017110  104423                                                          TRAP    C$MSG
    155
    156
    157
    158
    159
    160 017112                          BGNMSG  ERR5
        017112                                                          ERR5::
    161 017112                          PRINTB  #FMT1,#ADDRES,MPCSR
        017112  013746  002436                                                  MOV     MPCSR,-(SP)
        017116  012746  036544                                                  MOV     #ADDRES,-(SP)
        017122  012746  012304                                                  MOV     #FMT1,-(SP)
        017126  012746  000003                                                  MOV     #3,-(SP)
        017132  010600                                                          MOV     SP,R0
        017134  104414                                                          TRAP    C$PNTB
        017136  062706  000010                                                  ADD     #10,SP
    162 017142                          PRINTB  #FMT11,REGNUM,LOADAT
        017142  013746  002374                                                  MOV     LOADAT,-(SP)
        017146  013746  002364                                                  MOV     REGNUM,-(SP)
        017152  012746  012600                                                  MOV     #FMT11,-(SP)
        017156  012746  000003                                                  MOV     #3,-(SP)
        017162  010600                                                          MOV     SP,R0
```

```
                                                                                SEQ   100

        017164  104414                                                          TRAP    C$PNTB
        017166  062706  000010                                                  ADD     #10,SP
    163 017172                          PRINTB  #FMT2
        017172  012746  012314                                                  MOV     #FMT2,-(SP)
        017176  012746  000001                                                  MOV     #1,-(SP)
        017202  010600                                                          MOV     SP,R0
        017204  104414                                                          TRAP    C$PNTB
        017206  062706  000004                                                  ADD     #4,SP
    164 017212                          PRINTB  #FMT8,TMP1,TMP0
        017212  013746  002516                                                  MOV     TMP0,-(SP)
        017216  013746  002520                                                  MOV     TMP1,-(SP)
        017222  012746  012506                                                  MOV     #FMT8,-(SP)
        017226  012746  000003                                                  MOV     #3,-(SP)
        017232  010600                                                          MOV     SP,R0
        017234  104414                                                          TRAP    C$PNTB
        017236  062706  000010                                                  ADD     #10,SP
    165 017242                          PRINTB  #FMT3,GOODAT,BADDAT
        017242  013746  002372                                                  MOV     BADDAT,-(SP)
        017246  013746  002370                                                  MOV     GOODAT,-(SP)
        017252  012746  012336                                                  MOV     #FMT3,-(SP)
        017256  012746  000003                                                  MOV     #3,-(SP)
        017262  010600                                                          MOV     SP,R0
        017264  104414                                                          TRAP    C$PNTB
        017266  062706  000010                                                  ADD     #10,SP
    166 017272                          PRINTX  #FMT4,#DH2,#DH3
        017272  012746  015150                                                  MOV     #DH3,-(SP)
        017276  012746  015121                                                  MOV     #DH2,-(SP)
        017302  012746  012400                                                  MOV     #FMT4,-(SP)
        017306  012746  000003                                                  MOV     #3,-(SP)
        017312  010600                                                          MOV     SP,R0
        017314  104415                                                          TRAP    C$PNTX
        017316  062706  000010                                                  ADD     #10,SP
    167 017322                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        017322  013746  002274                                                  MOV     LUR13,-(SP)
        017326  013746  002272                                                  MOV     LUR12,-(SP)
        017332  013746  002270                                                  MOV     LUR11,-(SP)
        017336  013746  002266                                                  MOV     LUR10,-(SP)
        017342  012746  012413                                                  MOV     #FMT5,-(SP)
        017346  012746  000005                                                  MOV     #5,-(SP)
        017352  010600                                                          MOV     SP,R0
        017354  104415                                                          TRAP    C$PNTX
        017356  062706  000014                                                  ADD     #14,SP
    168 017362                          PRINTX  #FMT9,#DH4
        017362  012746  015206                                                  MOV     #DH4,-(SP)
        017366  012746  012542                                                  MOV     #FMT9,-(SP)
        017372  012746  000002                                                  MOV     #2,-(SP)
        017376  010600                                                          MOV     SP,R0
        017400  104415                                                          TRAP    C$PNTX
        017402  062706  000006                                                  ADD     #6,SP
    169 017406                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        017406  013746  002304                                                  MOV     LUR17,-(SP)
        017412  013746  002302                                                  MOV     LUR16,-(SP)
        017416  013746  002300                                                  MOV     LUR15,-(SP)
        017422  013746  002276                                                  MOV     LUR14,-(SP)
        017426  012746  012443                                                  MOV     #FMT6,-(SP)
        017432  012746  000005                                                  MOV     #5,-(SP)
        017436  010600                                                          MOV     SP,R0
```

```
        017440  104415                                                          TRAP    C$PNTX
        017442  062706  000014                                                  ADD     #14,SP
    170 017446                          PRINTX  #FMT4,#DH7,#DH8
        017446  012746  015310                                                  MOV     #DH8,-(SP)
        017452  012746  015256                                                  MOV     #DH7,-(SP)
        017456  012746  012400                                                  MOV     #FMT4,-(SP)
        017462  012746  000003                                                  MOV     #3,-(SP)
        017466  010600                                                          MOV     SP,R0
        017470  104415                                                          TRAP    C$PNTX
        017472  062706  000010                                                  ADD     #10,SP
    171 017476                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        017476  013746  002314                                                  MOV     AX1.16,-(SP)
        017502  013746  002312                                                  MOV     AX1.15,-(SP)
        017506  013746  002310                                                  MOV     AX0.16,-(SP)
        017512  013746  002306                                                  MOV     AX0.15,-(SP)
        017516  012746  012413                                                  MOV     #FMT5,-(SP)
        017522  012746  000005                                                  MOV     #5,-(SP)
        017526  010600                                                          MOV     SP,R0
        017530  104415                                                          TRAP    C$PNTX
        017532  062706  000014                                                  ADD     #14,SP
    172 017536                          PRINTX  #FMT9,#DH9
        017536  012746  015347                                                  MOV     #DH9,-(SP)
        017542  012746  012542                                                  MOV     #FMT9,-(SP)
        017546  012746  000002                                                  MOV     #2,-(SP)
        017552  010600                                                          MOV     SP,R0
        017554  104415                                                          TRAP    C$PNTX
        017556  062706  000006                                                  ADD     #6,SP
    173 017562                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        017562  013746  002324                                                  MOV     AX3.16,-(SP)
        017566  013746  002322                                                  MOV     AX3.15,-(SP)
        017572  013746  002320                                                  MOV     AX2.16,-(SP)
        017576  013746  002316                                                  MOV     AX2.15,-(SP)
        017602  012746  012443                                                  MOV     #FMT6,-(SP)
        017606  012746  000005                                                  MOV     #5,-(SP)
        017612  010600                                                          MOV     SP,R0
        017614  104415                                                          TRAP    C$PNTX
        017616  062706  000014                                                  ADD     #14,SP
    174 017622                          ENDMSG
        017622                                                          L10006:
        017622  104423                                                          TRAP    C$MSG
    175
    176
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    179
    180 017624                          BGNMSG  ERR6
        017624                                                          ERR6::
    181 017624                          PRINTB  #FMT10,SUBRPC
        017624  013746  002336                                                  MOV     SUBRPC,-(SP)
        017630  012746  012547                                                  MOV     #FMT10,-(SP)
        017634  012746  000002                                                  MOV     #2,-(SP)
        017640  010600                                                          MOV     SP,R0
        017642  104414                                                          TRAP    C$PNTB
        017644  062706  000006                                                  ADD     #6,SP
    182 017650                          PRINTB  #FMT1,#ADDRES,MPCSR
        017650  013746  002436                                                  MOV     MPCSR,-(SP)
        017654  012746  036544                                                  MOV     #ADDRES,-(SP)
```

```
        017660  012746  012304                                          MOV     #FMT1,-(SP)
        017664  012746  000003                                          MOV     #3,-(SP)
        017670  010600                                                  MOV     SP,R0
        017672  104414                                                  TRAP    C$PNTB
        017674  062706  000010                                          ADD     #10,SP
    183 017700                          PRINTB  #FMT2
        017700  012746  012314                                          MOV     #FMT2,-(SP)
        017704  012746  000001                                          MOV     #1,-(SP)
        017710  010600                                                  MOV     SP,R0
        017712  104414                                                  TRAP    C$PNTB
        017714  062706  000004                                          ADD     #4,SP
    184 017720                          PRINTB  #FMT8,TMP1,TMP0
        017720  013746  002516                                          MOV     TMP0,-(SP)
        017724  013746  002520                                          MOV     TMP1,-(SP)
        017730  012746  012506                                          MOV     #FMT8,-(SP)
        017734  012746  000003                                          MOV     #3,-(SP)
        017740  010600                                                  MOV     SP,R0
        017742  104414                                                  TRAP    C$PNTB
        017744  062706  000010                                          ADD     #10,SP
    185 017750                          PRINTX  #FMT4,#DH2,#DH3
        017750  012746  015150                                          MOV     #DH3,-(SP)
        017754  012746  015121                                          MOV     #DH2,-(SP)
        017760  012746  012400                                          MOV     #FMT4,-(SP)
        017764  012746  000003                                          MOV     #3,-(SP)
        017770  010600                                                  MOV     SP,R0
        017772  104415                                                  TRAP    C$PNTX
        017774  062706  000010                                          ADD     #10,SP
    186 020000                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        020000  013746  002274                                          MOV     LUR13,-(SP)
        020004  013746  002272                                          MOV     LUR12,-(SP)
        020010  013746  002270                                          MOV     LUR11,-(SP)
        020014  013746  002266                                          MOV     LUR10,-(SP)
        020020  012746  012413                                          MOV     #FMT5,-(SP)
        020024  012746  000005                                          MOV     #5,-(SP)
        020030  010600                                                  MOV     SP,R0
        020032  104415                                                  TRAP    C$PNTX
        020034  062706  000014                                          ADD     #14,SP
    187 020040                          PRINTX  #FMT9,#DH4
        020040  012746  015206                                          MOV     #DH4,-(SP)
        020044  012746  012542                                          MOV     #FMT9,-(SP)
        020050  012746  000002                                          MOV     #2,-(SP)
        020054  010600                                                  MOV     SP,R0
        020056  104415                                                  TRAP    C$PNTX
        020060  062706  000006                                          ADD     #6,SP
    188 020064                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        020064  013746  002304                                          MOV     LUR17,-(SP)
        020070  013746  002302                                          MOV     LUR16,-(SP)
        020074  013746  002300                                          MOV     LUR15,-(SP)
        020100  013746  002276                                          MOV     LUR14,-(SP)
        020104  012746  012443                                          MOV     #FMT6,-(SP)
        020110  012746  000005                                          MOV     #5,-(SP)
        020114  010600                                                  MOV     SP,R0
        020116  104415                                                  TRAP    C$PNTX
        020120  062706  000014                                          ADD     #14,SP
    189 020124                          PRINTX  #FMT4,#DH7,#DH8
        020124  012746  015310                                          MOV     #DH8,-(SP)
        020130  012746  015256                                          MOV     #DH7,-(SP)
```

```
                020134  012746  012400                                  MOV     #FMT4,-(SP)
                020140  012746  000003                                  MOV     #3,-(SP)
                020144  010600                                          MOV     SP,R0
                020146  104415                                          TRAP    C$PNTX
                020150  062706  000010                                  ADD     #10,SP
    190         020154                  PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
                020154  013746  002314                                  MOV     AX1.16,-(SP)
                020160  013746  002312                                  MOV     AX1.15,-(SP)
                020164  013746  002310                                  MOV     AX0.16,-(SP)
                020170  013746  002306                                  MOV     AX0.15,-(SP)
                020174  012746  012413                                  MOV     #FMT5,-(SP)
                020200  012746  000005                                  MOV     #5,-(SP)
                020204  010600                                          MOV     SP,R0
                020206  104415                                          TRAP    C$PNTX
                020210  062706  000014                                  ADD     #14,SP
    191         020214                  PRINTX  #FMT9,#DH9
                020214  012746  015347                                  MOV     #DH9,-(SP)
                020220  012746  012542                                  MOV     #FMT9,-(SP)
                020224  012746  000002                                  MOV     #2,-(SP)
                020230  010600                                          MOV     SP,R0
                020232  104415                                          TRAP    C$PNTX
                020234  062706  000006                                  ADD     #6,SP
    192         020240                  PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
                020240  013746  002324                                  MOV     AX3.16,-(SP)
                020244  013746  002322                                  MOV     AX3.15,-(SP)
                020250  013746  002320                                  MOV     AX2.16,-(SP)
                020254  013746  002316                                  MOV     AX2.15,-(SP)
                020260  012746  012443                                  MOV     #FMT6,-(SP)
                020264  012746  000005                                  MOV     #5,-(SP)
                020270  010600                                          MOV     SP,R0
                020272  104415                                          TRAP    C$PNTX
                020274  062706  000014                                  ADD     #14,SP
    193         020300                  ENDMSG
                020300                                          L10007:
                020300  104423                                          TRAP    C$MSG
    194
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    199         020302                  BGNMSG  ERR7
                020302                                          ERR7::
    200         020302                  PRINTB  #FMT1,#ADDRES,MPCSR
                020302  013746  002436                                  MOV     MPCSR,-(SP)
                020306  012746  036544                                  MOV     #ADDRES,-(SP)
                020312  012746  012304                                  MOV     #FMT1,-(SP)
                020316  012746  000003                                  MOV     #3,-(SP)
                020322  010600                                          MOV     SP,R0
                020324  104414                                          TRAP    C$PNTB
                020326  062706  000010                                  ADD     #10,SP
    201         020332                  PRINTB  #FMT2
                020332  012746  012314                                  MOV     #FMT2,-(SP)
                020336  012746  000001                                  MOV     #1,-(SP)
                020342  010600                                          MOV     SP,R0
                020344  104414                                          TRAP    C$PNTB
                020346  062706  000004                                  ADD     #4,SP
    202         020352                  PRINTB  #FMT7,#DH1,REGNUM
```

```
                                                                                                N 8
        020352  013746  002364                                                                  MOV     REGNUM,-(SP)
        020356  012746  015077                                                                  MOV     #DH1,-(SP)
        020362  012746  012476                                                                  MOV     #FMT7,-(SP)
        020366  012746  000003                                                                  MOV     #3,-(SP)
        020372  010600                                                                          MOV     SP,R0
        020374  104414                                                                          TRAP    C$PNTB
        020376  062706  000010                                                                  ADD     #10,SP
    203 020402                          PRINTX  #FMT4,#DH2,#DH3
        020402  012746  015150                                                                  MOV     #DH3,-(SP)
        020406  012746  015121                                                                  MOV     #DH2,-(SP)
        020412  012746  012400                                                                  MOV     #FMT4,-(SP)
        020416  012746  000003                                                                  MOV     #3,-(SP)
        020422  010600                                                                          MOV     SP,R0
        020424  104415                                                                          TRAP    C$PNTX
        020426  062706  000010                                                                  ADD     #10,SP
    204 020432                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        020432  013746  002274                                                                  MOV     LUR13,-(SP)
        020436  013746  002272                                                                  MOV     LUR12,-(SP)
        020442  013746  002270                                                                  MOV     LUR11,-(SP)
        020446  013746  002266                                                                  MOV     LUR10,-(SP)
        020452  012746  012413                                                                  MOV     #FMT5,-(SP)
        020456  012746  000005                                                                  MOV     #5,-(SP)
        020462  010600                                                                          MOV     SP,R0
        020464  104415                                                                          TRAP    C$PNTX
        020466  062706  000014                                                                  ADD     #14,SP
    205 020472                          PRINTX  #FMT9,#DH4
        020472  012746  015206                                                                  MOV     #DH4,-(SP)
        020476  012746  012542                                                                  MOV     #FMT9,-(SP)
        020502  012746  000002                                                                  MOV     #2,-(SP)
        020506  010600                                                                          MOV     SP,R0
        020510  104415                                                                          TRAP    C$PNTX
        020512  062706  000006                                                                  ADD     #6,SP
    206 020516                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        020516  013746  002304                                                                  MOV     LUR17,-(SP)
        020522  013746  002302                                                                  MOV     LUR16,-(SP)
        020526  013746  002300                                                                  MOV     LUR15,-(SP)
        020532  013746  002276                                                                  MOV     LUR14,-(SP)
        020536  012746  012443                                                                  MOV     #FMT6,-(SP)
        020542  012746  000005                                                                  MOV     #5,-(SP)
        020546  010600                                                                          MOV     SP,R0
        020550  104415                                                                          TRAP    C$PNTX
        020552  062706  000014                                                                  ADD     #14,SP
    207 020556                          PRINTX  #FMT4,#DH7,#DH8
        020556  012746  015310                                                                  MOV     #DH8,-(SP)
        020562  012746  015256                                                                  MOV     #DH7,-(SP)
        020566  012746  012400                                                                  MOV     #FMT4,-(SP)
        020572  012746  000003                                                                  MOV     #3,-(SP)
        020576  010600                                                                          MOV     SP,R0
        020600  104415                                                                          TRAP    C$PNTX
        020602  062706  000010                                                                  ADD     #10,SP
    208 020606                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        020606  013746  002314                                                                  MOV     AX1.16,-(SP)
        020612  013746  002312                                                                  MOV     AX1.15,-(SP)
        020616  013746  002310                                                                  MOV     AX0.16,-(SP)
        020622  013746  002306                                                                  MOV     AX0.15,-(SP)
        020626  012746  012413                                                                  MOV     #FMT5,-(SP)
        020632  012746  000005                                                                  MOV     #5,-(SP)
```

```
        020636  010600                                                          MOV     SP,R0
        020640  104415                                                          TRAP    C$PNTX
        020642  062706  000014                                                  ADD     #14,SP
    209 020646                      PRINTX  #FMT9,#DH9
        020646  012746  015347                                                  MOV     #DH9,-(SP)
        020652  012746  012542                                                  MOV     #FMT9,-(SP)
        020656  012746  000002                                                  MOV     #2,-(SP)
        020662  010600                                                          MOV     SP,R0
        020664  104415                                                          TRAP    C$PNTX
        020666  062706  000006                                                  ADD     #6,SP
    210 020672                      PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        020672  013746  002324                                                  MOV     AX3.16,-(SP)
        020676  013746  002322                                                  MOV     AX3.15,-(SP)
        020702  013746  002320                                                  MOV     AX2.16,-(SP)
        020706  013746  002316                                                  MOV     AX2.15,-(SP)
        020712  012746  012443                                                  MOV     #FMT6,-(SP)
        020716  012746  000005                                                  MOV     #5,-(SP)
        020722  010600                                                          MOV     SP,R0
        020724  104415                                                          TRAP    C$PNTX
        020726  062706  000014                                                  ADD     #14,SP
    211 020732                      ENDMSG
        020732                                                          L10010:
        020732  104423                                                         TRAP    C$MSG
    212
    213
    214
    215
    216
    217 020734                      BGNMSG  ERR8
        020734                                                          ERR8::
    218 020734                      PRINTB  #FMT10,SUBRPC
        020734  013746  002336                                                  MOV     SUBRPC,-(SP)
        020740  012746  012547                                                  MOV     #FMT10,-(SP)
        020744  012746  000002                                                  MOV     #2,-(SP)
        020750  010600                                                          MOV     SP,R0
        020752  104414                                                          TRAP    C$PNTB
        020754  062706  000006                                                  ADD     #6,SP
    219 020760                      PRINTB  #FMT1,#ADDRES,MPCSR
        020760  013746  002436                                                  MOV     MPCSR,-(SP)
        020764  012746  036544                                                  MOV     #ADDRES,-(SP)
        020770  012746  012304                                                  MOV     #FMT1,-(SP)
        020774  012746  000003                                                  MOV     #3,-(SP)
        021000  010600                                                          MOV     SP,R0
        021002  104414                                                          TRAP    C$PNTB
        021004  062706  000010                                                  ADD     #10,SP
    220 021010                      PRINTB  #FMT2
        021010  012746  012314                                                  MOV     #FMT2,-(SP)
        021014  012746  000001                                                  MOV     #1,-(SP)
        021020  010600                                                          MOV     SP,R0
        021022  104414                                                          TRAP    C$PNTB
        021024  062706  000004                                                  ADD     #4,SP
    221 021030                      PRINTB  #FMT7,#DH1,REGNUM
        021030  013746  002364                                                  MOV     REGNUM,-(SP)
        021034  012746  015077                                                  MOV     #DH1,-(SP)
        021040  012746  012476                                                  MOV     #FMT7,-(SP)
        021044  012746  000003                                                  MOV     #3,-(SP)
        021050  010600                                                          MOV     SP,R0
```

```
        021052  104414                                                          TRAP    C$PNTB
        021054  062706  000010                                                  ADD     #10,SP
    222 021060                          PRINTB  #FMT3,GOODAT,BADDAT
        021060  013746  002372                                                  MOV     BADDAT,-(SP)
        021064  013746  002370                                                  MOV     GOODAT,-(SP)
        021070  012746  012336                                                  MOV     #FMT3,-(SP)
        021074  012746  000003                                                  MOV     #3,-(SP)
        021100  010600                                                          MOV     SP,R0
        021102  104414                                                          TRAP    C$PNTB
        021104  062706  000010                                                  ADD     #10,SP
    223 021110                          PRINTX  #FMT4,#DH2,#DH3
        021110  012746  015150                                                  MOV     #DH3,-(SP)
        021114  012746  015121                                                  MOV     #DH2,-(SP)
        021120  012746  012400                                                  MOV     #FMT4,-(SP)
        021124  012746  000003                                                  MOV     #3,-(SP)
        021130  010600                                                          MOV     SP,R0
        021132  104415                                                          TRAP    C$PNTX
        021134  062706  000010                                                  ADD     #10,SP
    224 021140                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        021140  013746  002274                                                  MOV     LUR13,-(SP)
        021144  013746  002272                                                  MOV     LUR12,-(SP)
        021150  013746  002270                                                  MOV     LUR11,-(SP)
        021154  013746  002266                                                  MOV     LUR10,-(SP)
        021160  012746  012413                                                  MOV     #FMT5,-(SP)
        021164  012746  000005                                                  MOV     #5,-(SP)
        021170  010600                                                          MOV     SP,R0
        021172  104415                                                          TRAP    C$PNTX
        021174  062706  000014                                                  ADD     #14,SP
    225 021200                          PRINTX  #FMT9,#DH4
        021200  012746  015206                                                  MOV     #DH4,-(SP)
        021204  012746  012542                                                  MOV     #FMT9,-(SP)
        021210  012746  000002                                                  MOV     #2,-(SP)
        021214  010600                                                          MOV     SP,R0
        021216  104415                                                          TRAP    C$PNTX
        021220  062706  000006                                                  ADD     #6,SP
    226 021224                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        021224  013746  002304                                                  MOV     LUR17,-(SP)
        021230  013746  002302                                                  MOV     LUR16,-(SP)
        021234  013746  002300                                                  MOV     LUR15,-(SP)
        021240  013746  002276                                                  MOV     LUR14,-(SP)
        021244  012746  012443                                                  MOV     #FMT6,-(SP)
        021250  012746  000005                                                  MOV     #5,-(SP)
        021254  010600                                                          MOV     SP,R0
        021256  104415                                                          TRAP    C$PNTX
        021260  062706  000014                                                  ADD     #14,SP
    227 021264                          PRINTX  #FMT4,#DH7,#DH8
        021264  012746  015310                                                  MOV     #DH8,-(SP)
        021270  012746  015256                                                  MOV     #DH7,-(SP)
        021274  012746  012400                                                  MOV     #FMT4,-(SP)
        021300  012746  000003                                                  MOV     #3,-(SP)
        021304  010600                                                          MOV     SP,R0
        021306  104415                                                          TRAP    C$PNTX
        021310  062706  000010                                                  ADD     #10,SP
    228 021314                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        021314  013746  002314                                                  MOV     AX1.16,-(SP)
        021320  013746  002312                                                  MOV     AX1.15,-(SP)
        021324  013746  002310                                                  MOV     AX0.16,-(SP)
```

```
                                                                                                                    D 9
        021330  013746  002306                                                                          MOV     AX0.15,-(SP)
        021334  012746  012413                                                                          MOV     #FMT5,-(SP)
        021340  012746  000005                                                                          MOV     #5,-(SP)
        021344  010600                                                                                  MOV     SP,R0
        021346  104415                                                                                  TRAP    C$PNTX
        021350  062706  000014                                                                          ADD     #14,SP
    229 021354                          PRINTX  #FMT9,#DH9
        021354  012746  015347                                                                          MOV     #DH9,-(SP)
        021360  012746  012542                                                                          MOV     #FMT9,-(SP)
        021364  012746  000002                                                                          MOV     #2,-(SP)
        021370  010600                                                                                  MOV     SP,R0
        021372  104415                                                                                  TRAP    C$PNTX
        021374  062706  000006                                                                          ADD     #6,SP
    230 021400                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        021400  013746  002324                                                                          MOV     AX3.16,-(SP)
        021404  013746  002322                                                                          MOV     AX3.15,-(SP)
        021410  013746  002320                                                                          MOV     AX2.16,-(SP)
        021414  013746  002316                                                                          MOV     AX2.15,-(SP)
        021420  012746  012443                                                                          MOV     #FMT6,-(SP)
        021424  012746  000005                                                                          MOV     #5,-(SP)
        021430  010600                                                                                  MOV     SP,R0
        021432  104415                                                                                  TRAP    C$PNTX
        021434  062706  000014                                                                          ADD     #14,SP
    231 021440                          ENDMSG
        021440                                                                              L10011:
        021440  104423                                                                                  TRAP    C$MSG
    232
    233
    234
    235
    236
    237 021442                          BGNMSG  ERR10
        021442                                                                              FRR10::
    238 021442                          PRINTB  #FMT1,#ADDRES,MPCSR
        021442  013746  002436                                                                          MOV     MPCSR,-(SP)
        021446  012746  036544                                                                          MOV     #ADDRES,-(SP)
        021452  012746  012304                                                                          MOV     #FMT1,-(SP)
        021456  012746  000003                                                                          MOV     #3,-(SP)
        021462  010600                                                                                  MOV     SP,R0
        021464  104414                                                                                  TRAP    C$PNTB
        021466  062706  000010                                                                          ADD     #10,SP
    239 021472                          PRINTB  #FMT2
        021472  012746  012314                                                                          MOV     #FMT2,-(SP)
        021476  012746  000001                                                                          MOV     #1,-(SP)
        021502  010600                                                                                  MOV     SP,R0
        021504  104414                                                                                  TRAP    C$PNTB
        021506  062706  000004                                                                          ADD     #4,SP
    240 021512                          PRINTB  #FMT8,TMP1,TMP0
        021512  013746  002516                                                                          MOV     TMP0,-(SP)
        021516  013746  002520                                                                          MOV     TMP1,-(SP)
        021522  012746  012506                                                                          MOV     #FMT8,-(SP)
        021526  012746  000003                                                                          MOV     #3,-(SP)
        021532  010600                                                                                  MOV     SP,R0
        021534  104414                                                                                  TRAP    C$PNTB
        021536  062706  00001C                                                                          ADD     #10,SP
    241 021542                          PRINTX  #FMT4,#DH2,#DH3
        021542  012746  015150                                                                          MOV     #DH3,-(SP)
```

```
        021546  012746  015121                                                  MOV     #DH2,-(SP)
        021552  012746  012400                                                  MOV     #FMT4,-(SP)
        021556  012746  000003                                                  MOV     #3,-(SP)
        021562  010600                                                          MOV     SP,R0
        021564  104415                                                          TRAP    C$PNTX
        021566  062706  000010                                                  ADD     #10,SP
    242 021572                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        021572  013746  002274                                                  MOV     LUR13,-(SP)
        021576  013746  002272                                                  MOV     LUR12,-(SP)
        021602  013746  002270                                                  MOV     LUR11,-(SP)
        021606  013746  002266                                                  MOV     LUR10,-(SP)
        021612  012746  012413                                                  MOV     #FMT5,-(SP)
        021616  012746  000005                                                  MOV     #5,-(SP)
        021622  010600                                                          MOV     SP,R0
        021624  104415                                                          TRAP    C$PNTX
        021626  062706  000014                                                  ADD     #14,SP
    243 021632                          PRINTX  #FMT9,#DH4
        021632  012746  015206                                                  MOV     #DH4,-(SP)
        021636  012746  012542                                                  MOV     #FMT9,-(SP,
        021642  012746  000002                                                  MOV     #2,-(SP)
        021646  010600                                                          MOV     SP,R0
        021650  104415                                                          TRAP    C$PNTX
        021652  062706  000006                                                  ADD     #6,SP
    244 021656                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        021656  013746  002304                                                  MOV     LUR17,-(SP)
        021662  013746  002302                                                  MOV     LUR16,-(SP)
        021666  013746  002300                                                  MOV     LUR15,-(SP)
        021672  013746  002276                                                  MOV     LUR14,-(SP)
        021676  012746  012443                                                  MOV     #FMT6,-(SP)
        021702  012746  000005                                                  MOV     #5,-(SP)
        021706  010600                                                          MOV     SP,R0
        021710  104415                                                          TRAP    C$PNTX
        021712  062706  000014                                                  ADD     #14,SP
    245 021716                          PRINTX  #FMT4,#DH7,#DH8
        021716  012746  015310                                                  MOV     #DH8,-(SP)
        021722  012746  015256                                                  MOV     #DH7,-(SP)
        021726  012746  012400                                                  MOV     #FMT4,-(SP)
        021732  012746  000003                                                  MOV     #3,-(SP)
        021736  010600                                                          MOV     SP,R0
        021740  104415                                                          TRAP    C$PNTX
        021742  062706  000010                                                  ADD     #10,SP
    246 021746                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        021746  013746  002314                                                  MOV     AX1.16,-(SP)
        021752  013746  002312                                                  MOV     AX1.15,-(SP)
        021756  013746  002310                                                  MOV     AX0.16,-(SP)
        021762  013746  002306                                                  MOV     AX0.15,-(SP)
        021766  012746  012413                                                  MOV     #FMT5,-(SP)
        021772  012746  000005                                                  MOV     #5,-(SP)
        021776  010600                                                          MOV     SP,R0
        022000  104415                                                          TRAP    C$PNTX
        022002  062706  000014                                                  ADD     #14,SP
    247 022006                          PRINTX  #FMT9,#DH9
        022006  012746  015347                                                  MOV     #DH9,-(SP)
        022012  012746  012542                                                  MOV     #FMT9,-(SP)
        022016  012746  000002                                                  MOV     #2,-(SP)
        022022  010600                                                          MOV     SP,R0
        022024  104415                                                          TRAP    C$PNTX
```

```
                022026  062706  000006                                                  ADD     #6,SP
    248         022032                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
                022032  013746  002324                                                  MOV     AX3.16,-(SP)
                022036  013746  002322                                                  MOV     AX3.15,-(SP)
                022042  013746  002320                                                  MOV     AX2.16,-(SP)
                022046  013746  002316                                                  MOV     AX2.15,-(SP)
                022052  012746  012443                                                  MOV     #FMT6,-(SP)
                022056  012746  000005                                                  MOV     #5,-(SP)
                022062  010600                                                          MOV     SP,R0
                022064  104415                                                          TRAP    C$PNTX
                022066  062706  000014                                                  ADD     #14,SP
    249         022072                          ENDMSG
                022072                                                          L10012:
                022072  104423                                                          TRAP    C$MSG
    250
    251
    252
    253
    254
```

REPORT CODING SECTION

```
      1                                 .SBTTL  REPORT CODING SECTION
      2
      3
      4                                 ;////////////////////////////////////////////////////////////
      5                                 ;/ THE REPORT CODING SECTION CONTAINS THE
      6                                 ;/ "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
      7                                 ;////////////////////////////////////////////////////////////
      8
      9 022074                                  BGNRPT
        022074                                                                  L$RPT::
     10
     11 022074                                  ENDRPT
        022074                                                                  L10013:
        022074  104425                                                                  TRAP    C$RPT
     12
     13                                 .EVEN
     14
     15
     16
     17
     18
```

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.
                                ;////////////////////////////////////////////////////////////////////////////////
                                ;
022076                                  BGNPROT
022076                                                                          L$PROT::
022076  177777                          .WORD   -1      ;DON'T CHK CSR ADRS
022100  177777                          .WORD   -1      ;DON'T CHK MASSBUS UNIT NO.
022102  177777                          .WORD   -1      ;DON'T CHK DRIVE NO.
022104                                  ENDPROT
```

```
                                .SBTTL  INITIALIZE SECTION

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

 022104                                 BGNINIT
 022104                                                                                 L$INIT::

 022104  010637  002332                 MOV     SP,PSTACK       ;SAVE BASE-LEVEL STACK POINTER
 022110  005037  002336                 CLR     SUBRPC          ;CLEAR SUBR CALL PC
 022114  005037  002416                 CLR     DISILO          ;CLEAR CURRENT STATE OF DISSI
 022120  005037  002420                 CLR     CHPTYP          ;CLEAR USYRT CHIP TYPE INDICATOR
 022124  005037  002410                 CLR     ERROR1          ;CLEAR ERROR FLAGS
 022130  005037  002424                 CLR     SAVLEN          ;CLEAR CHAR LENGTH FROM SETJP
 022134  005737  002376                 TST     FRSTIM          ;SEE IF FIRST TIME THROUGH AFTER LOAD
 022140  001007                         BNE     6$              ;BR IF NOT
 022142  013737  000004  002404         MOV     @#4,SAVE4       ;SAVE ERROR TRAP VECTOR
 022150  013737  000006  002406         MOV     @#6,SAVE6
 022156  000406                         BR      9$
 022160  013737  002404  000004  6$:    MOV     SAVE4,@#4       ;RESTORE ERROR TRAP VECTOR
 022166  013737  002406  000006         MOV     SAVE6,@#6
 022174  012737  000001  002376  9$:    MOV     #1,FRSTIM       ;MARK FLAG FOR NEXT TIME THROUGH
                                ;SEE IF PROGRAM JUST STARTED, BR IF YES
 022202                                 READEF  #EF.START
 022202  012700  000040                                                         MOV     #EF.START,R0
 022206  104447                                                                 TRAP    C$REFG
 022210                                 BCOMPLETE       STARST
 022210  103415                                                                 BCS     STARST
                                ;SEE IF PROGRAM JUST RESTARTED, BR IF YES
 022212                                 READEF  #EF.RESTART
 022212  012700  000037                                                         MOV     #EF.RESTART,R0
 022216  104447                                                                 TRAP    C$REFG
 022220                                 BCOMPLETE       STARST
 022220  103411                                                                 BCS     STARST
                                ;SEE IF THIS IS A NEW PASS, BR IF YES
 022222                                 READEF  #EF.NEW
 022222  012700  000035                                                         MOV     #EF.NEW,R0
 022226  104447                                                                 TRAP    C$REFG
 022230                                 BCOMPLETE       NEWST
 022230  103411                                                                 BCS     NEWST
                                ;SEE IF PROGRAM WAS JUST CONTINUED
 022232                                 READEF  #EF.CONTINUE
 022232  012700  000036                                                         MOV     #EF.CONTINUE,R0
 022236  104447                                                                 TRAP    C$REFG
 022240                                 BCOMPLETE       ENDIT
 022240  103556                                                                 BCS     ENDIT
 022242  000416                         BR      GETPRM
 022244                         STARST:
 022244  005037  002402                 CLR     STARES          ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
                                ;CLEAR DEVICE MAP
 022250  005037  002426                 CLR     DEVMAP
 022254                         NEWST:
 022254  012737  177777  002330         MOV     #-1,LOGDEV      ;RESET LOGICAL DEVICE TO -1
 022262  005237  002400                 INC     FRSPAS          ;INCREMENT NO. OF PASSES AFTER LOAD
 022266  005237  002402                 INC     STARES          ;INCREMENT NO. OF PASSES SINCE STA OR RES
```

INITIALIZE SECTION

```
     45 022272  012737  000001  002430          MOV     #BIT0,DEVPTR    ;INIT DEVICE MAP BIT POINTER
     46                                  ; GET UNIBUS ADDRESS, VECTOR, PRIORITY LEVEL, SWITCH PACKS, TEST
     47                                  ;   CONNECTOR INFORMATION FOR THIS LOGICAL DEVICE
     48 022300                           GETPRM:
     49 022300  005237  002330                  INC     LOGDEV          ;INCREMENT LOGICAL DEVICE NUMBER
     50 022304  023737  002330  002012          CMP     LOGDEV,L$UNIT   ;SEE IF MAXIMUM UNIT NO. EXCEEDED
     51 022312  002360                          BGE     NEWST           ;BR IF YES
     52 022314                                  GPHARD  LOGDEV,R1       ;GET P-TABLE POINTER INTO R1
        022314  013700  002330                                                          MOV     LOGDEV,R0
        022320  104442                                                                  TRAP    C$GPHRD
        022322  010001                                                                  MOV     R0,R1
     53 022324                                  BCOMPLETE       10$     ;BR IF DEVICE AVAILABLE
        022324  103403                                                                  BCS     10$
     54 022326  006337  002430                  ASL     DEVPTR          ;SHIFT DEVICE MAP BIT POINTER
     55 022332  000762                          BR      GETPRM          ;SKIP THIS DEVICE
     56 022334  053737  002430  002426  10$:    BIS     DEVPTR,DEVMAP   ;SET BIT FOR THIS DEVICE IN DEVICE MAP
     57 022342  006337  002430                  ASL     DEVPTR          ;SHIFT DEVICE MAP BIT POINTER
     58 022346  062701  000002                  ADD     #2,R1           ;INCREMENT R1 PAST MICROPROCESSOR TYPE
     59 022352  011137  002436                  MOV     (R1),MPCSR      ;STORE POINTER TO MICROPROCESSOR CSR'S
     60 022356  011137  002440                  MOV     (R1),BSEL1
     61 022362  005237  002440                  INC     BSEL1           ;GET POINTER TO BSEL1 (MAINTENANCE REGISTER)
     62 022366  011137  002442                  MOV     (R1),SEL4
     63 022372  062737  000004  002442          ADD     #4,SEL4         ;GET POINTER TO SEL4
     64 022400  012137  002444                  MOV     (R1)+,SEL6
     65 022404  062737  000006  002444          ADD     #6,SEL6         ;STORE POINTER TO SEL6
     66 022412  011137  002446                  MOV     (R1),MPIVEC     ;GET MICROPROCESSOR INPUT INTRPT VECTOR
     67 022416  012137  002450                  MOV     (R1)+,MPOVEC
     68 022422  062737  000004  002450          ADD     #4,MPOVEC       ;GET MICROPROCESSOR OUTPUT INTRPT VECTOR
     69 022430  012137  002452                  MOV     (R1)+,MPRIOR    ;GET MICROPROCESSOR DEVICE PRIORITY
     70 022434  062701  000002                  ADD     #2,R1           ;INCREMENT R1 PAST LU TYPE
     71 022440  012137  002454                  MOV     (R1)+,LUSWI1    ;GET LU SWITCH PACK #1
     72 022444  012137  002456                  MOV     (R1)+,LUSWI2    ;GET LU SWITCH PACK #2
     73 022450  012137  002460                  MOV     (R1)+,LUSWI3    ;GET LU SWITCH PACK #3
     74 022454  012137  002462                  MOV     (R1)+,TSTCON    ;GET TEST CONNECTOR INDICATOR
     75 022460  011137  002464                  MOV     (R1),BDRATE     ;GET BAUD RATE
     76                                  ;SEE IF MANUAL INTERVENTION DESIRED BETWEEN UNITS FOR INSTALLATION OR REMOVAL
     77                                  ;   OF TEST CONNECTORS, BR IF NOT
     78 022464  005737  002256                  TST     MIFLAG
     79 022470  001442                          BEQ     22$
     80                                  ;SEE IF MANUAL INTERVENTION ALLOWED BY SUPERVISOR
     81 022472                                  MANUAL
        022472  104450                                                                  TRAP    C$MANI
     82                                  ;BR IF ALLOWED
     83 022474                                  BCOMPLETE       18$
        022474  103412                                                                  BCS     18$
     84                                  ;PRINT MSG THAT OPERATOR INTERVENTION IS NOT ALLOWED
     85 022476                                  PRINTF  #FMT16
        022476  012746  022600                                                          MOV     #FMT16,-(SP)
        022502  012746  000001                                                          MOV     #1,-(SP)
        022506  010600                                                                  MOV     SP,R0
        022510  104417                                                                  TRAP    C$PNTF
        022512  062706  000004                                                          ADD     #4,SP
     86 022516                           16$:    BREAK           ;HANG UNTIL ^C TYPED
        022516  104422                                                                  TRAP    C$BRK
     87 022520  000776                          BR      16$
     88 022522                           18$:
     89                                  ;TYPE "INSTALL TEST CONNECTOR(S) ON UNIT AT ADRS XXXXXX"
```

```
     90 022522                                  PRINTF  #FMT17,MPCSR
        022522  013746  002436                                          MOV     MPCSR,-(SP)
        022526  012746  022722                                          MOV     #FMT17,-(SP)
        022532  012746  000002                                          MOV     #2,-(SP)
        022536  010600                                                  MOV     SP,R0
        022540  104417                                                  TRAP    C$PNTF
        022542  062706  000006                                          ADD     #6,SP
     91 022546  005037  002502                  CLR     REG2
     92 022552                          20$:
     93                                 ;ASK OPERATOR TO "TYPE <Y> <CR> WHEN READY TO PROCEED"
     94 022552                                  GMANI   TYPEY,REG2,1,NO
        022552  104443                                                  TRAP    C$GMAN
        022554  000404                                                  BR      10000$
        022556  002502                                                  .WORD   REG2
        022560  000120                                                  .WORD   T$CODE
        022562  023011                                                  .WORD   TYPEY
        022564  000001                                                  .WORD   1
        022566                                                  10000$:
     95 022566  023727  002502  000001          CMP     REG2,#1
     96 022574  001366                          BNE     20$
     97 022576                          22$:
     98 022576                          ENDIT:
     99 022576                                  ENDINIT
        022576                                                  L10015:
        022576  104411                                                  TRAP    C$INIT
    100
    101 022600     045     116     045  FMT16:  .ASCII  /%N%AMANUAL INTERVENTION IS NOT ALLOWED!%N/
        022603     101     115     101
        022606     116     125     101
        022611     114     040     111
        022614     116     124     105
        022617     122     126     105
        022622     116     124     111
        022625     117     116     040
        022630     111     123     040
        022633     116     117     124
        022636     040     101     114
        022641     114     117     127
        022644     105     104     041
        022647     045     116
    102 022651     045     101     124          .ASCIZ  /%ATYPE CONTROL-C (^C) <CR> TO PROCEED:%N/
        022654     131     120     105
        022657     040     103     117
        022662     116     124     122
        022665     117     114     055
        022670     103     040     050
        022673     136     103     051
        022676     040     074     103
        022701     122     076     040
        022704     124     117     040
        022707     120     122     117
        022712     103     105     105
        022715     104     072     045
        022720     116     000
    103 022722     045     116     045  FMT17:  .ASCIZ  /%N%AINSTALL TEST CONNECTOR(S) ON UNIT AT ADRS :  %06%N/
        022725     101     111     116
        022730     123     124     101
```

```
                022733      114      114      040
                022736      124      105      123
                022741      124      040      103
                022744      117      116      116
                022747      105      103      124
                022752      117      122      050
                022755      123      051      040
                022760      117      116      040
                022763      125      116      111
                022766      124      040      101
                022771      124      040      101
                022774      104      122      123
                022777      040      072      040
                023002      040      045      117
                023005      066      045      116
                023010      000
    104         023011      124      131      120  TYPEY:   .ASCIZ  /TYPE <Y><CR> WHEN READY TO PROCEED /
                023014      105      040      074
                023017      131      076      074
                023022      103      122      076
                023025      040      127      110
                023030      105      116      040
                023033      122      105      101
                023036      104      131      040
                023041      124      117      040
                023044      120      122      117
                023047      103      105      105
                023052      104      040      000
    105                                            .EVEN
    106
    107
    108
    109
    110
```

AUTO DROP UNIT SECTION

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

023056                                  BGNAUTO
023056                                                                                  L$AUTO::
                                ;ESTABLISH PRIORITY = 7
023056                                  SETPRI  #PRI07
023056  012700  000340                                                                  MOV     #PRI07,R0
023062  104441                                                                          TRAP    C$SPRI
023064  012737  023106  000004          MOV     #6$,@#4         ;SET UP NON-EXISTENT MEMORY ERROR TRAP VECTOR
023072  012737  000340  000006          MOV     #PRI07,@#6
023100  005777  157332                  TST     @MPCSR          ;ADDRESS SEL0
023104  000405                          BR      9$              ;TAKE THIS BRANCH IF DEVICE RESPONDS
                                ;COME HERE IF DEVICE CSR IS NON-EXISTENT
023106  062706  000004          6$:     ADD     #4,SP           ;CLEAN UP THE STACK POINTER
023112                                  DODU    LOGDEV          ;DROP THIS UNIT FROM TESTING
023112  013700  002330                                                                  MOV     LOGDEV,R0
023116  104451                                                                          TRAP    C$DODU
023120  013737  002404  000004  9$:     MOV     SAVE4,@#4       ;RESTORE ERROR TRAP VECTOR
023126  013737  002406  000006          MOV     SAVE6,@#6
023134                                  ENDAUTO
023134                                                                          L10016:
023134  104461                                                                          TRAP    C$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.
                                ;////////////////////////////////////////////////////////////////////////

023136                                  BGNCLN
023136                                                                  L$CLEAN::

023136                                  ENDCLN
023136                                                                  L10017:
023136  104412                                                                  TRAP    C$CLEAN
```

DROP UNIT SECTION

```
                                .SBTTL  DROP UNIT SECTION

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

023140                                  BGNDU
023140                                                                  L$DU::
                                ;ISSUE UNIBUS RESET TO CLEAN UP
023140                                  BRESET
023140  104433                                                                    TRAP    C$RESET
                                ;PRINT "UNIT XX DROPPED"
023142                                  PRINTF  #FMT27,LOGDEV
023142  013746  002330                                                           MOV     LOGDEV,-(SP)
023146  012746  023170                                                           MOV     #FMT27,-(SP)
023152  012746  000002                                                           MOV     #2,-(SP)
023156  010600                                                                  MOV     SP,R0
023160  104417                                                                  TRAP    C$PNTF
023162  062706  000006                                                         ADD     #6,SP
023166                                  ENDDU
023166                                                                  L10020:
023166  104453                                                                  TRAP    C$DU

023170     045     116     045  FMT27:  .ASCIZ  /%N%AUNIT %D2%A DROPPED%N/
023173     101     125     116
023176     111     124     040
023201     045     104     062
023204     045     101     040
023207     104     122     117
023212     120     120     105
023215     104     045     116
023220     000
                                .EVEN
```

```
      1                                 .SBTTL  ADD UNIT SECTION
      2
      3                                 ;////////////////////////////////////////////////////////////////////////
      4                                 ;/ THE ADD-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
      5                                 ;/  TO BE (A) TESTED FOR THE FIRST TIME, OR (B) RESUMED IN TESTING.  IF
      6                                 ;/  "EF.AUNIT" IS SET, THE UNIT WILL BE TESTED AS A NEW UNIT.
      7                                 ;////////////////////////////////////////////////////////////////////////
      8
      9 023222                                  BGNAU
        023222                                                                          L$AU::
     10 023222                                  ENDAU
        023222                                                                          L10021:
        023222  104452                                                                          TRAP    C$AU
     11
     12
     13
     14
     15
     16
```

```
                                .SBTTL  HARDWARE TESTS
                                ;;*************************************************************************
                                .SBTTL      TEST 1 - BIT STUFFING TEST
                                ;*
                                ;* THE DEVICE IS ENABLED FOR TRANSMIT AND RECEIVE, AND A MESSAGE IS
                                ;* INITIATED IN BIT MODE . TWO LEADING FLAGS ARE SENT,
                                ;* FOLLOWED BY ALL SIXTEEN CHARS IN DATA PATTERN S. THIS PATTERN
                                ;* CONSISTS OF CHARACTERS WHICH REQUIRE NO BIT STUFFING AND CHARACTERS
                                ;* WHICH REQUIRE BIT STUFFING INDIVIDUALLY AND IN COMBINATION WITH
                                ;* ADJACENT CHARACTERS. ALL 16 CHARACTERS ARE READ AND COMPARED
                                ;* BY THE RECEIVER.
                                ;*   PATTERN S = 000,017,036,074,170,360,037,076,174,370,077,176,374,
                                ;*               177,376,377
                                ;;*************************************************************************
023224                          BGNTST
023224                                                                          T1::
023224  012737  023346  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
023232  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023236  000000                          000
023240  000300                          CRC2!CRC1               ;BIT MODE, NO ERR DETECTION
023242  004737  010574                  JSR     PC,LDBYTS       ;LOAD PAT S INTO TX SILO
023246  002642                          PATS
023250  000020                          16.
023252  012737  001000  002412          MOV     #TXEOM,TXWORD
023260  004737  004674                  JSR     PC,LDTXSI       ;LOAD 2 EOM'S INTO TX SILO
023264  004737  004674                  JSR     PC,LDTXSI
023270  004737  004754                  JSR     PC,STPLU        ;CLK MORE THAN ENTIRE MSG
023274  000300                          192.
023276  012701  002642                  MOV     #PATS,R1        ;INIT PAT S POINTER
023302  112137  023312          6$:     MOVB    (R1)+,8$
023306  004737  007314                  JSR     PC,CKDATA       ;CHK A RCV'D CHAR
023312  000000                  8$:     .WORD   0
023314  000000                          0
023316  020127  002661                  CMP     R1,#PATS+15.    ;SEE IF 15 CHARS CHECKED YET
023322  103767                          BLO     6$              ;BR IF NOT YET
023324  111137  023342                  MOVB    (R1),12$
023330  052737  001000  023342          BIS     #RXEBL,12$      ;GET SET TO CHK EBLK = 1
023336  004737  007314                  JSR     PC,CKDATA       ;CHK LAST CHAR AND EBLK = 1
023342  000000                  12$:    .WORD   0
023344  000000                          0
023346  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
023352                          ENDTST
023352                                                                  L10022:
023352  104401                                                                  TRAP    C$ETST
                                ;;*************************************************************************
                                .SBTTL      TEST 2 - RCV OVERRUN ERROR SET AND CLEAR TEST
                                ;*
```

```
TEST 2 - RCV OVERRUN ERROR SET AND CLEAR TEST

                                        ;* IN THIS TEST, A RCV OVERRUN ERROR IS FORCED IN EACH OF 2 SUBTESTS.
                                        ;* IN THE FIRST, A MESSAGE IS INITIATED, 64 001 CHARS ARE SENT, AND THE
                                        ;* RECEIVER IS NOT SERVICED IN RESPONSE TO THE USYRT RCV FLAG, WHICH CAUSES RCV
                                        ;* OVERRUN TO SET. THEN, A CHECK IS MADE TO INSURE THAT OVRR IS NOT
                                        ;* CLEARED BY THE LINE UNIT READING THE USYRT STATUS.
                                        ;* THEN, IC IS SET TO CLEAR THE ERROR, AND THIS IS VERIFIED.
                                        ;*
                                        ;* IN THE SECOND SUBTEST, RCV OVRUN IS FORCED AGAIN, AND A MASTER CLEAR
                                        ;* IS ISSUED TO CLEAR THE ERROR, AND THIS IS VERIFIED.
                                        ;;*********************************************************************
023354                                  BGNTST
023354                                                                                          T2::
023354  012737  023722  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                                        ;---------------------------------------------------------------------
                                        ; CAUSE OVRR, SET IC TO CLEAR IT
                                        ;---------------------------------------------------------------------
023362  004737  005240                          JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023366  000226                                  SYNCH
023370  000311                                  CRC2!CRC1!STRIP!DDCMP   ;DDCMP, NO ERR DET
023372  004737  010746                          JSR     PC,LODSIL       ;LOAD 64 001 CHARS INTO TX SILO
023376  000001                                  001
023400  000100                                  64.
023402  004737  007000                          JSR     PC,RCV1ST       ;CLOCK UNTIL FIRST DATA CHAR RCV'D
023406  000030                                  24.
023410  004737  004754                          JSR     PC,STPLU        ;CLOCK UNTIL 59 MORE RCV'D
023414  000730                                  472.
023416  004737  010746                          JSR     PC,LODSIL       ;LOAD 60 MORE INTO TX SILO
023422  000001                                  001
023424  000074                                  60.
023426  004737  004754                          JSR     PC,STPLU        ;CLK 8 MORE TIMES TO FORCE UNDERRUN
023432  000100                                  64.
023434  012701  000100                          MOV     #64.,R1         ;READ AND CHK 64 CHARS FROM RCV SILO
023440  004737  007314          6$:             JSR     PC,CKDATA
023444  000001                                  001
023446  000000                                  0
023450  005301                                  DEC     R1
023452  001372                                  BNE     6$
023454  004737  007314                          JSR     PC,CKDATA       ;READ CHAR, CHK OVRR = 1
023460  004001                                  4001
023462  000010                                  8.
023464  004737  007314                          JSR     PC,CKDATA       ;READ CHAR, CHK OVRR STILL = 1
023470  004001                                  4001
023472  000010                                  8.
023474  012737  000012  002364                  MOV     #12,REGNUM      ;SET REG NO. = 12
023502  012737  000200  002352                  MOV     #IC,WRIBYT
023510  004737  003450                          JSR     PC,WRITLU       ;SET IC TO CLEAR RCVR
023514  004737  006720                          JSR     PC,RDRXSI       ;READ RCV SILO
023520  132737  000010  002415                  BITB    #OVRR,RXWORD+1  ;CHK FOR OVRR CLEARED
023526  001407                                  BEQ     8$              ;BR IF OVRR CLEARED
023530  004737  004226                          JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OVRR NOT CLEARED
023534                                          ERRDF   41,EM41,ERR7
023534  104455                                                                  TRAP    C$ERDF
023536  000051                                                                  .WORD   41
023540  014077                                                                  .WORD   EM41
023542  020302                                                                  .WORD   ERR7
023544  000466                                  BR      24$
```

```
                                8$:
                                ;-------------------------------------------------------------------------
                                ; CAUSE OVRR, SET MST CLR TO CLEAR IT
                                ;-------------------------------------------------------------------------
023546  004737  005240                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023552  000226                        SYNCH
023554  000311                        CRC2!CRC1!STRIP!DDCMP   ;DDCMP, NO ERR DET
023556  004737  010746                JSR     PC,LODSIL       ;LOAD 64 001 CHARS INTO TX SILO
023562  000001                        001
023564  000100                        64.
023566  004737  007000                JSR     PC,RCV1ST       ;CLOCK UNTIL FIRST DATA CHAR RCV'D
023572  000030                        24.
023574  004737  004754                JSR     PC,STPLU        ;CLOCK UNTIL 59 MORE RCV'D
023600  000730                        472.
023602  004737  010746                JSR     PC,LODSIL       ;LOAD 60 MORE INTO TX SILO
023606  000001                        001
023610  000074                        60.
023612  004737  004754                JSR     PC,STPLU        ;CLK 8 MORE TIMES TO FORCE UNDERRUN
023616  000100                        64.
023620  012701  000100                MOV     #64.,R1         ;READ AND CHK 64 CHARS FROM RCV SILO
023624  004737  007314        9$:     JSR     PC,CKDATA
023630  000001                        001
023632  000000                        0
023634  005301                        DEC     R1
023636  001372                        BNE     9$
023640  004737  007314                JSR     PC,CKDATA       ;READ CHAR, CHK OVRR = 1
023644  004001                        4001
023646  000010                        8.
023650  004737  007314                JSR     PC,CKDATA       ;READ CHAR, CHK OVRR STILL = 1
023654  004001                        4001
023656  000010                        8.
023660  012737  000012  002364        MOV     #12,REGNUM      ;SET REG NO. = 12
023666  004737  003276                JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
023672  004737  006720                JSR     PC,RDRXSI       ;READ RCV SILO
023676  132737  000010  002415        BITB    #OVRR,RXWORD+1  ;CHK FOR OVRR CLEARED
023704  001406                        BEQ     24$             ;BR IF OVRR CLEARED
023706  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT OVRR NOT CLEARED
023712                                  ERRDF   41,EM41,ERR7
023712  104455                                                                  TRAP    C$ERDF
023714  000051                                                                  .WORD   41
023716  014077                                                                  .WORD   EM41
023720  020302                                                                  .WORD   ERR7
023722  004737  003276        24$:    JSR     PC,MSTCLR       ;ISSUE CLEAN UP MST CLR
023726                          ENDTST
023726                                                                  L10023:
023726  104401                                                                  TRAP    C$ETST


                                ;;**********************************************************************
                                .SBTTL      TEST 3 - ABORT SEQUENCE TEST
                                ;*
                                ;* SET BIT MODE, CRC, AND ENABLE THE DEVICE FOR
                                ;* TRANSMIT AND RECEIVE. SEND 2 FLAGS AND 4 DATA CHARS (001).
```

```
                                ;* AS THE FIRST DATA CHAR IS BEING TRANSMITTED,
                                ;* SET THE ABORT BIT (REG 11).
                                ;* ON THE RECEIVER SIDE, CHECK FOR RECEPTION OF THE FIRST DATA CHAR
                                ;* AND THEN THE SETTING OF RAB AND REOM A CHAR TIME LATER.
                                ;* ALSO, CHECK FOR IACT = 0. THEN, CHECK THAT RAB
                                ;* IS CLEARED BY READING THE USYRT STATUS, TRANSMITTING A NEW MSG,
                                ;* RECEIVING THE FIRST CHAR (003) AND CHECKING FOR RAB CLEARED.
                                ;*
                                ;* REPEAT THE ABOVE SEQUENCE, SET IC, AND CHECK THAT
                                ;* THIS CLEARS RAB.
                                ;*
                                ;* REPEAT THE ABOVE SEQUENCE, ISSUE MASTER CLEAR, CHECK THAT THIS
                                ;* CLEARS RAB.
                                ;*
                                ;;*************************************************************************
023730                          BGNTST
023730                                                                          T3::
023730  012737  024260  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                                ;-------------------------------------------------------------------
                                ; CAUSE ABORT, START NEW MSG TO CLEAR IT
                                ;-------------------------------------------------------------------
023736  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM S
023742  000000                          000
023744  000000                          000                     ;BIT MODE, CRC
023746  004737  010516                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
023752  002732                          MSG3
023754  000014                          12.
023756  004737  007000                  JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
023762  000060                          48.
023764  004737  007314                  JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
023770  000001                          001
023772  000010                          8.
023774  004737  007314                  JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
024000  003001                          RXABT.RXEBL.001
024002  000000                          0
024004  004737  006260                  JSR     PC,IACTIV       ;CHK FOR IACT = 0
024010  000000                          0
024012  004737  007000                  JSR     PC,RCV1ST       ;CLK AND RCV NEW MSG
024016  000060                          48.
024020  004737  007314                  JSR     PC,CKDATA       ;CHK CHAR - 003
024024  000003                          003
024026  000000                          0
                                ;-------------------------------------------------------------------
                                ; CAUSE ABORT, SET IC TO CLEAR IT
                                ;-------------------------------------------------------------------
024030  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
024034  000000                          000
024036  000000                          000                     ;BIT MODE, CRC
024040  004737  010516                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
024044  002732                          MSG3
024046  000014                          12.
024050  004737  007000                  JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
024054  000060                          48.
024056  004737  007314                  JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
024062  000001                          001
024064  000010                          8.
024066  004737  007314                  JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
```

```
    214 024072  003001                          RXABT!RXEBL!001
    215 024074  000000                          0
    216 024076  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. = 12
    217 024104  012737  000200  002352          MOV     #IC,WRIBYT
    218 024112  004737  003450                  JSR     PC,WRITLU       ;SET IC TO CLEAR RCVR
    219 024116  004737  006720                  JSR     PC,RDRXSI       ;READ RCV SILO
    220 024122  132737  000004  002415          BITB    #RAB,RXWORD+1   ;CHK FOR RAB CLEARED
    221 024130  001407                          BEQ     8$              ;BR IF RAB CLEARED
    222 024132  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    223                             ;REPORT RAB NOT CLEARED
    224 024136                                  ERRDF   39,EM39,ERR7
        024136  104455                                                              TRAP    C$ERDF
        024140  000047                                                              .WORD   39
        024142  014043                                                              .WORD   EM39
        024144  020302                                                              .WORD   ERR7
    225 024146  000444                          BR      24$
    226 024150                              8$:
    227                                     ;-------------------------------------------------------------------
    228                                     ;CAUSE ABORT, ISSUE MASTER CLEAR TO CLEAR IT
    229                                     ;-------------------------------------------------------------------
    230 024150  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    231 024154  000000                          000
    232 024156  000000                          000                     ;BIT MODE, CRC
    233 024160  004737  010516                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
    234 024164  002732                          MSG3
    235 024166  000014                          12.
    236 024170  004737  007000                  JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
    237 024174  000060                          48.
    238 024176  004737  007314                  JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
    239 024202  000001                          001
    240 024204  000010                          8.
    241 024206  004737  007314                  JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
    242 024212  003001                          RXABT!RXEBL!001
    243 024214  000000                          0
    244 024216  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. = 12
    245 024224  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    246 024230  004737  006720                  JSR     PC,RDRXSI       ;READ RCV SILO
    247 024234  132737  000004  002415          BITB    #RAB,RXWORD+1   ;CLK FOR RAB CLEARED
    248 024242  001406                          BEQ     24$             ;BR IF RAB CLEARED
    249 024244  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    250                             ;REPORT RAB NOT CLEARED
    251 024250                                  ERRDF   39,EM39,ERR7
        024250  104455                                                              TRAP    C$ERDF
        024252  000047                                                              .WORD   39
        024254  014043                                                              .WORD   EM39
        024256  020302                                                              .WORD   ERR7
    252 024260  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MST CLR TO CLEAN UP
    253 024264                              ENDTST
        024264                                                                  L10024:
        024264  104401                                                              TRAP    C$ETST
    254
    255
    256
    257
    258
    259                                     ;;*****************************************************************
    260                                     .SBTTL      TEST 4 - ABORT AND IDLE FLAGS TEST
```

```
TEST 4 - ABORT AND IDLE FLAGS TEST

                                        ;*
                                        ;* TRANSMIT THE SAME ABORT SEQUENCE AS IN THE PREVIOUS TEST, BUT
                                        ;* WITH THE IDLE BIT SET. CHECK THAT FLAGS ARE SENT AND RECEIVED
                                        ;* (NOT ABORT CHARACTERS) BY VERIFYING THAT RAB DOES
                                        ;* NOT SET, AND THAT THE MESSAGE TERMINATES WITH EBLK = 1.
                                        ;;*****************************************************************************
024266                                  BGNTST
024266                                                                                          T4::
024266  012737  024342  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
024274  004737  005240                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
024300  000000                                000
024302  000040                                IDLE                    ;BIT MODE, NO ERROR DET
024304  004737  010516                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
024310  002732                                MSG3
024312  000005                                5
024314  004737  007000                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
024320  000060                                48.
024322  004737  007314                        JSR     PC,CKDATA       ;CHK CHR = 001, CLK FLAG CHAR
024326  000001                                001
024330  000010                                8.
024332  004737  007314                        JSR     PC,CKDATA       ;CHK RAB = 0, EBLK = 1
024336  001001                                RXEBL!001
024340  000000                                0
024342  004737  003276          24$:          JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
024346                                  ENDTST
024346                                                                                  L10025:
024346  104401                                                                          TRAP    C$ETST


                                        ;;*****************************************************************************
                                        .SBTTL      TEST 5 - TRANSMITTER UNDERRUN ERROR, IDLE ABORT CHARS, BIT MODE
                                        ;*
                                        ;* A MESSAGE IS INITIATED IN BIT MODE, 4 001 CHARS ARE SENT, AND THE TRANSMITTER
                                        ;* IS NOT SERVICED IN RESPONSE TO THE LAST TX FLAG, WHICH CAUSES TX
                                        ;* UNDERRUN ERROR TO SET. ON THE RECEIVER SIDE, CHECK THAT THE DATA
                                        ;* CHAR IS RECEIVED, AND THAT 8 CYCLES LATER THE RAB BIT SETS, AND
                                        ;* THE DEVICE IDLES ABORT CHARACTERS.
                                        ;;*****************************************************************************
024350                                  BGNTST
024350                                                                                          T5::
024350  012737  024432  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
024356  004737  005240                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
024362  000000                                000
024364  000000                                000
024366  012737  000100  002416                MOV     #TXEN,DISILO    ;SET TX ENB TO KEEP RTS HIGH
024374  004737  010746                        JSR     PC,LODSIL       ;LOAD 4 001 CHARS INTO TX SILO
024400  000001                                001
024402  000004                                4
024404  004737  007000                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST CHAR
024410  000060                                48.
024412  004737  007314                        JSR     PC,CKDATA       ;CHK DATA - 001, CLOCK ABORT CHAR
024416  000001                                001
024420  000011                                9.
024422  004737  007314                        JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
```

```
TEST 5 - TRANSMITTER UNDERRUN ERROR, IDLE ABORT CHARS, BIT MOD

                                        RXABT!RXEBL!001
                                        0
                        24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
                        ENDTST
                                                                        L10026:
                                                                                TRAP    C$ETST

                        ;;*************************************************************************
                        .SBTTL      TEST 6 - RECEIVER DISABLE TEST
                        ;*
                        ;* TRANSMIT AND RECEIVE ARE ENABLED IN BIT MODE, AND 2 FLAGS
                        ;* ARE SENT, FOLLOWED BY 5 252 DATA CHARS. AFTER THE SECOND DATA CHAR HAS BEGUN
                        ;* TO BE RECEIVED, IC IS SET.
                        ;* THEN, THE PROGRAM CHECKS THAT A USYRT RCV FLAG IS NOT GENERATED, AND
                        ;* THE RECEIVER DATA PATH STOPS OPERATING IN THE MIDDLE OF THE CHAR.
                        ;;*************************************************************************
                        BGNTST
                                                                        T6::
                        MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
                        000
                        000                     ;BIT MODE, CRC
                        JSR     PC,LODSIL       ;LOAD 5 252 CHARS
                        252
                        5
                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
                        48.
                        JSR     PC,STPLU        ;CLK TO MIDDLE OF 2ND CHAR
                        4
                        MOV     #12,REGNUM      ;SET REG NO. = 12
                        MOV     #IC,WRIBYT
                        JSR     PC,WRITLU       ;SET IC IN REG 12
                        JSR     PC,IACTIV       ;CHK IACT = 0
                        0
                        JSR     PC,ISIRDY       ;CHK ICIR = 1, IRDY = 0
                        1
                        CLR     GOODAT          ;SET EXPECTED DATA = 0
                        CLR     BADDAT
                        JSR     PC,RDRXSI       ;READ RCV SILO
                        TSTB    RXWORD          ;SEE IF SILO BITS 0-7 = 000
                        BEQ     9$              ;BR IF YES
                        MOV     #10,REGNUM      ;SET REG NO. = 10
                        BR      12$
                9$:     TSTB    RXWORD+1        ;SEE IF SILO BITS 8-11 = 000
                        BEQ     24$             ;BR IF YES
                        MOV     #12,REGNUM      ;SET REG NO. = 12
                12$:    MOVB    RXWORD,BADDAT   ;GET ACTUAL DATA
                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                ;REPORT RCV SILO NOT CLEARED BY IC
                        ERRDF   46,EM46,ERR2
                                                                        TRAP    C$ERDF
                                                                        .WORD   46
                                                                        .WORD   EM46
```

TEST 6 - RECEIVER DISABLE TEST

```
                024624  015444                                                                  .WORD   ERR2
    365         024626  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
    366         024632                          ENDTST
                024632                                                                  L10027:
                024632  104401                                                                  TRAP    C$ETST
    367
    368
    369
    370
    371
    372                                         ;;**************************************************************************
    373                                         .SBTTL      TEST 7 - ASSEMBLED BIT COUNT TEST
    374                                         ;*
    375                                         ;* THE FOLLOWING SEQUENCE IS PERFORMED 8 TIMES, EACH TIME USING A
    376                                         ;* DIFFERENT TX CHAR LENGTH (FROM 2 TO 8 BITS) AND A RCV CHAR LENGTH = 8
    377                                         ;* BITS :
    378                                         ;* A MESSAGE IS INITIATED IN BIT MODE, NO CRC.
    379                                         ;* 2 FLAGS ARE SENT, FOLLOWED BY 3 000 DATA CHARACTERS AND A
    380                                         ;* TERMINATING FLAG. AFTER THE RECEIVER HAS RECEIVED THE MESSAGE, AX0-16
    381                                         ;* IS READ TO RETRIEVE THE ASSEMBLED BIT COUNT. THIS COUNT IS CHECKED TO INSURE
    382                                         ;* THAT IT IS CORRECT FOR THE TX CHAR LENGTH USED IN THAT TRANSMISSION.
    383                                         ;;**************************************************************************
    384         024634                          BGNTST
                024634                                                                  T7::
    385         024634  012737  025372  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
    386         024642  004737  005240                  JSR     PC,INITRN       ;FIND OUT WHICH USYRT CHIP
    387         024646  000000                          0
    388         024650  000000                          0
    389         024652  012701  000100                  MOV     #TXLEN1,R1      ;SET INITIAL TX LENGTH TO 2 BITS
    390         024656  004737  003276          6$:     JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    391         024662  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
    392         024666  000000                          000
    393         024670  000300                          CRC2!CRC1
    394         024672  000000                          000
    395         024674  000000                          000
    396         024676  012737  000014  002364          MOV     #14,REGNUM      ;SET REG NO. = 14
    397         024704  012737  000140  002352          MOV     #TXEN!DISSI,WRIBYT
    398         024712  004737  003450                  JSR     PC,WRITLU       ;SET TXEN AND DISSI IN REG 14
    399         024716  012737  000140  002416          MOV     #TXEN!DISSI,DISILO      ;SET DISABLE SILO FLAG
    400         024724  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
    401         024732  112737  000040  002352          MOVB    #LULP,WRIBYT
    402         024740  004737  003450                  JSR     PC,WRITLU       ;SET LULP IN REG 12
    403         024744  012737  000002  002366          MOV     #2,AXNUM        ;SET AX BYTE NO. = 2
    404         024752  105037  002360                  CLRB    WAX15
    405         024756  112737  000001  002362          MOVB    #TSOM,WAX16
    406         024764  004737  004012                  JSR     PC,WRITAX       ;LOAD SOM CHAR
    407         024770  005004                          CLR     R4              ;INIT COUNTER
    408         024772  012737  000011  002364          MOV     #11,REGNUM      ;SET REG NO. = 11
    409         025000  004737  004754          7$:     JSR     PC,STPLU        ;CLOCK LU FOR A CYCLE
    410         025004  000001                          1
    411         025006  004737  003372                  JSR     PC,READLU       ;READ REG 11
    412         025012  132737  000100  002350          BITB    #OACT,REDBYT    ;SEE IF OACT SET YET
    413         025020  001014                          BNE     10$             ;BR IF OACT SET
    414         025022  005204                          INC     R4              ;INCR COUNTER
    415         025024  020427  000004                  CMP     R4,#4           ;SEE IF COUNT TOO BIG
    416         025030  002763                          BLT     7$              ;BR IF NOT
    417         025032  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
```

```
                                        ;REPORT OACT NOT SET
                                                ERRDF   11,EM11,ERR7
025036                                                                                  TRAP    C$ERDF
025036  104455                                                                          .WORD   11
025040  000013                                                                          .WORD   EM11
025042  013437                                                                          .WORD   ERR7
025044  020302
025046  000137  025372                        JMP     24$
025052  004737  004012                10$:    JSR     PC,WRITAX       ;LOAD ANOTHER SOM CHAR
025056  004737  004754                        JSR     PC,STPLU        ;CLK FIRST FLAG
025062  000010                                8.
025064  105037  002362                        CLRB    WAX16
025070  004737  004012                        JSR     PC,WRITAX       ;LOAD FIRST 000 CHAR
025074  004737  004754                        JSR     PC,STPLU        ;CLK SECOND FLAG
025100  000010                                8.
025102  004737  004012                        JSR     PC,WRITAX       ;LOAD SECOND 000 CHAR
025106  004737  004754                        JSR     PC,STPLU        ;CLK FIRST 000 CHAR
025112  000010                                8.
025114  012737  000006  002366                MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX 3
025122  010137  002362                        MOV     R1,WAX16        ;GET TX CHAR LENGTH
025126  004737  004012                        JSR     PC,WRITAX       ;SET TX CHAR LENGTH
025132  012737  000002  002366                MOV     #2,AXNUM        ;SET AX BYTE NO. = 2
025140  105037  002362                        CLRB    WAX16
025144  005737  002420                        TST     CHPTYP          ;SEE IF SIG USYRT
025150  001403                                BEQ     5$              ;BR IF YES
025152  112737  000002  002362                MOVB    #TEOM,WAX16     ;SET TEOM WITH LAST DATA CHAR
025160  004737  004012                5$:     JSR     PC,WRITAX       ;LOAD 3RD 000 CHAR
025164  004737  004754                        JSR     PC,STPLU        ;CLK 2ND 000 CHAR
025170  000010                                8.
025172  005737  002420                        TST     CHPTYP          ;SEE IF SIG USYRT
025176  001005                                BNE     16$             ;BR IF NOT
025200  112737  000002  002362                MOVB    #TEOM,WAX16
025206  004737  004012                        JSR     PC,WRITAX       ;LOAD AN EOM CHAR
025212  012737  000001  002366        16$:    MOV     #1,AXNUM        ;SET AX BYTE NO. = 1
025220  005003                                CLR     R3
025222  004737  003624                12$:    JSR     PC,READAX       ;READ AX0
025226  132737  000002  002356                BITB    #REOM,RAX16     ;CHK FOR REOM = 1
025234  001016                                BNE     14$             ;BR IF YES
025236  004737  004754                        JSR     PC,STPLU        ;CLOCK LU FOR A CYCLE
025242  000001                                1
025244  005203                                INC     R3              ;INCR COUNT
025246  020327  000023                        CMP     R3,#19.         ;SEE IF COUNT TOO BIG
025252  002763                                BLT     12$             ;BR IF NOT
025254  004737  004226                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT REOM NOT SET
025260                                          ERRDF   31,EM31,ERR10
025260  104455                                                                        TRAP    C$ERDF
025262  000037                                                                        .WORD   31
025264  013706                                                                        .WORD   EM31
025266  021442                                                                        .WORD   ERR10
025270  000440                                BR      24$
025272  013702  002356                14$:    MOV     RAX16,R2        ;GET AX0-16 CONTENTS
025276  042702  000217                        BIC     #217,R2         ;MASK OFF ALL BUT ASSEMB BIT COUNT
025302  006102                                ROL     R2
025304  120201                                CMPB    R2,R1           ;CHK FOR CORRECT ASSEMB BIT COUNT
025306  001421                                BEQ     9$              ;BR IF MATCH
025310  010137  002370                        MOV     R1,GOODAT       ;SET EXPECTED DATA
025314  006237  002370                        ASR     GOODAT
```

```
    467 025320  152737  000002  002370          BISB    #REOM,GOODAT
    468 025326  013737  002356  002372          MOV     RAX16,BADDAT    ;SET ACTUAL DATA
    469 025334  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    470                                 ;REPORT ASSEMB BIT COUNT INCORRECT
    471 025340                          ERRDF   47,EM47,ERR3
        025340  104455                                                          TRAP    C$ERDF
        025342  000057                                                          .WORD   47
        025344  014306                                                          .WORD   EM47
        025346  015752                                                          .WORD   ERR3
    472 025350  000410                  BR      24$
    473 025352  005701                  9$:     TST     R1              ;SEE IF ALL DONE YET
    474 025354  001406                          BEQ     24$             ;BR IF YES
    475 025356  062701  000040                  ADD     #TXLEN0,R1      ;INCR TX LENGTH
    476 025362  042701  000400                  BIC     #400,R1         ;MASK OFF OVERFLOW IF 8 BITS
    477 025366  000137  024656                  JMP     6$              ;PROCEED
    478 025372  005037  002416          24$:    CLR     DISILO
    479 025376  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLR TO CLEAN UP
    480 025402                          ENDTST
        025402                                                                  L10030:
        025402  104401                                                          TRAP    C$ETST
    481
    482
    483
    484
    485
    486                                 ;;**************************************************************************
    487                                 .SBTTL      TEST 8 - SECONDARY STATION ADDRESS BIT TEST
    488                                 ;*
    489                                 ;* FIRST, A MASTER CLEAR IS ISSUED. THEN, THE LINE UNIT IS PLACED IN
    490                                 ;* BIT MODE, AND THE SECA BIT (REG 17) IS SET.
    491                                 ;* 2 FLAGS ARE SENT, FOLLOWED BY 252, 000, AND A TERMINATING FLAG.
    492                                 ;* THEN, THE RECEIVER IS CHECKED TO MAKE SURE THAT NO DATA CHARS ARE
    493                                 ;* RECEIVED.
    494                                 ;*
    495                                 ;* NEXT, THE SECONDARY STATION ADDRESS BITS IN AX2-15 ARE LOADED
    496                                 ;* WITH THE FIRST WORD OF DATA PATTERN T . 2 FLAGS ARE SENT,
    497                                 ;* FOLLOWED BY THE FIRST WORD OF DATA PATTERN T, A 000 CHAR,
    498                                 ;* AND A TERMINATING FLAG.
    499                                 ;* THEN, THE RCV'D DATA IS CHECKED TO MAKE SURE THAT THE SEC STATION
    500                                 ;* ADDRESS IS RCV'D AS THE FIRST DATA CHAR, FOLLOWED BY 000.
    501                                 ;*
    502                                 ;* THEN, THE SUBTEST IS REPEATED FOR EACH OF THE REMAINING WORDS OF
    503                                 ;* DATA PATTERN T.
    504                                 ;*   PATIERN T = 000,125,252,176,177
    505                                 ;;**************************************************************************
    506 025404                          BGNTST
        025404                                                                  T8::
    507                                 ;-------------------------------------------------------------
    508                                 ; SEND MSG WITH INVALID SEC STA ADRS
    509                                 ;-------------------------------------------------------------
    510 025404                                  BGNSUB
        025404                                                                  T8.1:
        025404  104402                                                          TRAP    C$BSUB
    511 025406  012737  025504  002346          MOV     #3$,RETADR      ;SET SUBTEST EXIT ADRS FOR ERRORS
    512 025414  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    513 025420  000000                          000                     ;SEC ADRS = 000
    514 025422  000020                          SECA                    ;BIT MODE, CRC, SEC ADRS MODE
```

TEST 8 - SECONDARY STATION ADDRESS BIT TEST

```
    515 025424  004737  010746          JSR     PC,LODSIL       ;LOAD 252 INTO TX SILO
    516 025430  000252                  252
    517 025432  000001                  1
    518 025434  004737  010746          JSR     PC,LODSIL       ;LOAD 000 DATA INTO TX SILO
    519 025440  000000                  000
    520 025442  000001                  1
    521 025444  004737  010746          JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
    522 025450  001000                  TXEOM
    523 025452  000002                  2
    524 025454  004737  004754          JSR     PC,STPLU        ;TRANSMIT THE MSG
    525 025460  000060                  48.
    526 025462  004737  006260          JSR     PC,IACTIV       ;CHK IACT = 0
    527 025466  000000                  0
    528 025470  004737  004754          JSR     PC,STPLU        ;CLOCK 8 MORE CYCLES
    529 025474  000010                  8.
    530 025476  004737  006260          JSR     PC,IACTIV       ;CHK IACT = 0
    531 025502  000000                  0
    532 025504                  3$:
    533 025504                          ENDSUB
        025504                                                              L10032:
        025504  104403                                                             TRAP    C$ESUB
    534                         ;-------------------------------------------------------------------
    535                         ; SEND MSG'S WITH VALID SEC ADRS'S FROM PAT T
    536                         ;-------------------------------------------------------------------
    537 025506  012701  002662          MOV     #PATT,R1        ;INIT DATA PATTERN POINTER
    538 025512                  A11:
    539 025512                          BGNSUB
        025512                                                              T8.2:
        025512  104402                                                              TRAP    C$BSUB
    540 025514  012737  025624  002346      MOV     #24$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
    541 025522  111137  025542          MOVB    (R1),5$         ;SET SEC ADRS
    542 025526  111137  025552          MOVB    (R1),6$         ;SET FIRST DATA CHAR
    543 025532  111137  025610          MOVB    (R1),9$         ;SET EXPECTED DATA CHAR
    544 025536  004737  005240          JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    545 025542  000000          5$:     .WORD   0
    546 025544  000020                  SECA                    ;BIT MODE, CRC, SEC ADRS MODE
    547 025546  004737  010746          JSR     PC,LODSIL       ;LOAD 1ST DATA CHAR INTO TX SILO
    548 025552  000000          6$:     .WORD   0
    549 025554  000001                  1
    550 025556  004737  010746          JSR     PC,LODSIL       ;LOAD A 000 CHAR INTO TX SILO
    551 025562  000000                  000
    552 025564  000001                  1
    553 025566  004737  010746          JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
    554 025572  001000                  TXEOM
    555 025574  000002                  2
    556 025576  004737  007000          JSR     PC,RCV1ST       ;CLOCK AND RCV FIRST DATA CHAR
    557 025602  000060                  48.
    558 025604  004737  007314          JSR     PC,CKDATA       ;CHK FOR CORRECT RCV'D SEC STA ADRS
    559 025610  000000          9$:     .WORD   0
    560 025612  000011                  9.
    561 025614  004737  007314          JSR     PC,CKDATA       ;READ AND CHK 000 CHAR, EBLK=1, BCC-0
    562 025620  101000                  CRCCHK!RXEBL!000
    563 025622  000000                  0
    564 025624                  24$:
    565 025624                          ENDSUB
        025624                                                              L10033:
        025624  104403                                                             TRAP    C$ESUB
```

```
TEST 8 - SECONDARY STATION ADDRESS BIT TEST

    566 025626  005201                          INC     R1              ;INCR PATTERN POINTER
    567 025630  020127  002667                  CMP     R1,#ENDPAT      ;SEE IF ALL DONE YET
    568 025634  103726                          BLO     A11             ;BR IF NO
    569 025636  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    570 025642                          ENDTST
        025642                                                                      L10031:
        025642  104401                                                                      TRAP    C$ETST
    571
    572
    573
    574
    575
    576                                 ;;*************************************************************************
    577                                 .SBTTL      TEST 9 - RDALL (ALL PARTIES ADDRESS) BIT TEST
    578                                 ;*
    579                                 ;* FIRST, A MASTER CLEAR IS ISSUED. THEN, THE LINE UNIT IS PLACED IN
    580                                 ;* BIT MODE, AND THE SECA BIT IS SET.
    581                                 ;* 2 FLAGS ARE SENT, FOLLOWED BY 377, 125, AND A TERMINATING FLAG.
    582                                 ;* THEN, THE RECEIVER IS CHECKED TO MAKE SURE THAT NO DATA CHARS ARE
    583                                 ;* RECEIVED.
    584                                 ;* NEXT, THE RDALL BIT IN REG 17 IS SET TO 1. 2 FLAGS
    585                                 ;* ARE SENT, FOLLOWED BY 377, 125, AND A TERMINATING FLAG.
    586                                 ;* THEN, THE REC'D DATA IS CHECKED TO MAKE SURE THAT 377
    587                                 ;* IS REC'D AS THE FIRST DATA CHAR, FOLLOWED BY 125.
    588                                 ;;*************************************************************************
    589 025644                          BGNTST
        025644                                                                      T9::
    590                                 ;-------------------------------------------------------------
    591                                 ; SET SEC ADR = 000, SEND ADR = 377, WITH RDALL = 0
    592                                 ;-------------------------------------------------------------
    593 025644                                  BGNSUB
        025644                                                                      T9.1:
        025644  104402                                                                      TRAP    C$BSUB
    594 025646  012737  025744  002346          MOV     #3$,RETADR      ;SET SUBTEST EXIT ADRS FOR ERRORS
    595 025654  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    596 025660  000000                          000                     ;SEC ADRS = 000
    597 025662  000020                          SECA                    ;BIT MODE, CRC, SEC ADRS MODE
    598 025664  004737  010746                  JSR     PC,LODSIL       ;LOAD 377 INTO TX SILO
    599 025670  000377                          377
    600 025672  000001                          1
    601 025674  004737  010746                  JSR     PC,LODSIL       ;LOAD 125 DATA INTO TX SILO
    602 025700  000125                          125
    603 025702  000001                          1
    604 025704  004737  010746                  JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
    605 025710  001000                          TXEOM
    606 025712  000002                          2
    607 025714  004737  004754                  JSR     PC,STPLU        ;TRANSMIT THE MSG
    608 025720  000060                          48.
    609 025722  004737  006260                  JSR     PC,IACTIV       ;CHK IACT = 0
    610 025726  000000                          0
    611 025730  004737  004754                  JSR     PC,STPLU        ;CLOCK 8 MORE CYCLES
    612 025734  000010                          8.
    613 025736  004737  006260                  JSR     PC,IACTIV       ;CHK IACT = 0
    614 025742  000000                          0
    615 025744                          3$:
    616 025744                                  ENDSUB
        025744                                                                      L10035:
```

```
TEST 9 - RDALL (ALL PARTIES ADDRESS) BIT TEST

     025744  104403                                                                  TRAP    C$ESUB
617                                ;-----------------------------------------------------------------
618                                ; SET SEC ADR = 000, SEND ADR = 377, WITH RDALL = 1
619                                ;-----------------------------------------------------------------
620 025746                                 BGNSUB
     025746                                                                                T9.2:
     025746  104402                                                                  TRAP    C$BSUB
621 025750  012737  026044  002346         MOV     #24$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
622 025756  004737  005240                 JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
623 025762  000000                         000                     ;SEC ADRS = 000
624 025764  000024                         SECA!RDALL              ;BIT MODE, CRC, SEC ADRS MODE, RDALL
625 025766  004737  010746                 JSR     PC,LODSIL       ;LOAD 1ST DATA CHAR INTO TX SILO
626 025772  000377                         377
627 025774  000001                         1
628 025776  004737  010746                 JSR     PC,LODSIL       ;LOAD A 125 CHAR INTO TX SILO
629 026002  000125                         125
630 026004  000001                         1
631 026006  004737  010746                 JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO 1X SILO
632 026012  001000                         TXEOM
633 026014  000002                         2
634 026016  004737  007000                 JSR     PC,RCV1ST       ;CLOCK AND RCV FIRST DATA CHAR
635 026022  000060                         48.
636 026024  004737  007314                 JSR     PC,CKDATA       ;CHK FOR 377 CHAR RCV'D
637 026030  000377                         377
638 026032  000010                         8.
639 026034  004737  007314                 JSR     PC,CKDATA       ;READ AND CHK 125 CHAR, EBLK=1, BCC=0
640 026040  101125                         CRCCHK!RXEBL!125
641 026042  000000                         0
642 026044                         24$:
643 026044                                 ENDSUB
     026044                                                                      L10036:
     026044  104403                                                                  TRAP    C$ESUB
644 026046                         ENDTST
     026046                                                                      L10034:
     026046  104401                                                                  TRAP    C$ETST
645
646
647
648
649
650                                ;;*****************************************************************
651                                .SBTTL      TEST 10 - INSERT ERROR (IERR) BIT TEST - CHAR MODE, NO CRC
652                                ;*
653                                ;* THE LINE UNIT IS PLACED IN DDCMP MODE WITH NO ERROR DETECTION, AND 2
654                                ;* SYNCHS, A 000 CHAR, A 377 CHAR, AND 2 SYNCHS ARE LOADED INTO THE
655                                ;* TRANSMITTER SILO. THEN, THE LU IS CLOCKED UNTIL THE 2ND BIT OF THE 000
656                                ;* CHAR IS ABOUT TO BE SENT AND THE IERR BIT IS SET FOR A CLOCK TIME AND
657                                ;* THEN CLEARED. IN THE SAME WAY, IERR IS SET PRIOR TO THE SENDING OF THE 4TH
658                                ;* AND 5TH BITS OF THE 000 CHAR. IT IS ALSO SET FOR THE SENDING OF THE FIRST
659                                ;* 4 BITS OF THE 377 CHAR. THE PROGRAM READS THE FIRST RCV'D CHAR FROM AX0
660                                ;* AND CHECKS IT TO BE 032, AND READS THE 2ND CHAR AND CHECKS IT TO BE 377.
661                                ;* THEN, A MASTER CLEAR IS DONE TO IDLE THE DEVICE.
662                                ;;*****************************************************************
663 026050                         BGNTST
     026050                                                                                T10::
664 026050  012737  026176  002346         MOV     #15$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
665 026056  004737  005240                 JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO USYRT
```

```
TEST 10 - INSERT ERROR (IERR) BIT TEST - CHAR MODE, NO CRC

    666 026062  000226                        SYNCH
    667 026064  000011                        STRIP!DDCMP
    668 026066  004737  010516                JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
    669 026072  002722                        MSG2+4
    670 026074  000004                        4
    671 026076  004737  004754                JSR     PC,STPLU        ;CLOCK LU UNTIL 2ND BIT OF 000 CHAR
    672 026102  100021                        CHPCHK!17.
    673 026104  004737  007212                JSR     PC,STPERR       ;SET IERR 1 CYCLE
    674 026110  000011                        STRIP!DDCMP
    675 026112  000001                        1
    676 026114  004737  004754                JSR     PC,STPLU        ;CLOCK LU UNTIL 4TH BIT OF 000 CHAR
    677 026120  000001                        1
    678 026122  004737  007212                JSR     PC,STPERR       ;SET IERR FOR 2 CYCLES
    679 026126  000011                        STRIP!DDCMP
    680 026130  000002                        2
    681 026132  004737  004754                JSR     PC,STPLU        ;CLOCK LU UNTIL 1ST BIT OF 377 CHAR
    682 026136  000003                        3
    683 026140  004737  007212                JSR     PC,STPERR       ;SET IERR FOR 4 CYCLES
    684 026144  000011                        STRIP!DDCMP
    685 026146  000004                        4
    686 026150  004737  007000                JSR     PC,RCV1ST       ;CLOCK AND RCV 1ST CHAR
    687 026154  000014                        12.
    688 026156  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE 1ST CHAR TO 032
    689 026162  000032                        032
    690 026164  000010                        8.
    691 026166  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE 2ND CHAR TO 377
    692 026172  000377                        377                     ;377 CHAR
    693 026174  000000                        0
    694 026176  004737  003276      15$:      JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
    695 026202                    ENDTST
        026202                                                              L10037:
        026202  104401                                                             TRAP    C$ETST
    696
    697
    698
    699
    700
    701                           ;;*************************************************************************
    702                           .SBTTL      TEST 11 - SWITCH PACK PRINTOUT AND TEST
    703                           ;*
    704                           ;* - READ AND PRINT SWITCHES IN REG 11 (E121 SW10,9 , E134 SW9,10) :
    705                           ;* THE PROGRAM READS REG 11 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
    706                           ;* (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
    707                           ;* THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 1,2
    708                           ;* ARE E121 SW10,9 , AND BITS 3,5 ARE E134 SW9,10.
    709                           ;*
    710                           ;* - READ AND PRINT SWITCHES IN REG 15 (E134 SW1-8) :
    711                           ;* THE PROGRAM READS REG 15 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
    712                           ;* (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
    713                           ;* THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 0-7 ARE E134 SW1-8.
    714                           ;*
    715                           ;* - READ AND PRINT SWITCHES IN REG 16 (E121 SW1-8) :
    716                           ;* THE PROGRAM READS REG 16 AND PRINTS THE CONTENTS. IF DESIRED BY THE OPERATOR,
    717                           ;* (AS INDICATED IN THE SOFTWARE P-TABLE), THE PROGRAM WILL THEN COMPARE IT TO
    718                           ;* THE EXPECTED VALUE (GIVEN IN THE HARDWARE P-TABLE). BITS 0-7 ARE E121 SW1-8.
    719                           ;;*************************************************************************
    720 026204                    BGNTST
```

```
TEST 11 - SWITCH PACK PRINTOUT AND TEST

     026204                                                                                  T11::
721                          ;-------------------------------------------------------------------------
722                          ; READ AND PRINT SWITCHES IN REG 11, IF DESIRED
723                          ;-------------------------------------------------------------------------
724 026204                           BGNSUB
     026204                                                                                  T11.1:
     026204  104402                                                                                 TRAP    C$BSUB
725 026206  004737  003276           JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
726 026212  012737  000011  002364   MOV     #11,REGNUM      ;SET LU REG NO. = 11
727 026220  004737  003372           JSR     PC,READLU       ;READ LU REG 11
728 026224  142737  000321  002350   BICB    #321,REDBYT     ;MASK OFF NON-SWITCH BITS
729 026232  023727  002400  000001   CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
730 026240  001403                   BEQ     3$              ;BR IF YES
731 026242  005737  002260           TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
732 026246  001424                   BEQ     4$              ;BR IF NOT
733 026250                   3$:
734                          ;PRINT DEVICE ADDRESS
735 026250                           PRINTF  #FMT18,MPCSR
     026250  013746  002436                                                                          MOV     MPCSR,-(SP)
     026254  012746  013101                                                                          MOV     #FMT18,-(SP)
     026260  012746  000002                                                                          MOV     #2,-(SP)
     026264  010600                                                                                  MOV     SP,R0
     026266  104417                                                                                  TRAP    C$PNTF
     026270  062706  000006                                                                          ADD     #6,SP
736                          ;PRINT REG 11 SWITCHES
737 026274                           PRINTF  #FMT12,REDBYT
     026274  013746  002350                                                                          MOV     REDBYT,-(SP)
     026300  012746  012637                                                                          MOV     #FMT12,-(SP)
     026304  012746  000002                                                                          MOV     #2,-(SP)
     026310  010600                                                                                  MOV     SP,R0
     026312  104417                                                                                  TRAP    C$PNTF
     026314  062706  000006                                                                          ADD     #6,SP
738 026320  005737  002262   4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
739 026324  001420                   BEQ     6$              ;BR IF NOT
740 026326  123737  002350  002454   CMPB    REDBYT,LUSWI1   ;COMPARE SWITCHES TO EXPECTED
741 026334  001414                   BEQ     6$              ;BR IF MATCH
742 026336  013737  002454  002370   MOV     LUSWI1,GOODAT   ;SET EXPECTED DATA
743 026344  013737  002350  002372   MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
744 026352  004737  004226           JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
745                          ;REPORT REG 11 SWITCHES INCORRECT
746 026356                           ERRDF   43,EM43,ERR2
     026356  104455                                                                                  TRAP    C$ERDF
     026360  000053                                                                                  .WORD   43
     026362  014135                                                                                  .WORD   EM43
     026364  015444                                                                                  .WORD   ERR2
747 026366                   6$:
748 026366                           ENDSUB
     026366                                                                              L10041:
     026366  104403                                                                                 TRAP    C$ESUB
749                          ;-------------------------------------------------------------------------
750                          ; READ AND PRINT SWITCHES IN REG 15, IF DESIRED
751                          ;-------------------------------------------------------------------------
752 026370                           BGNSUB
     026370                                                                                  T11.2:
     026370  104402                                                                                 TRAP    C$BSUB
753 026372  004737  003276           JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
754 026376  012737  000015  002364   MOV     #15,REGNUM      ;SET LU REG NO. = 15
```

TEST 11 - SWITCH PACK PRINTOUT AND TEST

```
    755 026404  004737  003372                  JSR     PC,READLU       ;READ LU REG 15
    756 026410  023727  002400  000001          CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
    757 026416  001403                          BEQ     3$              ;BR IF YES
    758 026420  005737  002260                  TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
    759 026424  001412                          BEQ     4$              ;BR IF NOT
    760 026426                          3$:
    761                                 ;PRINT REG 15 SWITCHES
    762 026426                                  PRINTF  #FMT13,REDBYT
        026426  013746  002350                                                      MOV     REDBYT,-(SP)
        026432  012746  012722                                                      MOV     #FMT13,-(SP)
        026436  012746  000002                                                      MOV     #2,-(SP)
        026442  010600                                                              MOV     SP,R0
        026444  104417                                                              TRAP    C$PNTF
        026446  062706  000006                                                      ADD     #6,SP
    763 026452  005737  002262          4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
    764 026456  001420                          BEQ     6$              ;BR IF NOT
    765 026460  123737  002350  002456          CMPB    REDBYT,LUSWI2   ;COMPARE SWITCHES TO EXPECTED
    766 026466  001414                          BEQ     6$              ;BR IF MATCH
    767 026470  013737  002456  002370          MOV     LUSWI2,GOODAT   ;SET EXPECTED DATA
    768 026476  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
    769 026504  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    770                                 ;REPORT REG 15 SWITCHES INCORRECT
    771 026510                                  ERRDF   44,EM44,ERR2
        026510  104455                                                              TRAP    C$ERDF
        026512  000054                                                              .WORD   44
        026514  014167                                                              .WORD   EM44
        026516  015444                                                              .WORD   ERR2
    772 026520                          6$:
    773 026520                                  ENDSUB
        026520                                                              L10042:
        026520  104403                                                              TRAP    C$ESUB
    774                                 ;-------------------------------------------------------------------------
    775                                 ; READ AND PRINT SWITCHES IN REG 16, IF DESIRED
    776                                 ;-------------------------------------------------------------------------
    777 026522                                  BGNSUB
        026522                                                              T11.3:
        026522  104402                                                              TRAP    C$BSUB
    778 026524  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    779 026530  012737  000016  002364          MOV     #16,REGNUM      ;SET LU REG NO. - 16
    780 026536  004737  003372                  JSR     PC,READLU       ;READ LU REG 16
    781 026542  023727  002400  000001          CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
    782 026550  001403                          BEQ     3$              ;BR IF YES
    783 026552  005737  002260                  TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
    784 026556  001412                          BEQ     4$              ;BR IF NOT
    785 026560                          3$:
    786                                 ;PRINT REG 16 SWITCHES
    787 026560                                  PRINTF  #FMT14,REDBYT
        026560  013746  002350                                                      MOV     REDBYT,-(SP)
        026564  012746  012766                                                      MOV     #FMT14,-(SP)
        026570  012746  000002                                                      MOV     #2,-(SP)
        026574  010600                                                              MOV     SP,R0
        026576  104417                                                              TRAP    C$PNTF
        026600  062706  000006                                                      ADD     #6,SP
    788 026604  005737  002262          4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
    789 026610  001420                          BEQ     6$              ;BR IF NOT
    790 026612  123737  002350  002460          CMPB    REDBYT,LUSWI3   ;COMPARE SWITCHES TO EXPECTED
    791 026620  001414                          BEQ     6$              ;BR IF MATCH
```

```
TEST 11 - SWITCH PACK PRINTOUT AND TEST

    792 026622  013737  002460  002370          MOV     LUSWI3,GOODAT   ;SET EXPECTED DATA
    793 026630  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
    794 026636  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    795                             ;REPORT REG 16 SWITCHES INCORRECT
    796 026642                              ERRDF   45,EM45,ERR2
        026642  104455                                                          TRAP    C$ERDF
        026644  000055                                                          .WORD   45
        026646  014221                                                          .WORD   EM45
        026650  015444                                                          .WORD   ERR2
    797 026652                              6$:
    798 026652                                      ENDSUB
        026652                                                          L10043:
        026652  104403                                                          TRAP    C$ESUB
    799 026654                              ENDTST
        026654                                                          L10040:
        026654  104401                                                          TRAP    C$ETST
    800
    801
    802
    803
    804
    805                                     ;;*******************************************************************************
    806                                     .SBTTL      TEST 12 - REG AX3-15 PRINTOUT
    807                                     ;*
    808                                     ;* IN THIS TEST, REG AX3-15 IS READ AND THE CONTENTS PRINTED OUT IF DESIRED BY
    809                                     ;* THE OPERATOR, AS INDICATED IN THE SOFTWARE P-TABLE. THE DEFAULT IS TO NOT
    810                                     ;* PRINT THE REG.
    811                                     ;;*******************************************************************************
    812 026656                              BGNTST
        026656                                                                  T12::
    813 026656  004737  003276                      JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    814 026662  142777  000010  153550              BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
    815 026670  012737  000006  002366              MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3-15
    816 026676  004737  003624                      JSR     PC,READAX       ;READ AX3-15,AX3-16
    817 026702  023727  002400  000001            CMP     FRSPAS,#1       ;SEE IF FIRST PASS AFTER LOAD
    818 026710  001403                              BEQ     3$              ;BR IF YES
    819 026712  005737  002260                      TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
    820 026716  001424                              BEQ     4$              ;BR IF NOT
    821 026720                              3$:
    822                                     ;PRINT DEVICE ADDRESS
    823 026720                                      PRINTF  #FMT18,MPCSR
        026720  013746  002436                                                  MOV     MPCSR,-(SP)
        026724  012746  013101                                                  MOV     #FMT18,-(SP)
        026730  012746  000002                                                  MOV     #2,-(SP)
        026734  010600                                                          MOV     SP,R0
        026736  104417                                                          TRAP    C$PNTF
        026740  062706  000006                                                  ADD     #6,SP
    824                                     ;PRINT AX3-15
    825 026744                                      PRINTF  #FMT15,RAX15
        026744  013746  002354                                                  MOV     RAX15,-(SP)
        026750  012746  013032                                                  MOV     #FMT15,-(SP)
        026754  012746  000002                                                  MOV     #2,-(SP)
        026760  010600                                                          MOV     SP,R0
        026762  104417                                                          TRAP    C$PNTF
        026764  062706  000006                                                  ADD     #6,SP
    826 026770                              4$:
    827 026770                              ENDTST
```

```
TEST 12 - REG AX3-15 PRINTOUT

        026770                                                                  L10044:
        026770  104401                                                                 TRAP    C$ETST
    828
    829
    830
    831
    832
    833                             ;;************************************************************************ ****
    834                             .SBTTL      TEST 13 - CRC GENERATION TEST
    835                             ;*
    836                             ;* - CRC-16, CHAR MODE:
    837                             ;* THE FOLLOWING MESSAGE IS SENT IN DDCMP MODE WITH CRC-16 SELECTED -
    838                             ;* 2 SYNCHS, 000, 125, 252, 377, 000, AND 2 SYNCHS, USING LULOOP AND STEPLU
    839                             ;* TO CLOCK THE DATA.    AT THE END OF THE MESSAGE THE
    840                             ;* PROGRAM CHECKS FOR BCC = 1 (IN REG 12) INDICATING NO ERROR.
    841                             ;*
    842                             ;* - CRC-CCITT - 1'S PRESET:
    843                             ;* THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-1'S SELECTED. AT
    844                             ;* THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
    845                             ;*
    846                             ;* - CRC-CCITT - 0'S PRESET:
    847                             ;* THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-0'S SELECTED. AT
    848                             ;* THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
    849                             ;;************************************************************************
    850 026772                      BGNTST
        026772                                                                  T13::
    851                             ;-------------------------------------------------------------------------
    852                             ; CRC 16, CHAR MODE
    853                             ;-------------------------------------------------------------------------
    854 026772  012737  027322  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
    855 027000  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    856 027004  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
    857 027010  000226                          SYNCH
    858 027012  000011                          STRIP!DDCMP
    859 027014  000000                          000
    860 027016  000000                          000
    861 027020  004737  010516                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
    862 027024  002670                          MSG1
    863 027026  000011                          9.
    864 027030  004737  004754                  JSR     PC,STPLU        ;CLOCK THE MSG
    865 027034  000136                          94.
    866 027036  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
    867 027042  000000                          000
    868 027044  000000                          0
    869 027046  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
    870 027052  000125                          125
    871 027054  000000                          0
    872 027056  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
    873 027062  000252                          252
    874 027064  000000                          0
    875 027066  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
    876 027072  000377                          377
    877 027074  000000                          0
    878 027076  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC - 1
    879 027102  100400                          CRCCHK'400
    880 027104  000000                          0
    881
```

```
                                        ;-------------------------------------------------------------
                                        ; CRC-CCITT-1'S PRESET, BIT MODE
                                        ;-------------------------------------------------------------
027106  004737  003276                        JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
027112  004737  010324                        JSR     PC,SETUP        ;PROGRAM THE USYRT
027116  000000                                000
027120  000000                                000
027122  000000                                000
027124  000000                                000
027126  004737  010516                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
027132  002670                                MSG1
027134  000011                                9.
027136  004737  004754                        JSR     PC,STPLU        ;CLOCK THE MSG
027142  000146                                102.
027144  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
027150  000000                                000
027152  000000                                0
027154  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
027160  000125                                125
027162  000000                                0
027164  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
027170  000252                                252
027172  000000                                0
027174  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
027200  000377                                377
027202  000000                                0
027204  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 0
027210  101000                                CRCCHK!1000
027212  000000                                0


                                        ;-------------------------------------------------------------
                                        ; CRC-CCITT-0'S PRESET, BIT MODE
                                        ;-------------------------------------------------------------
027214  004737  003276                        JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
027220  004737  010324                        JSR     PC,SETUP        ;PROGRAM THE USYRT
027224  000000                                000
027226  000100                                CRC1
027230  000000                                000
027232  000000                                000
027234  004737  010516                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
027240  002670                                MSG1
027242  000011                                9.
027244  004737  004754                        JSR     PC,STPLU        ;CLOCK THE MSG
027250  000146                                102.
027252  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
027256  000000                                000
027260  000000                                0
027262  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
027266  000125                                125
027270  000000                                0
027272  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
027276  000252                                252
027300  000000                                0
027302  004737  007314                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
027306  000377                                377
027310  000000                                0
```

```
                                                                J 11
    939 027312  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 0
    940 027316  101000                          CRCCHK!1000
    941 027320  000000                          0
    942
    943 027322  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
    944 027326                          ENDTST
        027326                                                                      L10045:
        027326  104401                                                                      TRAP    C$ETST
    945
    946
    947
    948
    949
    950                                 ;;*************************************************************************
    951                                 .SBTTL      TEST 14 - CRC ERROR DETECTION TEST
    952                                 ;*
    953                                 ;* - CRC-16, CHAR MODE :
    954                                 ;* THE FOLLOWING MESSAGE IS SENT IN DDCMP MODE, WITH CRC-16 SELECTED -
    955                                 ;* 2 SYNCHS, 000, 125, 252, 377, 000, AND 2 SYNCHS, USING LULOOP AND STEPLU
    956                                 ;* TO CLOCK THE DATA. JUST BEFORE THE FIRST BIT OF THE LAST 000 CHAR IS SENT,
    957                                 ;* THE IERR BIT IS SET IN REG 17 TO CAUSE A 1 TO BE SENT, INTRODUCING A DATA
    958                                 ;* ERROR. AT THE END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 0, INDICATING
    959                                 ;* AN ERROR.
    960                                 ;*
    961                                 ;* - CRC-CCITT - 1'S PRESET :
    962                                 ;* THE ABOVE TEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-1'S SELECTED. AT THE
    963                                 ;* END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 1, INDICATING AN ERROR.
    964                                 ;*
    965                                 ;* - CRC-CCITT - 0'S PRESET :
    966                                 ;* THE ABOVE TEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-0'S SELECTED. AT THE
    967                                 ;* END OF THE MESSAGE, THE PROGRAM CHECKS FOR BCC = 1, INDICATING AN ERROR.
    968                                 ;;*************************************************************************
    969 027330                          BGNTST
        027330                                                                      T14::
    970                                 ;-----------------------------------------
    971                                 ; CRC 16, CHAR MODE
    972                                 ;-----------------------------------------
    973 027330  012737  027732  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
    974 027336  004737  005240                  JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
    975 027342  000226                          SYNCH
    976 027344  000011                          STRIP!DDCMP
    977 027346  004737  005622                  JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST SYNCH
    978 027352  000000                          000
    979 027354  100010                          CHPCHK!8.
    980 027356  004737  010516                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
    981 027362  002676                          MSG1+6
    982 027364  000006                          6
    983 027366  004737  004754                  JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
    984 027372  000010                          8.
    985 027374  004737  007212                  JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
    986 027400  000011                          STRIP!DDCMP
    987 027402  000001                          1
    988 027404  004737  004754                  JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
    989 027410  000122                          82.
    990 027412  004737  007314                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
    991 027416  000001                          001
    992 027420  000000                          0
```

TEST 14 - CRC ERROR DETECTION TEST

```
  993 027422  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
  994 027426  000125                  125
  995 027430  000000                  0
  996 027432  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
  997 027436  000252                  252
  998 027440  000000                  0
  999 027442  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
 1000 027446  000377                  377
 1001 027450  000000                  0
 1002 027452  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 0
 1003 027456  100000                  CRCCHK.000
 1004 027460  000000                  0
 1005
 1006                             ;---------------------- ------------------
 1007                             ; CRC-CCITT-1'S PRESET, BIT MODE
 1008                             ;-----------------------------------------
 1009 027462  004737  005240          JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
 1010 027466  000000                  000
 1011 027470  000000                  000
 1012 027472  004737  005622          JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST FLAG
 1013 027476  000000                  000
 1014 027500  100010                  CHPCHK!8.
 1015 027502  004737  010516          JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
 1016 027506  002676                  MSG1+6
 1017 027510  000006                  6
 1018 027512  004737  004754          JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
 1019 027516  000010                  8.
 1020 027520  004737  007212          JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
 1021 027524  000000                  000
 1022 027526  000001                  1
 1023 027530  004737  004754          JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
 1024 027534  000122                  82.
 1025 027536  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
 1026 027542  000001                  001
 1027 027544  000000                  0
 1028 027546  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
 1029 027552  000125                  125
 1030 027554  000000                  0
 1031 027556  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
 1032 027562  000252                  252
 1033 027564  000000                  0
 1034 027566  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
 1035 027572  000377                  377
 1036 027574  000000                  0
 1037 027576  004737  007314          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 1
 1038 027602  101400                  CRCCHK!1400
 1039 027604  000000                  0
 1040
 1041                             ;-----------------------------------------
 1042                             ; CRC-CCITT-0'S PRESET, BIT MODE
 1043                             ;-----------------------------------------
 1044 027606  004737  005240          JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
 1045 027612  000000                  000
 1046 027614  000100                  CRC1
 1047 027616  004737  005622          JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST FLAG
 1048 027622  000000                  000
 1049 027624  100010                  CHPCHK!8.
```

```
1050 027626  004737  010516                JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
1051 027632  002676                        MSG1+6
1052 027634  000006                        6
1053 027636  004737  004754                JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
1054 027642  000010                        8.
1055 027644  004737  007212                JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
1056 027650  000100                        CRC1
1057 027652  000001                        1
1058 027654  004737  004754                JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
1059 027660  000122                        82.
1060 027662  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
1061 027666  000001                        001
1062 027670  000000                        0
1063 027672  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
1064 027676  000125                        125
1065 027700  000000                        0
1066 027702  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
1067 027706  000252                        252
1068 027710  000000                        0
1069 027712  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
1070 027716  000377                        377
1071 027720  000000                        0
1072 027722  004737  007314                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC - 1
1073 027726  101400                        CRCCHK!1400
1074 027730  000000                        0
1075
1076 027732  004737  003276        24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1077 027736                        ENDTST
     027736                                                        L10046:
     027736  104401                                                        TRAP    C$ETST
1078
1079
1080
1081
1082
1083                               ;;*************************************************************************
1084                               .SBTTL      TEST 15 - VRC PARITY GENERATION TEST
1085                               ;*
1086                               ;* SUBTEST 1 - TEST OF CORRECT ODD VRC PARITY GENERATION :
1087                               ;* THE LINE UNIT IS PLACED IN CHAR MODE, WITH ODD VRC AND 7-BIT CHARS SELECTED.
1088                               ;* THE DATA CHARS IN PATTERN Q ARE TRANSMITTED, AND AS THE 8TH BIT (PARITY BIT)
1089                               ;* OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TXDATA FOR THE PROPER STATE.
1090                               ;* FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 1 AND FOR THE
1091                               ;* LAST 4 CHARS IT SHOULD = 0.
1092                               ;*
1093                               ;* SUBTEST 2 - TEST OF CORRECT EVEN VRC PARITY GENERATION :
1094                               ;* THE LINE UNIT IS PLACED IN CHAR MODE, WITH EVEN VRC AND 7-BIT CHARS SELECTED.
1095                               ;* THE DATA CHARS IN PATTERN Q ARE TRANSMITTED, AND AS THE 8TH BIT (PARITY BIT)
1096                               ;* OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TXDATA FOR THE PROPER STATE.
1097                               ;* FOR THE FIRST 4 CHARS IN PATTERN Q THE PARITY BIT SHOULD = 0 AND FOR THE
1098                               ;* LAST 4 CHARS IT SHOULD = 1.
1099                               ;*
1100                               ;*    DATA PATTERN Q = 000,120,125,137,040,052,057,177
1101                               ;;*************************************************************************
1102 027740                        BGNTST
     027740                                                        T15::
1103                               ;-------------------------------------------------------------
```

```
                                        ; TEST ODD VRC GENERATION
                                        ;-------------------------------------------------------------
1106 027740  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1107 027746  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
1108 027754                                  BGNSUB
```

TEST 15 - VRC PARITY GENERATION TEST

```
1147 030160                          8$:
1148 030160                                 ENDSUB
     030160                                                                 L10050:
     030160  104403                                                                 TRAP    C$ESUB
1149                                 ;-----------------------------------------------------------
1150                                 ; TEST EVEN VRC GENERATION
1151                                 ;-----------------------------------------------------------
1152 030162  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1153 030170  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
1154 030176                                 BGNSUB
     030176                                                                 T15.2:
     030176  104402                                                                 TRAP    C$BSUB
1155 030200  012737  030402  002346          MOV     #18$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
1156 030206  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1157 030212  000026                          026
1158 030214  000211                          CRC2!STRIP!DDCMP        ;CHAR MODE, EVEN VRC
1159 030216  004737  010574                  JSR     PC,LDBYTS       ;LOAD DATA INTO TX SILO
1160 030222  002613                          PATQ
1161 030224  000010                          8.
1162 030226  004737  010746                  JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1163 030232  001000                          TXEOM
1164 030234  000002                          2
1165 030236  005037  002360                  CLR     WAX15
1166 030242  012737  000347  002362          MOV     #TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1167 030250  004737  004012                  JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1168 030254  004737  004754                  JSR     PC,STPLU        ;CLOCK FIRST SYNCH
1169 030260  000010                          8.
1170 030262  004737  004754                  JSR     PC,STPLU        ;CLOCK 2ND SYNCH
1171 030266  000010                          8.
1172 030270  005001                          CLR     R1              ;INIT CHAR COUNT
1173 030272  004737  004754          12$:    JSR     PC,STPLU        ;CLOCK A CHAR
1174 030276  000010                          8.
1175 030300  004737  003372                  JSR     PC,READLU       ;READ REG 17
1176 030304  005201                          INC     R1              ;INCR CHAR COUNT
1177 030306  020127  000004                  CMP     R1,#4           ;SEE IF 4 CHARS CLKD YET
1178 030312  003014                          BGT     14$             ;BR IF YES
1179 030314  132737  000040  002350          BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS CLEARED
1180 030322  001424                          BEQ     16$             ;BR IF YES
1181 030324  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1182                                 ;REPORT EVEN VRC PARITY BIT NOT CLEARED
1183 030330                                 ERRDF   51,EM51,ERR7
     030330  104455                                                                 TRAP    C$ERDF
     030332  000063                                                                 .WORD   51
     030334  014467                                                                 .WORD   EM51
     030336  020302                                                                 .WORD   ERR7
1184 030340                                 ESCAPE  SUB
     030340  104410                                                                 TRAP    C$ESCAPE
     030342  000040                                                                 .WORD   L10051-.
1185 030344  132737  000040  002350  14$:    BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS SET
1186 030352  001010                          BNE     16$             ;BR IF YES
1187 030354  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1188                                 ;REPORT EVEN VRC PARITY BIT NOT SET
1189 030360                                 ERRDF   50,EM50,ERR7
     030360  104455                                                                 TRAP    C$ERDF
     030362  000062                                                                 .WORD   50
     030364  014433                                                                 .WORD   EM50
     030366  020302                                                                 .WORD   ERR7
```

```
TEST 15 - VRC PARITY GENERATION TEST

1190 030370                                ESCAPE  SUB
     030370  104410                                                                TRAP    C$ESCAPE
     030372  000010                                                                .WORD   L10051-.
1191 030374  020127  000010          16$:  CMP     R1,#8.          ;SEE IF ALL CHARS TESTED YET
1192 030400  002734                        BLT     12$             ;BR IF NOT
1193 030402                          18$:
1194 030402                                ENDSUB
     030402                                                                    L10051:
     030402  104403                                                                TRAP    C$ESUB
1195 030404  004737  003276                JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1196 030410                          ENDTST
     030410                                                                    L10047:
     030410  104401                                                                TRAP    C$ETST
1197
1198
1199
1200
1201
1202                                 ;;*************************************************************************
1203                                 .SBTTL      TEST 16 - VRC ERROR DETECTION TEST
1204                                 ;*
1205                                 ;* SUBTEST 1 - FORCING OF BCC USING ODD VRC
1206                                 ;* THE LINE UNIT IS PLACED IN CHAR MODE WITH ODD VRC AND 7-BIT CHARS SELECTED.
1207                                 ;* THE FIRST 8 DATA CHARS IN PATTERN R ARE TRANSMITTED NORMALLY, BUT THE OTHER
1208                                 ;* 7 CHARS ARE TRANSMITTED WITH BIT 0 STUCK AT 1 (USING IERR BIT). THE PROGRAM
1209                                 ;* CHECKS FOR BCC = 0 AFTER EACH OF THE FIRST 8 CHARS ARE RECEIVED (INDICATING
1210                                 ;* NO ERROR) AND CHECKS FOR BCC = 1 AFTER EACH OF THE REMAINING 7 CHARS ARE
1211                                 ;* RECEIVED (INDICATING AN ERROR).
1212                                 ;*
1213                                 ;* SUBTEST 2 - FORCING OF BCC USING EVEN VRC
1214                                 ;* THE LINE UNIT IS PLACED IN CHAR MODE WITH EVEN VRC AND 7-BIT CHARS SELECTED.
1215                                 ;* THE FIRST 8 DATA CHARS IN PATTERN R ARE TRANSMITTED NORMALLY, BUT THE OTHER
1216                                 ;* 7 CHARS ARE TRANSMITTED WITH BIT 0 STUCK AT 1 (USING IERR BIT). THE PROGRAM
1217                                 ;* CHECKS FOR BCC = 0 AFTER EACH OF THE FIRST 8 CHARS ARE RECEIVED (INDICATING
1218                                 ;* NO ERROR) AND CHECKS FOR BCC = 1 AFTER EACH OF THE REMAINING 7 CHARS ARE
1219                                 ;* RECEIVED (INDICATING AN ERROR).
1220                                 ;*
1221                                 ;*   DATA PATTERN R = 000,100,120,124,164,172,176,177,000,100,120,124,164,
1222                                 ;*                    172,176.
1223                                 ;;*************************************************************************
1224 030412                          BGNTST
     030412                                                                    T16::
1225                                 ;-------------------------------------------------------------------
1226                                 ; TEST ODD VRC ERROR DETECTION
1227                                 ;-------------------------------------------------------------------
1228 030412  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1229 030420  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO.
1230 030426                                BGNSUB
     030426                                                                    T16.1:
     030426  104402                                                                TRAP    C$BSUB
1231 030430  012737  030646  002346          MOV     #10$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
1232 030436  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1233 030442  000026                          026
1234 030444  000111                          CRC1!STRIP!DDCMP        ;CHAR MODE, ODD VRC
1235 030446  004737  010746                  JSR     PC,LODSIL       ;LOAD A THIRD SOM INTO TX SILO
1236 030452  000400                          TXSOM
1237 030454  000001                          1
```

TEST 16 - VRC ERROR DETECTION TEST

```
1238 030456  004737  010574                JSR     PC,LDBYTS       ;LOAD DATA INTO TX BUFFER
1239 030462  002623                        PATR
1240 030464  000017                        15.
1241 030466  004737  010746                JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1242 030472  001000                        TXEOM
1243 030474  000002                        2
1244 030476  005037  002360                CLR     WAX15
1245 030502  012737  000347  002362        MOV     #TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1246 030510  013737  002362  002424        MOV     WAX16,SAVLEN    ;STORE LENGTH 7
1247 030516  004737  004012                JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1248 030522  004737  004754                JSR     PC,STPLU        ;CLOCK 1ST 8 CHARS, WITH NO ERRORS
1249 030526  000130                        88.
1250 030530  012701  000007                MOV     #7,R1           ;INIT COUNTER FOR LAST 7 CHARS
1251 030534  004737  007212        3$:     JSR     PC,STPERR       ;ASSERT IERR BIT FOR 1 TIME
1252 030540  000111                        CRC1!STRIP.DDCMP
1253 030542  000001                        1
1254 030544  004737  004754                JSR     PC,STPLU        ;CLOCK REST OF CHAR
1255 030550  000007                        7
1256 030552  005301                        DEC     R1              ;DECR COUNTER
1257 030554  001367                        BNE     3$              ;BR IF NOT DONE TRANSMITTING YET
1258 030556  004737  004754                JSR     PC,STPLU        ;CLOCK 2 TERMINATING SYNCHS
1259 030562  000020                        16.
1260 030564  012701  000010                MOV     #8.,R1          ;INIT COUNTER FOR ERROR-FREE CHARS
1261 030570  012703  002623                MOV     #PATR,R3        ;INIT DATA PATTERN POINTER
1262 030574  112337  030604        5$:     MOVB    (R3)+,6$        ;GET AN EXPECTED DATA CHAR
1263 030600  004737  007314                JSR     PC,CKDATA       ;GO CHECK CHAR, CHK BCC=0
1264 030604  100000                6$:     BCCCHK!000
1265 030606  000000                        0
1266 030610  005301                        DEC     R1              ;DECR COUNTER
1267 030612  001370                        BNE     5$              ;BR IF NOT DONE YET
1268 030614  012701  000007                MOV     #7,R1           ;INIT COUNTER FOR ERROR CHARS
1269 030620  112337  030636        8$:     MOVB    (R3)+,9$        ;GET EXPECTED DATA CHAR
1270 030624  052737  000001  030636        BIS     #BIT0,9$        ;EXPECT ERROR BIT 0 SET
1271 030632  004737  007314                JSR     PC,CKDATA       ;CHECK DATA, CHK BCC=1
1272 030636  100400                9$:     BCCCHK!RXBCC!000
1273 030640  000000                        0
1274 030642  005301                        DEC     R1              ;DECR COUNTER
1275 030644  001365                        BNE     8$              ;BR IF NOT DONE YET
1276 030646                       10$:
1277 030646                               ENDSUB
     030646                                                                L10053:
     030646  104403                                                              TRAP    C$ESUB
1278                              ;-------------------------------------------------------------
1279                              ; TEST EVEN VRC ERROR DETECTION
1280                              ;-------------------------------------------------------------
1281 030650  012737  000006  002366        MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1282 030656  012737  000012  002364        MOV     #12,REGNUM      ;SET REG NO.
1283 030664                               BGNSUB
     030664                                                                T16.2:
     030664  104402                                                              TRAP    C$BSUB
1284 030666  012737  031104  002346        MOV     #30$,RETADR     ,SET SUBTEST EXIT ADRS FOR ERRORS
1285 030674  004737  005240                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1286 030700  000026                        026
1287 030702  000211                        CRC2!STRIP!DDCMP        ;CHAR MODE, EVEN VRC
1288 030704  004737  010746                JSR     PC,LODSIL       ;LUAD A THIRD SOM INTO TX SILO
1289 030710  000400                        TXSOM
1290 030712  000001                        1
```

TEST 16 - VRC ERROR DETECTION TEST

```
1291 030714  004737  010574                  JSR     PC,LDBYTS       ;LOAD DATA INTO TX BUFFER
1292 030720  002623                          PATR
1293 030722  000017                          15.
1294 030724  004737  010746                  JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1295 030730  001000                          TXEOM
1296 030732  000002                          2
1297 030734  005037  002360                  CLR     WAX15
1298 030740  012737  000347  002362          MOV     #TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1299 030746  013737  002362  002424          MOV     WAX16,SAVLEN    ;STORE LENGTH 7
1300 030754  004737  004012                  JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1301 030760  004737  004754                  JSR     PC,STPLU        ;CLOCK 1ST 8 CHARS, WITH NO ERRORS
1302 030764  000130                          88.
1303 030766  012701  000007                  MOV     #7,R1           ;INIT COUNTER FOR LAST 7 CHARS
1304 030772  004737  007212          23$:    JSR     PC,STPERR       ;ASSERT IERR BIT FOR 1 TIME
1305 030776  000211                          CRC2!STRIP!DDCMP
1306 031000  000001                          1
1307 031002  004737  004754                  JSR     PC,STPLU        ;CLOCK REST OF CHAR
1308 031006  000007                          7
1309 031010  005301                          DEC     R1              ;DECR COUNTER
1310 031012  001367                          BNE     23$             ;BR IF NOT DONE TRANSMITTING YET
1311 031014  004737  004754                  JSR     PC,STPLU        ;CLOCK 2 TERMINATING SYNCHS
1312 031020  000020                          16.
1313 031022  012701  000010                  MOV     #8.,R1          ;INIT COUNTER FOR ERROR-FREE CHARS
1314 031026  012703  002623                  MOV     #PATR,R3        ;INIT DATA PATTERN POINTER
1315 031032  112337  031042          25$:    MOVB    (R3)+,26$       ;GET EXPECTED DATA CHAR
1316 031036  004737  007314                  JSR     PC,CKDATA       ;CHK DATA, CHECK BCC=0
1317 031042  100000                  26$:    BCCCHK!000
1318 031044  000000                          0
1319 031046  005301                          DEC     R1              ;DECR COUNTER
1320 031050  001370                          B       25$             ;BR IF NOT DONE YET
1321 031052  012701  000007                  MOV     #7,R1           ;INIT COUNTER FOR ERROR CHARS
1322 031056  112337  031074          28$:    MOVB    (R3)+,29$       ;GET EXPECTED DATA CHAR
1323 031062  052737  000001  031074          BIS     #BIT0,29$       ;SET EXPECTED ERROR BIT 0
1324 031070  004737  007314                  JSR     PC,CKDATA       ;CHK DATA, CHK BCC=1
1325 031074  100400                  29$:    BCCCHK!RXBCC!000
1326 031076  000000                          0
1327 031100  005301                          DEC     R1              ;DECR COUNTER
1328 031102  001365                          BNE     28$             ;BR IF NOT DONE YET
1329 031104                          30$:
1330 031104                                  ENDSUB
      031104                                                                  L10054:
      031104  104403                                                                 TRAP    C$ESUB
1331 031106  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1332 031112                          ENDTST
      031112                                                                  L10052:
      031112  104401                                                                 TRAP    C$ETST
1333
1334
1335
1336
1337
1338                                 ;;*****************************************************************************
1339                                 .SBTTL      TEST 17 - INTEGRAL MODEM INTERFACE TEST - CHAR MODE, CRC
1340                                 ;*
1341                                 ;* THE INTEGRAL MODEM IS SELECTED BY THE PROGRAM IN AX3-15, AND A
1342                                 ;* MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
1343                                 ;* ON THE LINE UNIT OR AT THE CABLE. THE MESSAGE CONSISTS OF
```

```
                                        ;* 5 SYNCHS, 000,125,252,377,000, AND  1 SYNCH. IF THE P-TABLE FOR THE CURRENT
                                        ;* UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
                                        ;* SKIPPED FOR THAT UNIT.
                                        ;;*****************************************************************************
031114                                  BGNTST
031114                                                                                          T17::
031114  012737  000021  002434          MOV     #17.,TSTNUM     ;SET TEST NO.
031122  012737  031374  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
031130  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
031134  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
031140  000010                          INTGRL                  ;   SEE IF TEST SHOULD BE RUN
031142  012737  000323  031160          MOV     #I422!XYZ.V35!OP!TEST,6$ ;SET UP TO SELECT INTEGRAL MODEM
031150  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
031154  000226                          SYNCH
031156  000011                          STRIP!DDCMP
031160  000000                  6$:     .WORD   0
031162  000000                          000
031164  004737  010656                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
031170  142777  000010  151242          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
031176  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
031204  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
031210  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
031214  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
031220  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
031226  001011                          BNE     12$             ;BR IF YES
031230  005202                          INC     R2              ;INCREMENT TIMER
031232  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
031234  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT IRDY NOT SET
031240                                  ERRDF   17,EM17,ERR7
031240  104455                                                                  TRAP    C$ERDF
031242  000021                                                                  .WORD   17
031244  013475                                                                  .WORD   EM17
031246  020302                                                                  .WORD   ERR7
031250  000451                          BR      24$             ;ESCAPE TO END OF TEST
031252  012337  031262          12$:    MOV     (R3)+,16$
031256  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
031262  000000                  16$:    0
031264  000000                          0
031266  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
031272  103746                          BLO     9$              ;BR IF NOT YET
031274  004737  004646                  JSR     PC,WAIT50       ;STALL FOR 50 MICRO-SEC
031300  004737  005052                  JSR     PC,OACTIV       ;CHECK OACT = 0
031304  000000                          0
031306  004737  006260                  JSR     PC,IACTIV       ;CHECK IACT STILL = 1
031312  000001                          1
031314  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
031322  004737  003372                  JSR     PC,READLU       ;READ REG 13
031326  042737  000232  002350          BIC     #RING!HDX!MODR!STBY,REDBYT      ;CLR UNUSED BITS
031334  023727  002350  000000          CMP     REDBYT,#0       ;CHECK REG 13 FOR 000 (MODEM SIGNALS SHOULD BE CLEARED)
031342  001414                          BEQ     24$             ;BR IF CLEARED
031344  012737  000000  002370          MOV     #0,GOODAT       ;SET EXPECTED DATA = 0
031352  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
031360  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT REG MISCOMPARE
031364                                  ERRDF   3,EM3,ERR2
031364  104455                                                                  TRAP    C$ERDF
```

```
TEST 17 - INTEGRAL MODEM INTERFACE TEST - CHAR MODE, CRC

        031366  000003                                                          .WORD   3
        031370  013324                                                          .WORD   EM3
        031372  015444                                                          .WORD   ERR2
  1395  031374                          24$:
  1396  031374                          ENDTST
        031374                                                          L10055:
        031374  104401                                                          TRAP    C$ETST
  1397
  1398
  1399
  1400
  1401
  1402                                  ;;*****************************************************************************
  1403                                  .SBTTL      TEST 18 - V.35 MODEM INTERFACE TEST - CHAR MODE, CRC
  1404                                  ;*
  1405                                  ;* THE V.35 MODEM INTERFACE IS SELECTED BY THE PROGRAM IN AX3-15, AND A
  1406                                  ;* MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
  1407                                  ;* ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
  1408                                  ;* OR A MODEM TEST MODE. THE MESSAGE CONSISTS OF
  1409                                  ;* 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE P-TABLE FOR THE CURRENT
  1410                                  ;* UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
  1411                                  ;* SKIPPED FOR THAT UNIT.
  1412                                  ;;*****************************************************************************
  1413  031376                          BGNTST
        031376                                                                  T18::
  1414  031376  012737  000022  002434         MOV     #18.,TSTNUM     ;SET TEST NO.
  1415  031404  012737  031646  002346         MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
  1416  031412  004737  003276                 JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
  1417  031416  004737  011016                 JSR     PC,CKLPBK       ;CHECK LOOPBACK -
  1418  031422  000020                         V35                     ;   SEE IF TEST SHOULD BE RUN
  1419  031424  012737  000313  031442         MOV     #1422!XYZ!INTGRL!OP!TEST,6$ ;SET UP TO SELECT V35
  1420  031432  004737  010324                 JSR     PC,SETUP        ;PROGRAM THE USYRT
  1421  031436  000226                         SYNCH
  1422  031440  000011                         STRIP!DDCMP
  1423  031442  000000                 6$:     .WORD   0
  1424  031444  000000                         000
  1425  031446  142777  000010  150764         BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
  1426  031454  012737  000013  002364         MOV     #13,REGNUM      ;SET LU REG NO. = 13
  1427  031462  004737  003372                 JSR     PC,READLU       ;READ REG 13
  1428  031466  132737  000001  002350         BITB    #CARR,REDBYT    ;CHECK FOR CARRIER FALSELY SET
  1429  031474  001415                         BEQ     8$              ;BR IF NOT SET
  1430  031476  012737  000000  002370         MOV     #000,GOODAT     ;SET EXPECTED DATA
  1431  031504  013737  002350  002372         MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
  1432  031512  004737  004226                 JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
  1433                          ;REPORT CARRIER NOT CLEARED
  1434  031516                          ERRDF   66,EM66,ERR7
        031516  104455                                                          TRAP    C$ERDF
        031520  000102                                                          .WORD   66
        031522  015056                                                          .WORD   EM66
        031524  020302                                                          .WORD   ERR7
  1435  031526  000447                         BR      24$
  1436  031530  152777  000010  150702  8$:    BISB    #LULOOP,@BSEL1  ;SET LULOOP AGAIN
  1437  031536  004737  010656                 JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
  1438  031542  142777  000010  150670         BICB    #LULOOP,@BSFL1  ;CLEAR LULOOP, CLOCK MSG
  1439  031550  012737  000012  002364         MOV     #12,REGNUM      ;SET LU REG NO. = 12
  1440  031556  012703  002762                 MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
  1441  031562  013702  002264          9$:    MOV     TCOUNT,R2               ;INIT TIMER
```

```
TEST 18 - V.35 MODEM INTERFACE TEST - CHAR MODE, CRC

 1442 031566  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
 1443 031572  152737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1444 031600  001011                          BNE     12$             ;BR IF YES
 1445 031602  005202                          INC     R2              ;INCREMENT TIMER
 1446 031604  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1447 031606  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1448                              ;REPORT IRDY NOT SET
 1449 031612                                  ERRDF   17,EM17,ERR7
      031612  104455                                                              TRAP    C$ERDF
      031614  000021                                                              .WORD   17
      031616  013475                                                              .WORD   EM17
      031620  020302                                                              .WORD   ERR7
 1450 031622  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1451 031624  012337  031634          12$:    MOV     (R3)+,16$
 1452 031630  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1453 031634  000000          16$:    0
 1454 031636  000000                  0
 1455 031640  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
 1456 031644  103746                          BLO     9$              ;BR IF NOT YET
 1457 031646                      24$:
 1458 031646                      ENDTST
      031646                                                                  L10056:
      031646  104401                                                              TRAP    C$ETST
 1459
 1460
 1461
 1462
 1463
 1464                              ;;*************************************************************************
 1465                              .SBTTL      TEST 19 - RS 232C AND RS 423 MODEM INTERFACE TEST - CHAR MODE, CRC
 1466                              ;*
 1467                              ;* THE RS232C & RS423 (XYZ) MODEM INTERFACE IS SELECTED BY THE PROGRAM IN
 1468                              ;* AX3-15, AND A MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURN-
 1469                              ;* AROUND CONNECTOR ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
 1470                              ;* OR A MODEM TEST MODE. THE MESSAGE CONSISTS
 1471                              ;* OF 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE
 1472                              ;* P-TABLE FOR THE CURRENT UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS
 1473                              ;* PROVIDED, THE TEST WILL BE SKIPPED FOR THAT UNIT.
 1474                              ;;*************************************************************************
 1475 031650                      BGNTST
      031650                                                                  T19::
 1476 031650  012737  000023  002434          MOV     #19.,TSTNUM     ;SET TEST NO.
 1477 031656  012737  032030  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 1478 031664  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1479 031670  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
 1480 031674  000100                          XYZ                     ;   SEE IF TEST SHOULD BE RUN
 1481 031676  012737  000233  031714          MOV     #1422!V35!INTGRL!OP!TEST,6$ ;SET UP TO SELECT XYZ
 1482 031704  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 1483 031710  000226                          SYNCH
 1484 031712  000011                          STRIP!DDCMP
 1485 031714  000000          6$:     .WORD   0
 1486 031716  000000                  000
 1487 031720  004737  010656                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
 1488 031724  142777  000010  150506          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
 1489 031732  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
 1490 031740  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
 1491 031744  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
1492 031750  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
1493 031754  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
1494 031762  001011                          BNE     12$             ;BR IF YES
1495 031764  005202                          INC     R2              ;INCREMENT TIMER
1496 031766  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
1497 031770  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1498                              ;REPORT IRDY NOT SET
1499 031774                                   ERRDF   17,EM17,ERR7
     031774  104455                                                                  TRAP    C$ERDF
     031776  000021                                                                  .WORD   17
     032000  013475                                                                  .WORD   EM17
     032002  020302                                                                  .WORD   ERR7
1500 032004  000411                          BR      24$             ;ESCAPE TO END OF TEST
1501 032006  012337  032016          12$:    MOV     (R3)+,16$
1502 032012  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
1503 032016  000000          16$:    0
1504 032020  000000                  0
1505 032022  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
1506 032026  103746                          BLO     9$              ;BR IF NOT YET
1507 032030                      24$:
1508 032030                      ENDTST
     032030                                                                  L10057:
     032030  104401                                                                  TRAP    C$ETST
1509
1510
1511
1512
1513
1514                              ;;*************************************************************************
1515                              .SBTTL      TEST 20 - RS 422 MODEM INTERFACE TEST - CHAR MODE, CRC
1516                              ;*
1517                              ;* THE RS 422 MODEM INTERFACE IS SELECTED BY THE PROGRAM IN AX3-15, AND A
1518                              ;* MESSAGE IS TRANSMITTED, RECEIVED, AND CHECKED USING A TURNAROUND CONNECTOR
1519                              ;* ON THE LINE UNIT OR AT THE MODEM SIDE OF THE CABLE,
1520                              ;* OR A MODEM TEST MODE. THE MESSAGE CONSISTS OF
1521                              ;* 5 SYNCHS, 000,125,252,377,000, AND 1 SYNCH. IF THE P-TABLE FOR THE CURRENT
1522                              ;* UNIT INDICATES THAT NO EXTERNAL TURNAROUND IS PROVIDED, THE TEST WILL BE
1523                              ;* SKIPPED FOR THAT UNIT.
1524                              ;;*************************************************************************
1525 032032                      BGNTST
     032032                                                                  T20::
1526 032032  012737  000024  002434          MOV     #20.,TSTNUM     ;SET TEST NO.
1527 032040  012737  032212  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
1528 032046  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1529 032052  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
1530 032056  000200                          I422                    ;   SEE IF TEST SHOULD BE RUN
1531 032060  012737  000133  032076          MOV     #XYZ!V35!INTGRL'OP!TEST,6$ ;SET UP TO SELECT 422
1532 032066  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
1533 032072  000226                          SYNCH
1534 032074  000011                          STRIP!DDCMP
1535 032076  000000          6$:     .WORD   0
1536 032100  000000                  000
1537 032102  004737  010656                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
1538 032106  142777  000010  150324          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
1539 032114  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
1540 032122  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
1541 032126  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
 1542 032132  004737  003372           10$:    JSR     PC,READLU       ;READ REG 12
 1543 032136  132737  000020  002350           BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1544 032144  001011                           BNE     12$             ;BR IF YES
 1545 032146  005202                           INC     R2              ;INCREMENT TIMER
 1546 032150  001370                           BNE     10$             ;BR IF NO TIME-OUT YET
 1547 032152  004737  004226                   JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1548                                 ;REPORT IRDY NOT SET
 1549 032156                                   ERRDF   17,EM17,ERR7
      032156  104455                                                                  TRAP    C$ERDF
      032160  000021                                                                  .WORD   17
      032162  013475                                                                  .WORD   EM17
      032164  020302                                                                  .WORD   ERR7
 1550 032166  000411                           BR      24$             ;ESCAPE TO END OF TEST
 1551 032170  012337  032200           12$:    MOV     (R3)+,16$
 1552 032174  004737  007314                   JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1553 032200  000000           16$:    0
 1554 032202  000000                           0
 1555 032204  020327  003000                   CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
 1556 032210  103746                           BLO     9$              ;BR IF NOT YET
 1557 032212                           24$:
 1558 032212                           ENDTST
      032212                                                                  L10060:
      032212  104401                                                                  TRAP    C$ETST
 1559
 1560
 1561
 1562
 1563
 1564                                 ;;*****************************************************************************
 1565                                 .SBTTL      TEST 21 - HALF-DUPLEX BIT (HALF DUPX) TEST
 1566                                 ;*
 1567                                 ;* THIS TEST VERIFIES THAT SETTING HALF-DUPLEX BIT IN REG 13 DOES NOT INHIBIT
 1568                                 ;* LOADING OF THE USYRT TRANSMITTER FROM THE TRANSMITTER SILO.
 1569                                 ;* A MASTER CLEAR IS ISSUED, DDCMP MODE IS ENTERED, AND THE HALF DUPX
 1570                                 ;* BIT IN REG 13 IS SET. A MESSAGE IS LOADED INTO THE TX SILO
 1571                                 ;* CONSISTING OF 2 SYNCHS, 000,125,252,377,000, AND 2 MORE SYNCHS.
 1572                                 ;* THE LINE UNIT IS THEN CLOCKED EXTENSIVELY, AND THE TX SILO IS CHECKED TO
 1573                                 ;* BE UNLOADED (ALL CHARS SHOULD HAVE BEEN REMOVED) AND THE RECEIVER
 1574                                 ;* IS MONITORED TO INSURE THAT NO RCV FLAGS ARE GENERATED.
 1575                                 ;;*****************************************************************************
 1576 032214                         BGNTST
      032214                                                                  T21::
 1577 032214  012737  032304  002346           MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
 1578 032222  012737  000013  002364           MOV     #13,REGNUM      ;SET REG NO. = 13
 1579 032230  004737  005240                   JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
 1580 032234  000226                           SYNCH
 1581 032236  000011                           STRIP!DDCMP
 1582 032240  112737  000020  002352           MOVB    #HDX,WRIBYT
 1583 032246  004737  003450                   JSR     PC,WRITLU       ;SET HDX BIT IN REG 13
 1584 032252  004737  010516                   JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
 1585 032256  002674                           MSG1+4
 1586 032260  000007                           7
 1587 032262  004737  004754                   JSR     PC,STPLU        ;CLK MORE THAN ENTIRE MSG
 1588 032266  000136                           94.
 1589 032270  004737  004362                   JSR     PC,OSIRDY       ;CHK ORDY = 1, OCOR   0
 1590 032274  000001                           1
 1591 032276  004737  005774                   JSR     PC,ISIRDY       ;CHK ICIR = 1, IRDY = 0
```

TEST 21 - HALF-DUPLEX BIT (HALF DUPX) TEST

```
                                        1
                        24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
                        ENDTST
                                                                        L10061:
                                                                                TRAP    C$ETST

                        ;;**************************************************************************
                        .SBTTL      TEST 22 - HALF-DUPLEX RCV DISABLED TEST WITH SILOS DISABLED
                        ;*
                        ;* THIS TEST SENDS A MESSAGE IN HDX, CHAR MODE, WITH NO ERROR DETECTION, AND
                        ;* THE SILOS DISABLED. THE MSG CONSISTS OF 2 SYNCHS AND 2 000 CHARS.
                        ;* THE DATA IS SENT WITH LULOOP SET FOR TTL DATA LOOPBACK. THE PROGRAM CHECKS
                        ;* THAT THE RECEIVER NEVER BECOMES ACTIVE, BECAUSE THE RCV CLOCK IS INHIBITED
                        ;* WHEN THE HDX BIT IS SET.
                        ;;**************************************************************************
                        BGNTST
                                                                        T22::
032312  012737  032510  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
032320  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
032324  004737  010324                  JSR     PC,SETUP        ;PROGRAM USYRT FOR CHAR MODE, NO CRC
032330  000226                          SYNCH
032332  000301                          CRC2!CRC1!DDCMP
032334  000000                          000
032336  000000                          000
032340  012737  000013  002364          MOV     #13,REGNUM      ;SET LU REG NO. = 13
032346  112737  000020  002352          MOVB    #HDX,WRIBYT     ;SET HDX BIT IN REG 13
032354  004737  003450                  JSR     PC,WRITLU
032360  012737  000014  002364          MOV     #14,REGNUM      ;SET LU REG NO. = 14
032366  112737  000140  002352          MOVB    #TXEN!DISSI,WRIBYT ;DISABLE SILOS
032374  004737  003450                  JSR     PC,WRITLU
032400  012737  000140  002416          MOV     #TXEN!DISSI,DISILO
032406  012737  000002  002366          MOV     #2,AXNUM        ;SET AX BYTE NO FOR AX1
032414  112737  000000  002360          MOVB    #000,WAX15      ;SET TSOM IN USYRT
032422  112737  000001  002362          MOVB    #TSOM,WAX16
032430  004737  004012                  JSR     PC,WRITAX
032434  004737  004754                  JSR     PC,STPLU        ;CLOCK FIRST SYNCH OUT
032440  000013                          11.
032442  112737  000000  002360          MOVB    #000,WAX15      ;LOAD FIRST 000 DATA CHAR INTO USYRT
032450  112737  000000  002362          MOVB    #000,WAX16
032456  004737  004012                  JSR     PC,WRITAX
032462  004737  004754                  JSR     PC,STPLU        ;CLOCK SECOND SYNCH
032466  000010                          8.
032470  004737  004012                  JSR     PC,WRITAX       ;LOAD SECOND 000 CHAR
032474  004737  004754                  JSR     PC,STPLU        ;CLOCK FIRST 000 CHAR OUT
032500  000013                          11.
032502  004737  006260                  JSR     PC,IACTIV       ;CHK FOR IACT = 0 (RECEIVER NOT ACTIVE)
032506  000000                          0
032510  005037  002416          24$:    CLR     DISILO          ;CLEAR DISABLE SILO FLAG
032514  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
032520                          ENDTST
                                                                        L10062:
                                                                                TRAP    C$ETST
```

```
                        ;;*************************************************************************
                        .SBTTL      TEST 23 - INTERACTION OF MODEM CONTROL BITS
                        ;*
                        ;* THIS TEST WILL BE RUN ONLY IF THE P-TABLE FOR THIS UNIT INDICATES THAT THE
                        ;* H3254 AND H3255 TEST CONNECTORS ARE INSTALLED. OTHERWISE, THE TEST WILL BE
                        ;* SKIPPED FOR THE UNIT.
                        ;* THE FOLLOWING SUBTESTS ARE PERFORMED:
                        ;* - A MASTER CLEAR IS DONE AND REG 13 IS READ AND CHECKED FOR INITIALIZED
                        ;*   STATE, WITH LULOOP SET TO 1. THEN, LULOOP IS CLEARED AND REG 13 IS READ
                        ;*   AND CHECKED FOR THE PROPER STATE, WITH LULOOP CLEARED.
                        ;*   REG 13 IS THEN LOADED WITH 0'S, AND READ AND CHECKED FOR THE INITIALIZED
                        ;*   STATE.
                        ;*   REG 17 IS THEN READ AND CHECKED FOR INITIALIZED STATE.
                        ;* - RUN IS SET IN BSEL1, AND REG 13 IS READ AND CHECKED FOR RING SET.
                        ;* - POLL IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGQ SET.
                        ;* - BPOLL IS SET IN REG 12, ONLY TO LIGHT THE LED FOR THIS SIGNAL.
                        ;* - DTR IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR DTR AND MODR SET.
                        ;* - SELFR IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGR SET.
                        ;* - HDX IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR HDX SET.
                        ;* - MAINT1 IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR TEST MODE SET.
                        ;* - SELSBY IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR STBY SET.
                        ;* - A MASTER CLEAR IS DONE, 2 TSOM'S ARE LOADED INTO THE TX SILO, THE LINE
                        ;*   UNIT IS CLOCKED UNTIL THE TRANSMITTER IS ACTIVE, AND REG 13 IS READ AND
                        ;*   CHECKED FOR RTS, CS, CARR SET.
                        ;;*************************************************************************
032522                  BGNTST
032522                                                                  T23::
032522  012737  000027  002434          MOV     #23.,TSTNUM     ;SET TEST NO.
032530  012737  034022  002346          MOV     #A12,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
032536  004737  011016                  JSR     PC,CKLPBK       ;SEE IF H3254,5 INSTALLED - SKIP TEST IF NOT
032542  100000                          TCCHEK
                        ;-------------------------------------------------------------------------
                        ; DO MASTER CLEAR, CHK REGS 13,17 FOR INITIALIZED STATES
                        ;-------------------------------------------------------------------------
032544                          BGNSUB
032544                                                                  T23.1:
032544  104402                                                                  TRAP    C$BSUB
032546  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
032552  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
032560  004737  003372                  JSR     PC,READLU       ;READ REG 13
032564  023727  002350  000210          CMP     REDBYT,#RING!MODR       ;CHECK REG 13 FOR INIT'D STATE
032572  001416                          BEQ     6$              ;BR IF REG 13 INIT'D
032574  012737  000210  002370          MOV     #RING!MODR,GOODAT       ;SET EXPECTED DATA
032602  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
032610  004737  004226          3$:     JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT REG MISCOMPARE
032614                          ERRDF   3,EM3,ERR2
032614  104455                                                                  TRAP    C$ERDF
032616  000003                                                                  .WORD   3
032620  013324                                                                  .WORD   EM3
032622  015444                                                                  .WORD   ERR2
032624                          ESCAPE  SUB
```

```
TEST 23 - INTERACTION OF MODEM CONTROL BITS

        032624  104410                                                          TRAP    C$ESCAPE
        032626  000170                                                          .WORD   L10064-.
  1694  032630  142777  000010  147602  6$:     BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
  1695  032636  004737  003372                  JSR     PC,READLU       ;READ REG 13
  1696  032642  023727  002350  000000          CMP     REDBYT,#0       ;CHECK FOR INITIALIZED STATE
  1697  032650  001416                          BEQ     8$              ;BR IF OK
  1698  032652  012737  000000  002370          MOV     #0,GOODAT       ;GET EXPECTED DATA
  1699  032660  013737  002350  002372          MOV     REDBYT,BADDAT   ;GET ACTUAL DATA
  1700  032666  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
  1701                                  ;PEPORT REG NOT INITIALIZED BY MASTER CLEAR
  1702  032672                                  ERRDF   2,EM2,ERR2
        032672  104455                                                          TRAP    C$ERDF
        032674  000002                                                          .WORD   2
        032676  013265                                                          .WORD   EM2
        032700  015444                                                          .WORD   ERR2
  1703  032702                                  ESCAPE  SUB
        032702  104410                                                          TRAP    C$ESCAPE
        032704  000112                                                          .WORD   L10064-.
  1704  032706  005037  002352          8$:     CLR     WRIBYT          ;SET DATA = 0 TO BE WRITTEN
  1705  032712  004737  003450                  JSR     PC,WRITLU       ;LOAD 0'S INTO REG 13
  1706  032716  004737  003372                  JSR     PC,READLU       ;READ REG 13
  1707  032722  023727  002350  000000          CMP     REDBYT,#000     ;CHECK FOR REG 13 CLEARED
  1708  032730  001407                          BEQ     9$              ;BR IF CLEARED
  1709  032732  012737  000000  002370          MOV     #000,GOODAT     ;SET EXPECTED DATA
  1710  032740  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
  1711  032746  000720                          BR      3$              ;GO PRINT ERROR
  1712  032750  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
  1713  032756  004737  003372                  JSR     PC,READLU       ;READ REG 17
  1714  032762  042737  000002  002350          BIC     #MCLK,REDBYT    ;IGNORE MCLK BIT
  1715  032770  123727  002350  000051          CMPB    REDBYT,#TXDATA!ICIR!DDCMP ;CHK REG 17 FOR INIT'D STATE
  1716  032776  001407                          BEQ     10$             ;BR IF REG 17 INITIALIZED
  1717  033000  012737  000051  002370          MOV     #TXDATA!ICIR!DDCMP,GOODAT ;SET EXPECTED DATA
  1718  033006  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
  1719  033014  000675                          BR      3$              ;GO REPORT ERROR
  1720  033016                          10$:
  1721  033016                                  ENDSUB
        033016                                                                  L10064:
        033016  104403                                                                  TRAP    C$ESUB
  1722
  1723                                  ;-----------------------------------------------------------------------
  1724                                  ; SET RUN IN BSEL1, CHECK FOR RING SET IN REG 13
  1725                                  ;-----------------------------------------------------------------------
  1726  033020                                  BGNSUB
        033020                                                                  T23.2:
        033020  104402                                                                  TRAP    C$BSUB
  1727  033022  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
  1728  033026  105077  147406                  CLRB    @BSEL1          ;CLEAR LULOOP
  1729  033032  112777  000200  147400          MOVB    #RUN,@BSEL1     ;SET RUN BIT IN BSEL1
  1730  033040  112777  000010  147372          MOVB    #LULOOP,@BSEL1  ;CLEAR RUN, SET LULOOP
  1731  033046  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
  1732  033054  004737  003372                  JSR     PC,READLU       ;READ REG 13
  1733  033060  132737  000200  002350          BITB    #RING,REDBYT    ;SEE IF RING = 1
  1734  033066  001010                          BNE     9$              ;BR IF RING = 1
  1735  033070  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
  1736                                  ;REPORT RING NOT SET
  1737  033074                                  ERRDF   56,EM56,ERR7
        033074  104455                                                                  TRAP    C$ERDF
```

```
                033076  000070                                                          .WORD   56
                033100  014655                                                          .WORD   EM56
                033102  020302                                                          .WORD   ERR7
     1738       033104                          ESCAPE  SUB
                033104  104410                                                          TRAP    C$ESCAPE
                033106  000002                                                          .WORD   L10065-.
     1739       033110                  9$:
     1740       033110                          ENDSUB
                033110                                                          L10065:
                033110  104403                                                          TRAP    C$ESUB
     1741
     1742                               ;-------------------------------------------------------------------------------
     1743                               ; SET POLL IN REG 13, CHK FOR SIGQ SET IN REG 17
     1744                               ;-------------------------------------------------------------------------------
     1745       033112                          BGNSUB
                033112                                                          T23.3:
                033112  104402                                                          TRAP    C$BSUB
     1746       033114  004737  003276          JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
     1747       033120  112737  000200  002352  MOVB    #POLL,WRIBYT
     1748       033126  012737  000013  002364  MOV     #13,REGNUM      ;SET REG NO. = 13
     1749       033134  004737  003450          JSR     PC,WRITLU       ;SET POLL IN REG 13
     1750       033140  012737  000017  002364  MOV     #17,REGNUM      ;SET REG NO. = 17
     1751       033146  004737  003372          JSR     PC,READLU       ;READ REG 17
     1752       033152  132737  000100  002350  BITB    #SIGQ,REDBYT    ;SEE IF SIGQ = 1
     1753       033160  001006                  BNE     6$              ;BR IF SIGQ = 1
     1754       033162  004737  004226          JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
     1755                          ;REPORT SIGQ NOT SET
     1756       033166                          ERRDF   63,EM63,ERR7
                033166  104455                                                          TRAP    C$ERDF
                033170  000077                                                          .WORD   63
                033172  015004                                                          .WORD   EM63
                033174  020302                                                          .WORD   ERR7
     1757       033176                  6$:
     1758       033176                          ENDSUB
                033176                                                          L10066:
                033176  104403                                                          TRAP    C$ESUB
     1759
     1760                               ;-------------------------------------------------------------------------------
     1761                               ; SET BPOLL IN REG 12, TO LIGHT LED ONLY
     1762                               ;-------------------------------------------------------------------------------
     1763       033200                          BGNSUB
                033200                                                          T23.4:
                033200  104402                                                          TRAP    C$BSUB
     1764       033202  004737  003276          JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
     1765       033206  012737  000012  002364  MOV     #12,REGNUM      ;SET LU REG NO. = 12
     1766       033214  112737  000100  002352  MOVB    #BPOLL,WRIBYT   ;SET BPOLL IN LU REG 12
     1767       033222  004737  003450          JSR     PC,WRITLU
     1768       033226                          ENDSUB
                033226                                                          L10067:
                033226  104403                                                          TRAP    C$ESUB
     1769
     1770                               ;-------------------------------------------------------------------------------
     1771                               ; SET DTR IN REG 13, CHECK FOR DTR AND MODR SET IN REG 13
     1772                               ;-------------------------------------------------------------------------------
     1773       033230                          BGNSUB
                033230                                                          T23.5:
                033230  104402                                                          TRAP    C$BSUB
```

```
TEST 23 - INTERACTION OF MODEM CONTROL BITS

1774 033232  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1775 033236  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1776 033244  112737  000104  002352            MOVB    #DTR!MAINT2,WRIBYT
1777 033252  004737  003450                    JSR     PC,WRITLU       ;SET DTR IN REG 13
1778                                                                   ;  (ALSO SET MAINT2 FOR MANUFACT. TEST CONN.)
1779 033256  142777  000010  147154            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1780 033264  004737  003372                    JSR     PC,READLU       ;READ REG 13
1781 033270  132737  000100  002350            BITB    #DTR,REDBYT     ;SEE IF DTR = 1
1782 033276  001010                            BNE     6$              ;BR IF DTR = 1
1783 033300  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1784                                  ;REPORT DTR NOT SET
1785 033304                                    ERRDF   55,EM55,ERR7
     033304  104455                                                                TRAP    C$ERDF
     033306  000067                                                                .WORD   55
     033310  014641                                                                .WORD   EM55
     033312  020302                                                                .WORD   ERR7
1786 033314                                    ESCAPE  SUB
     033314  104410                                                                TRAP    C$ESCAPE
     033316  000026                                                                .WORD   L10070-.
1787 033320  132737  000010  002350  6$:      BITB    #MODR,REDBYT    ;SEE IF MODR = 1
1788 033326  001006                            BNE     12$             ;BR IF MODR = 1
1789 033330  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1790                                  ;REPORT MODR NOT SET
1791 033334                                    ERRDF   57,EM57,ERR7
     033334  104455                                                                TRAP    C$ERDF
     033336  000071                                                                .WORD   57
     033340  014672                                                                .WORD   EM57
     033342  020302                                                                .WORD   ERR7
1792 033344                           12$:
1793 033344                                    ENDSUB
     033344                                                            L10070:
     033344  104403                                                                TRAP    C$ESUB
1794
1795                                  ;-----------------------------------------------------------------
1796                                  ; SET SELFR IN REG 13, CHK FOR SIGR SET IN REG 17
1797                                  ;-----------------------------------------------------------------
1798 033346                                    BGNSUB
     033346                                                            T23.6:
     033346  104402                                                                TRAP    C$BSUB
1799 033350  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1800 033354  112737  000040  002352            MOVB    #SELFR,WRIBYT
1801 033362  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1802 033370  004737  003450                    JSR     PC,WRITLU       ;SET SELFR IN REG 13
1803 033374  012737  000017  002364            MOV     #17,REGNUM      ;SET REG NO. = 17
1804 033402  004737  003372                    JSR     PC,READLU       ;READ REG 17
1805 033406  132737  000200  002350            BITB    #SIGR,REDBYT    ;SEE IF SIGR = 1
1806 033414  001006                            BNE     6$              ;BR IF SIGR = 1
1807 033416  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1808                                  ;REPORT SIGR NOT SET
1809 033422                                    ERRDF   64,EM64,ERR7
     033422  104455                                                                TRAP    C$ERDF
     033424  000100                                                                .WORD   64
     033426  015021                                                                .WORD   EM64
     033430  020302                                                                .WORD   ERR7
1810 033432                           6$:
1811 033432                                    ENDSUB
     033432                                                            L10071:
```

```
      033432  104403                                                                  TRAP    C$ESUB
 1812
 1813                                 ;-------------------------------------------------------------------------
 1814                                 ; SET HDX IN REG 13, CHK FOR HDX SET IN REG 13
 1815                                 ;-------------------------------------------------------------------------
 1816 033434                                 BGNSUB
      033434                                                                                  T23.7:
      033434  104402                                                                        TRAP    C$BSUB
 1817 033436  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1818 033442  112737  000020  002352          MOVB    #HDX,WRIBYT
 1819 033450  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
 1820 033456  004737  003450                    JSR     PC,WRITLU       ;SET HDX IN REG 13
 1821 033462  004737  003372                    JSR     PC,READLU       ;READ REG 13
 1822 033466  132737  000020  002350          BITB    #HDX,REDBYT     ;SEE IF HDX = 1
 1823 033474  001006                          BNE     6$              ;BR IF HDX = 1
 1824 033476  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1825                                 ;REPORT HDX NOT SET
 1826 033502                                 ERRDF   58,EM58,ERR7
      033502  104455                                                                        TRAP    C$ERDF
      033504  000072                                                                        .WORD   58
      033506  014707                                                                        .WORD   EM58
      033510  020302                                                                        .WORD   ERR7
 1827 033512                                 6$:
 1828 033512                                 ENDSUB
      033512                                                                          L10072:
      033512  104403                                                                        TRAP    C$ESUB
 1829
 1830                                 ;-------------------------------------------------------------------------
 1831                                 ; SET MAINT1 IN REG 13, CHK FOR TEST MODE SET IN REG 17
 1832                                 ;-------------------------------------------------------------------------
 1833 033514                                 BGNSUB
      033514                                                                                  T23.8:
      033514  104402                                                                        TRAP    C$BSUB
 1834 033516  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1835 033522  112737  000010  002352          MOVB    #MAINT1,WRIBYT
 1836 033530  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
 1837 033536  004737  003450                    JSR     PC,WRITLU       ;SET MAINT1 IN REG 13
 1838 033542  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
 1839 033550  142777  000010  146662          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
 1840 033556  004737  003372                    JSR     PC,READLU       ;READ REG 17
 1841 033562  132737  000004  002350          BITB    #TESTMD,REDBYT  ;SEE IF TESTMD = 1
 1842 033570  001006                          BNE     6$              ;BR IF TESTMD = 1
 1843 033572  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1844                                 ;REPORT TEST MODE NOT SET BY MAINT1
 1845 033576                                 ERRDF   52,EM52,ERR7
      033576  104455                                                                        TRAP    C$ERDF
      033600  000064                                                                        .WORD   52
      033602  014527                                                                        .WORD   EM52
      033604  020302                                                                        .WORD   ERR7
 1846 033606                                 6$:
 1847 033606                                 ENDSUB
      033606                                                                          L10073:
      033606  104403                                                                        TRAP    C$ESUB
 1848
 1849                                 ;-------------------------------------------------------------------------
 1850                                 ; SET SELSBY IN REG 13, CHK FOR STBY SET IN REG 13
 1851                                 ;-------------------------------------------------------------------------
```

TEST 23 - INTERACTION OF MODEM CONTROL BITS

```
1852 033610                                    BGNSUB
     033610                                                                T23.9:
     033610  104402                                                          TRAP    C$BSUB
1853 033612  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1854 033616  112737  000002  002352            MOVB    #SELSBY,WRIBYT
1855 033624  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1856 033632  004737  003450                    JSR     PC,WRITLU       ;SET SELSBY IN REG 13
1857 033636  004737  003372                    JSR     PC,READLU       ;READ REG 13
1858 033642  132737  000002  002350            BITB    #STBY,REDBYT    ;SEE IF STBY = 1
1859 033650  001006                            BNE     6$              ;BR IF STBY = 1
1860 033652  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1861                                    ;REPORT STBY NOT SET
1862 033656                                    ERRDF   59,EM59,ERR7
     033656  104455                                                          TRAP    C$ERDF
     033660  000073                                                          .WORD   59
     033662  014723                                                          .WORD   EM59
     033664  020302                                                          .WORD   ERR7
1863 033666                            6$:
1864 033666                                    ENDSUB
     033666                                                                L10074:
     033666  104403                                                          TRAP    C$ESUB
1865                                    ;-------------------------------------------------------------------------
1866                                    ; DO MASTER CLEAR, LOAD 2 TSOM'S INTO TX SILO, CLOCK TRANSMITTER UNTIL ACTIVE,
1867                                    ;    CHECK FOR RTS, CS, CARR SET IN REG 13
1868                                    ;-------------------------------------------------------------------------
1869 033670                                    BGNSUB
     033670                                                                T23.10:
     033670  104402                                                          TRAP    C$BSUB
1870 033672  004737  005240                    JSR     PC,INITRN       ;MST CLR, LOAD SOM'S, CLK TRANSMITTER
1871 033676  000000                            000
1872 033700  000000                            000
1873 033702  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1874 033710  004737  003372                    JSR     PC,READLU       ;READ REG 13
1875 033714  132737  000040  002350            BITB    #RTS,REDBYT     ;SEE IF RTS = 1
1876 033722  001010                            BNE     6$              ;BR IF RTS = 1
1877 033724  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1878                                    ;REPORT RTS NOT SET
1879 033730                                    ERRDF   60,EM60,ERR7
     033730  104455                                                          TRAP    C$ERDF
     033732  000074                                                          .WORD   60
     033734  014740                                                          .WORD   EM60
     033736  020302                                                          .WORD   ERR7
1880 033740                                    ESCAPE  SUB
     033740  104410                                                          TRAP    C$ESCAPE
     033742  000056                                                          .WORD   L10075-.
1881 033744  132737  000004  002350    6$:     BITB    #CS,REDBYT      ;SEE IF CS = 1
1882 033752  001010                            BNE     9$              ;BR IF CS = 1
1883 033754  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1884                                    ;REPORT CS NOT SET
1885 033760                                    ERRDF   61,EM61,ERR7
     033760  104455                                                          TRAP    C$ERDF
     033762  000075                                                          .WORD   61
     033764  014754                                                          .WORD   EM61
     033766  020302                                                          .WORD   ERR7
1886 033770                                    ESCAPE  SUB
     033770  104410                                                          TRAP    C$ESCAPE
     033772  000026                                                          .WORD   L10075-.
```

TEST 23 - INTERACTION OF MODEM CONTROL BITS

```
1887 033774  132737  000001  002350  9$:     BITB    #CARR,REDBYT    ;SEE IF CARR = 1
1888 034002  001006                          BNE     12$             ;BR IF CARR = 1
1889 034004  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1890                              ;REPORT CARR NOT SET
1891 034010                                   ERRDF   62,EM62,ERR7
     034010  104455                                                           TRAP    C$ERDF
     034012  000076                                                           .WORD   62
     034014  014767                                                           .WORD   EM62
     034016  020302                                                           .WORD   ERR7
1892 034020                              12$:
1893 034020                                   ENDSUB
     034020                                                           L10075:
     034020  104403                                                           TRAP    C$ESUB
1894
1895 034022                              A12:
1896 034022  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1897 034026                              ENDTST
     034026                                                           L10063:
     034026  104401                                                           TRAP    C$ETST
1898
1899
1900
1901
1902
1903                              ;;*************************************************************************
1904                              .SBTTL      TEST 24 - DATA TEST - BIT MODE, NO ERR DET
1905                              ;*
1906                              ;* A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH ERROR DETECTION
1907                              ;* INHIBITED. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
1908                              ;* AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
1909                              ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
1910                              ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
1911                              ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
1912                              ;* TEST WILL NOT BE RUN.
1913                              ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
1914                              ;*               375,373,367,357,337,277,177
1915                              ;* 8-BIT CHARACTERS ARE USED.
1916                              ;;*************************************************************************
1917 034030                              BGNTST
     034030                                                                   T24::
1918 034030  012737  000030  002434          MOV     #24.,TSTNUM     ;SET TEST NO.
1919 034036  012737  034216  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
1920 034044  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1921 034050  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
1922 034054  000000                          0
1923 034056  013737  002422  034074          MOV     MODINT,6$       ;SET MODEM SELECTION
1924 034064  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
1925 034070  000000                          000
1926 034072  000300                          CRC2!CRC1               ;BIT MODE, NO ERR DET
1927 034074  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
1928 034076  000000                          000
1929 034100  004737  010204                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
1930 034104  012737  001177  003100          MOV     #RXEBL!177,RCVBUF+78. ; SET LAST DATA CHAR IN BUFFER
1931 034112  142777  000010  146320          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
1932 034120  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
1933 034126  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
1934 034132  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
 1935 034136  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
 1936 034142  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1937 034150  001011                          BNE     12$             ;BR IF YES
 1938 034152  005202                          INC     R2              ;INCREMENT TIMER
 1939 034154  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1940 034156  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1941                              ;REPORT IRDY NOT SET
 1942 034162                                  ERRDF   17,EM17,ERR7
      034162  104455                                                              TRAP    C$ERDF
      034164  000021                                                              .WORD   17
      034166  013475                                                              .WORD   EM17
      034170  020302                                                              .WORD   ERR7
 1943 034172  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1944 034174  012337  034204          12$:    MOV     (R3)+,16$
 1945 034200  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1946 034204  000000                  16$:    0
 1947 034206  000000                          0
 1948 034210  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
 1949 034214  103746                          BLO     9$              ;BR IF NOT YET
 1950 034216                          24$:
 1951 034216                          ENDTST
      034216                                                                  L10076:
      034216  104401                                                                  TRAP    C$ETST
 1952
 1953
 1954
 1955
 1956
 1957                              ;;*************************************************************************
 1958                              .SBTTL      TEST 25 - DATA TEST - CHAR MODE, NO ERR DET
 1959                              ;*
 1960                              ;* A MESSAGE IS INITIATED IN CHAR MODE, WITH ERROR DETECTION
 1961                              ;* INHIBITED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
 1962                              ;* AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
 1963                              ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
 1964                              ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
 1965                              ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
 1966                              ;* TEST WILL NOT BE RUN.
 1967                              ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
 1968                              ;*               375,373,367,357,337,277,177
 1969                              ;* 8-BIT CHARACTERS ARE USED.
 1970                              ;;*************************************************************************
 1971 034220                      BGNTST
      034220                                                                  T25::
 1972 034220  012737  000031  002434          MOV     #25.,TSTNUM     ;SET TEST NO.
 1973 034226  012737  034406  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 1974 034234  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1975 034240  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
 1976 034244  000000                          0
 1977 034246  013737  002422  034264          MOV     MODINT,6$       ;SET MODEM SELECTION
 1978 034254  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 1979 034260  000226                          SYNCH
 1980 034262  000311                          CRC2!CRC1!STRIP!DDCMP   ;CHAR MODE, NO ERR DET
 1981 034264  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
 1982 034266  000000                          000
 1983 034270  004737  010204                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BU
 1984 034274  012737  000177  003100          MOV     #177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
```

```
TEST 25 - DATA TEST - CHAR MODE, NO ERR DET

 1985 034302  142777  000010  146130          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
 1986 034310  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
 1987 034316  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
 1988 034322  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
 1989 034326  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
 1990 034332  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1991 034340  001011                          BNE     12$             ;BR IF YES
 1992 034342  005202                          INC     R2              ;INCREMENT TIMER
 1993 034344  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1994 034346  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1995                              ;REPORT IRDY NOT SET
 1996 034352                                  ERRDF   17,EM17,ERR7
      034352  104455                                                          TRAP    C$ERDF
      034354  000021                                                          .WORD   17
      034356  013475                                                          .WORD   EM17
      034360  020302                                                          .WORD   ERR7
 1997 034362  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1998 034364  012337  034374          12$:    MOV     (R3)+,16$
 1999 034370  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 2000 034374  000000          16$:    0
 2001 034376  000000                  0
 2002 034400  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
 2003 034404  103746                          BLO     9$              ;BR IF NOT YET
 2004 034406                          24$:
 2005 034406                          ENDTST
      034406                                                                  L10077:
      034406  104401                                                          TRAP    C$ETST
 2006
 2007
 2008
 2009
 2010
 2011                              ;;*****************************************************************
 2012                              .SBTTL      TEST 26 - DATA TEST - BIT MODE, CRC-CCITT-1
 2013                              ;*
 2014                              ;* A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH CRC-CCITT-1 ERROR
 2015                              ;* DETECTION. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
 2016                              ;* AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
 2017                              ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
 2018                              ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
 2019                              ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
 2020                              ;* TEST WILL NOT BE RUN.
 2021                              ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
 2022                              ;*               375,373,367,357,337,277,177
 2023                              ;* 8-BIT CHARACTERS ARE USED.
 2024                              ;*****************************************************************
 2025 034410                          BGNTST
      034410                                                                  T26::
 2026 034410  012737  000032  002434          MOV     #26.,TSTNUM     ;SET TEST NO.
 2027 034416  012737  034576  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 2028 034424  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 2029 034430  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
 2030 034434  000000                          0
 2031 034436  013737  002422  034454          MOV     MODINT,6$       ;SET MODEM SELECTION
 2032 034444  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 2033 034450  000000                          000
 2034 034452  000000                          000                     ;BIT MODE CRC-CCITT-1
```

```
2035 034454  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2036 034456  000000                          000
2037 034460  004737  010204                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2038 034464  012737  101177  003100          MOV     #CRCCHK!RXEBL!177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
2039 034472  142777  000010  145740          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2040 034500  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
2041 034506  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2042 034512  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
2043 034516  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
2044 034522  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2045 034530  001011                          BNE     12$             ;BR IF YES
2046 034532  005202                          INC     R2              ;INCREMENT TIMER
2047 034534  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
2048 034536  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2049                              ;REPORT IRDY NOT SET
2050 034542                                  ERRDF   17,EM17,ERR7
     034542  104455                                                                  TRAP    C$ERDF
     034544  000021                                                                  .WORD   17
     034546  013475                                                                  .WORD   EM17
     034550  020302                                                                  .WORD   ERR7
2051 034552  000411                          BR      24$             ;ESCAPE TO END OF TEST
2052 034554  012337  034564          12$:    MOV     (R3)+,16$
2053 034560  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2054 034564  000000          16$:    0
2055 034566  000000                  0
2056 034570  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2057 034574  103746                          BLO     9$              ;BR IF NOT YET
2058 034576                      24$:
2059 034576                      ENDTST
     034576                                                                  L10100.
     034576  104401                                                                TRAP    C$ETST
2060
2061
2062
2063
2064
2065                              ;;*************************************************************************
2066                              .SBTTL      TEST 27 - DATA TEST - BIT MODE, CRC-CCITT-0
2067                              ;*
2068                              ;* A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH CRC-CCITT-0 ERROR
2069                              ;* DETECTION. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
2070                              ;* AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
2071                              ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
2072                              ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
2073                              ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
2074                              ;* TEST WILL NOT BE RUN.
2075                              ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
2076                              ;*               375,373,367,357,337,277,177
2077                              ;* 8-BIT CHARACTERS ARE USED.
2078                              ;;*************************************************************************
2079 034600                      BGNTST
     034600                                                                  T27::
2080 034600  012737  000033  002434          MOV     #27.,TSTNUM     ;SET TEST NO.
2081 034606  012737  034766  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2082 034614  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2083 034620  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2084 034624  000000                          0
```

```
 2085 034626  013737  002422  034644          MOV     MODINT,6$       ;SET MODEM SELECTION
 2086 034634  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 2087 034640  000000                          000
 2088 034642  000100                          CRC1                    ;BIT MODE, CRC-CCITT-0
 2089 034644  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
 2090 034646  000000                          000
 2091 034650  004737  010204                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
 2092 034654  012737  101177  003100          MOV     #CRCCHK.RXEBL!177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
 2093 034662  142777  000010  145550          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
 2094 034670  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
 2095 034676  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
 2096 034702  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
 2097 034706  004737  003372          10$:    JSR     PC,READLU       ;READ REG 12
 2098 034712  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 2099 034720  001011                          BNE     12$             ;BR IF YES
 2100 034722  005202                          INC     R2              ;INCREMENT TIMER
 2101 034724  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 2102 034726  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 2103                              ;REPORT IRDY NOT SET
 2104 034732                                  ERRDF   17,EM17,ERR7
      034732  104455                                                          TRAP    C$ERDF
      034734  000021                                                          .WORD   17
      034736  013475                                                          .WORD   EM17
      034740  020302                                                          .WORD   ERR7
 2105 034742  000411                          BR      24$             ;ESCAPE TO END OF TEST
 2106 034744  012337  034754          12$:    MOV     (R3)+,16$
 2107 034750  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 2108 034754  000000                  16$:    0
 2109 034756  000000                          0
 2110 034760  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
 2111 034764  103746                          BLO     9$              ;BR IF NOT YET
 2112 034766                          24$:
 2113 034766                          ENDTST
      034766                                                                  _10101:
      034766  104401                                                                  TRAP    C$ETST
 2114
 2115
 2116
 2117
 2118
 2119                                 ;;*****************************************************************
 2120                                 .SBTTL      TEST 28 - DATA TEST - CHAR MODE, CRC-16
 2121                                 ;*
 2122                                 ;* A MESSAGE IS INITIATED IN CHAR MODE, WITH CRC-16 ERROR
 2123                                 ;* DETECTION. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
 2124                                 ;* AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
 2125                                 ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
 2126                                 ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
 2127                                 ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
 2128                                 ;* TEST WILL NOT BE RUN.
 2129                                 ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200.376,
 2130                                 ;*               375,373,367,357,337,277,177
 2131                                 ;* 8-BIT CHARACTERS ARE USED.
 2132                                 ;;*****************************************************************
 2133 034770                          BGNTST
      034770                                                                  T28::
 2134 034770  012737  000034  002434          MOV     #28.,TSTNUM     ;SET TEST NO.
```

TEST 28 - DATA TEST - CHAR MODE, CRC-16

```
2135 034776  012737  035156  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2136 035004  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2137 035010  004737  011016                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2138 035014  000000                          0
2139 035016  013737  002422  035034          MOV     MODINT,6$       ;SET MODEM SELECTION
2140 035024  004737  010324                  JSR     PC,SETUP        ;PROGRAM THE USYRT
2141 035030  000226                          SYNCH
2142 035032  000011                          STRIP!DDCMP
2143 035034  000000              6$:         .WORD   0               ;MODEM SELECTION GOES HERE
2144 035036  000000                          000
2145 035040  004737  010204                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2146 035044  012737  100577  003100          MOV     #CRCCHK!RXBCC!177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
2147 035052  142777  000010  145360          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2148 035060  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
2149 035066  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2150 035072  013702  002264              9$: MOV     TCOUNT,R2               ;INIT TIMER
2151 035076  004737  003372             10$: JSR     PC,READLU       ;READ REG 12
2152 035102  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2153 035110  001011                          BNE     12$             ;BR IF YES
2154 035112  005202                          INC     R2              ;INCREMENT TIMER
2155 035114  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
2156 035116  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2157                             ;REPORT IRDY NOT SET
2158 035122                                  ERRDF   17,EM17,ERR7
     035122  104455                                                          TRAP    C$ERDF
     035124  000021                                                          .WORD   17
     035126  013475                                                          .WORD   EM17
     035130  020302                                                          .WORD   ERR7
2159 035132  000411                          BR      24$             ;ESCAPE TO END OF TEST
2160 035134  012337  035144          12$:    MOV     (R3)+,16$
2161 035140  004737  007314                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2162 035144  000000              16$:        0
2163 035146  000000                          0
2164 035150  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2165 035154  103746                          BLO     9$              ;BR IF NOT YET
2166 035156                      24$:
2167 035156                      ENDTST
     035156                                                          L10102:
     035156  104401                                                          TRAP    C$ETST
2168
2169
2170
2171
2172
2173                             ;;*************************************************************************
2174                             .SBTTL      TEST 29 - DATA TEST - CHAR MODE, ODD VRC
2175                             ;*
2176                             ;* A MESSAGE IS INITIATED IN CHAR MODE, WITH ODD VRC ERROR DETECTION
2177                             ;* SELECTED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
2178                             ;* AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
2179                             ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
2180                             ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
2181                             ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
2182                             ;* TEST WILL NOT BE RUN.
2183                             ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
2184                             ;*               375,373,367,357,337,277,177
2185                             ;* 7-BIT CHARACTERS ARE USED. (HI BIT OF A PATTERN CHAR IS NOT USED).
```

```
2186                                    ;;*************************************************************************
2187 035160                             BGNTST
     035160                                                                                          T29::
2188 035160  012737  000035  002434              MOV     #29.,TSTNUM     ;SET TEST NO.
2189 035166  012737  035342  002346              MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2190 035174  004737  003276                      JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2191 035200  004737  011016                      JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2192 035204  000000                              0
2193 035206  013737  002422  035224              MOV     MODINT,6$       ;SET MODEM SELECTION
2194 035214  004737  010324                      JSR     PC,SETUP        ;PROGRAM THE USYRT
2195 035220  000026                              026
2196 035222  000111                              CRC1!STRIP!DDCMP
2197 035224  000000                      6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2198 035226  000347                              TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0
2199 035230  004737  010204                      JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2200 035234  142777  000010  145176              BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2201 035242  012737  000012  002364              MOV     #12,REGNUM      ;SET LU REG NO. = 12
2202 035250  012703  002762                      MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2203 035254  013702  002264              9$:     MOV     TCOUNT,R2               ;INIT TIMER
2204 035260  004737  003372              10$:    JSR     PC,READLU       ;READ REG 12
2205 035264  132737  000020  002350              BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2206 035272  001011                              BNE     12$             ;BR IF YES
2207 035274  005202                              INC     R2              ;INCREMENT TIMER
2208 035276  001370                              BNE     10$             ;BR IF NO TIME-OUT YET
2209 035300  004737  004226                      JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2210                                    ;REPORT IRDY NOT SET
2211 035304                                     ERRDF   17,EM17,ERR7
     035304  104455                                                                         TRAP    C$ERDF
     035306  000021                                                                         .WORD   17
     035310  013475                                                                         .WORD   EM17
     035312  020302                                                                         .WORD   ERR7
2212 035314  000412                              BR      24$             ;ESCAPE TO END OF TEST
2213 035316  112337  035330              12$:    MOVB    (R3)+,16$       ;GET AN EXPECTED DATA BYTE
2214 035322  005203                              INC     R3              ;INCREMENT POINTER
2215 035324  004737  007314                      JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2216 035330  100000                      16$:    BCCCHK
2217 035332  000000                              0
2218 035334  020327  003102                      CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2219 035340  103745                              BLO     9$              ;BR IF NOT YET
2220 035342                             24$:
2221 035342                             ENDTST
     035342                                                                        L10103:
     035342  104401                                                                         TRAP    C$ETST
2222
2223
2224
2225
2226
2227                                    ;;*************************************************************************
2228                                    .SBTTL      TEST 30 - DATA TEST - CHAR MODE, EVEN VRC
2229                                    ;*
2230                                    ;* A MESSAGE IS INITIATED IN CHAR MODE, WITH EVEN VRC ERROR DETECTION
2231                                    ;* SELECTED. THE MESSAGE CONSISTS OF 5 SYNCHS, PAT A REPEATED 2 TIMES,
2232                                    ;* AND 2 SYNCHS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
2233                                    ;* THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
2234                                    ;* IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
2235                                    ;* TEST WILL BE RUN ON THAT INTERFACE. IF THERE IS NO EXTERNAL TURNAROUND, THE
```

TEST 30 - DATA TEST - CHAR MODE, EVEN VRC

```
2236                                    ;* TEST WILL NOT BE RUN.
2237                                    ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
2238                                    ;*                375,373,367,357,337,277,177
2239                                    ;* 7-BIT CHARACTERS ARE USED. (HI BIT OF A PATTERN CHAR IS NOT USED).
2240                                    ;;*****************************************************************************
2241 035344                            BGNTST
     035344                                                                                          T30::
2242 035344  012737  000036  002434            MOV     #30.,TSTNUM     ;SET TEST NO.
2243 035352  012737  035526  002346            MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2244 035360  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2245 035364  004737  011016                    JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2246 035370  000000                            0
2247 035372  013737  002422  035410            MOV     MODINT,6$       ;SET MODEM SELECTION
2248 035400  004737  010324                    JSR     PC,SETUP        ;PROGRAM THE USYRT
2249 035404  000026                            026
2250 035406  000211                            CRC2.STRIP!DDCMP
2251 035410  000000                    6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2252 035412  000347                            TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0
2253 035414  004737  010204                    JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2254 035420  142777  000010  145012            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2255 035426  012737  000012  002364            MOV     #12,REGNUM      ;SET LU REG NO. = 12
2256 035434  012703  002762                    MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2257 035440  013702  002264            9$:     MOV     TCOUNT,R2               ;INIT TIMER
2258 035444  004737  003372            10$:    JSR     PC,READLU       ;READ REG 12
2259 035450  132737  000020  002350            BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2260 035456  001011                            BNE     12$             ;BR IF YES
2261 035460  005202                            INC     R2              ;INCREMENT TIMER
2262 035462  001370                            BNE     10$             ;BR IF NO TIME-OUT YET
2263 035464  004737  004226                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2264                                    ;REPORT IRDY NOT SET
2265 035470                                     ERRDF   17,EM17,ERR7
     035470  104455                                                                 TRAP    C$ERDF
     035472  000021                                                                 .WORD   17
     035474  013475                                                                 .WORD   EM17
     035476  020302                                                                 .WORD   ERR7
2266 035500  000412                            BR      24$             ;ESCAPE TO END OF TEST
2267 035502  112337  035514            12$:    MOVB    (R3)+,16$       ;GET AN EXPECTED DATA CHAR
2268 035506  005203                            INC     R3              ;INCREMENT POINTER
2269 035510  004737  007314                    JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2270 035514  100000                    16$:    BCCCHK
2271 035516  000000                            0
2272 035520  020327  003102                    CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2273 035524  103745                            BLO     9$              ;BR IF NOT YET
2274 035526                            24$:
2275 035526                            ENDTST
     035526                                                                     L10104:
     035526  104401                                                                 TRAP    C$ETST
2276
2277
2278
2279
2280
2281                                    ;;*****************************************************************************
2282                                    .SBTTL      TEST 31 - CONTIGUOUS ONES IN SEC. STA. ADRS. MODE, BIT MODE
2283                                    ;*
2284                                    ;* IN THIS TEST, A MESSAGE CONSISTING OF 5 ONES CHARS (377 OCT)
2285                                    ;* IS SENT IN SECONDARY STATION ADDRESS MODE, WITH THE STATION ADRS
```

```
                        ;* FOR THIS LINE = 377. THE PROGRAM CHECKS FOR CORRECT RECEPTION OF
                        ;* THE FIRST CHARACTER (STATION ADDRESS) AND THE REMAINING 4
                        ;* ONES CHARACTERS (DATA). THIS TEST EXERCISES THE SECONDARY STATION
                        ;* ADDRESS LOGIC, AND CHECKS THAT THE SEC. STA. ADRS. CAN BE BIT-STUFFED
                        ;* AND TRANSMITTED AND RECEIVED CORRECTLY.
                        ;;*****************************************************************************
035530                  BGNTST
035530                                                                          T31::
035530  012737  035634  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
035536  004737  005240                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
035542  000377                          377
035544  000320                          CRC2!CRC1!SECA          ;BIT MODE, NO ERROR DET, SEC ADR MODE
035546  004737  010746                  JSR     PC,LODSIL       ;LOAD 5 377-CHARS INTO TX SILO
035552  000377                          377
035554  000005                          5
035556  004737  010746                  JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
035562  001000                          TXEOM
035564  000002                          2
035566  004737  004754                  JSR     PC,STPLU        ;CLOCK MORE THAN ENTIRE MSG
035572  000240                          160.
035574  004737  007314                  JSR     PC,CKDATA       ;RCV SEC ADRS = 377
035600  000377                          377
035602  000000                          0
035604  012701  000003                  MOV     #3,R1           ;RCV 3 MORE 377 CHARS
035610  004737  007314          6$:     JSR     PC,CKDATA
035614  000377                          377
035616  000000                          0
035620  005301                          DEC     R1
035622  001372                          BNE     6$
035624  004737  007314                  JSR     PC,CKDATA       ;RCV LAST 377 CHAR, CHK EBLK = 1
035630  001377                          1377
035632  000000                          0
035634  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
035640                          ENDTST
035640                                                                  L10105:
035640  104401                                                                  TRAP    C$ETST


                        ;;*****************************************************************************
                        .SBTTL      TEST 32 - DDCMP MESSAGE TEST - CHAR MODE
                        ;*
                        ;* IN THIS TEST, THREE USYRT MESSAGES ARE SENT TO SIMULATE A DDCMP HEADER,
                        ;* DDCMP DATA MESSAGE, AND THE START OF A NEW DDCMP HEADER.
                        ;* FIRST, THE DATA IN PATTERN A IS TRANSMITTED AND RECEIVED
                        ;* AND THEN CRC (CRC-16) IS SENT, FOLLOWED BY THE DATA IN PATTERN A
                        ;* AGAIN AND THE CRC ON THAT DATA, AND FINALLY THE DATA IN "MSG1" IS
                        ;* SENT WITH ITS CORRESPONDING CRC.
                        ;*   PATTERN A = 125,252,000,377,001,002,004,010,020,040,100,200,376,
                        ;*               375,373,367,357,337,277,177
                        ;*   MSG1 = SYNCH,SYNCH,SYNCH,SYNCH,000,125,252,377,000,SYNCH,SYNCH
                        ;;*****************************************************************************
035642                  BGNTST
035642                                                                          T32::
035642  012737  036420  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
```

```
                                ;-------------------------------------------------------------------
                                ; TRANSMIT AND RCV ENTIRE MSG
                                ;-------------------------------------------------------------------
035650  004737  005240                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
035654  000226                        SYNCH
035656  000011                        STRIP!DDCMP
035660  004737  010574                JSR     PC,LDBYTS       ;LOAD 20 WORDS OF PAT A INTO TX SILO
035664  002557                        PATA
035666  000024                        20.
035670  004737  010746                JSR     PC,LODSIL       ;LOAD AN EOM INTO TX SILO
035674  001000                        TXEOM
035676  000001                        1
035700  004737  010574                JSR     PC,LDBYTS       ;LOAD 20 WORDS OF PAT A INTO TX SILO
035704  002557                        PATA
035706  000024                        20.
035710  004737  010746                JSR     PC,LODSIL       ;LOAD 1 EOM INTO TX SILO
035714  001000                        TXEOM
035716  000001                        1
035720  004737  010746                JSR     PC,LODSIL       ;LOAD 3 SOM'S INTO TX SILO
035724  000400                        TXSOM
035726  000003                        3
035730  004737  010516                JSR     PC,LODMSG       ;LOAD MSG1 INTO TX SILO
035734  002670                        MSG1
035736  000013                        11.
035740  004737  004754                JSR     PC,STPLU        ;CLOCK HDR MSG AND CRC CHARS
035744  000300                        192.
035746  012737  000013  002364        MOV     #13,REGNUM      ;SET REG. NO. = 13
035754  004737  003372                JSR     PC,READLU       ;READ REG 13
035760  032737  000040  002350        BIT     #RTS,REDBYT     ;SEE IF RTS SET
035766  001010                        BNE     2$              ;BR IF RTS SET
035770  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT RTS NOT SET
035774                          ERRDF   60,EM60,ERR7
035774  104455                                                          TRAP    C$ERDF
035776  000074                                                          .WORD   60
036000  014740                                                          .WORD   EM60
036002  020302                                                          .WORD   ERR7
036004  000137  036420                JMP     24$             ;EXIT TEST
036010  004737  004754        2$:     JSR     PC,STPLU        ;CLK DATA MSG AND FIRST CRC CHAR
036014  000250                        168.
036016  012703  000040                MOV     #32.,R3         ;SET COUNTER FOR CHECKING RTS
036022  004737  004754        4$:     JSR     PC,STPLU        ;CLOCK LINE UNIT FOR 1 CYCLE
036026  000001                        1
036030  004737  003372                JSR     PC,READLU       ;READ REG 13
036034  032737  000040  002350        BIT     #RTS,REDBYT     ;CHK FOR RTS SET
036042  001007                        BNE     5$              ;BR IF RTS SET
036044  004737  004226                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT RTS NOT SET
036050                          ERRDF   60,EM60,ERR7
036050  104455                                                          TRAP    C$ERDF
036052  000074                                                          .WORD   60
036054  014740                                                          .WORD   EM60
036056  020302                                                          .WORD   ERR7
036060  000557                        BR      24$
036062  005303          5$:     DEC     R3              ;DECR COUNTER
036064  001356                  BNE     4$              ;BR IF NOT DONE YET
                                ;-------------------------------------------------------------------
```

```
                                        ; READ AND CHK HEADER AND CRC
                                        ;-------------------------------------------------------------------
036066  012701  002557                  MOV     #PATA,R1        ;INIT PATTERN A POINTER
036072  112137  036102          7$:     MOVB    (R1)+,8$        ;GET AN EXPECTED CHAR
036076  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK A CHAR
036102  000000                  8$:     .WORD   0
036104  000000                          0
036106  020127  002601                  CMP     R1,#PATB-2      ;SEE IF CHKING NEXT-TO-LAST CHAR YET
036112  103767                          BLO     7$              ;BR IF NOT YET
036114  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK CHAR, BCC=0
036120  100277                          CRCCHK!277
036122  000000                          0
036124  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK LAST CHAR, BCC=1
036130  100577                          CRCCHK!RXBCC!177
036132  000000                          0
036134  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
036140  000156                          156
036142  000000                          0
036144  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
036150  000236                          236
036152  000000                          0
                                        ;-------------------------------------------------------------------
                                        ; READ AND CHK DATA MSG AND CRC
                                        ;-------------------------------------------------------------------
036154  012701  002557                  MOV     #PATA,R1        ;INIT PATTERN A POINTER
036160  112137  036170          9$:     MOVB    (R1)+,12$       ;GET AN EXPECTED CHAR
036164  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK A CHAR
036170  000000                  12$:    .WORD   0
036172  000000                          0
036174  020127  002601                  CMP     R1,#PATB-2      ;SEE IF CHKING NEXT-TO-LAST CHAR YET
036200  103767                          BLO     9$              ;BR IF NOT YET
036202  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK CHAR, BCC=0
036206  100277                          CRCCHK!277
036210  000000                          0
036212  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK LAST CHAR, BCC=1
036216  100577                          CRCCHK!RXBCC!177
036220  000000                          0
036222  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
036226  000156                          156
036230  000000                          0
036232  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
036236  000236                          236
036240  000000                          0
                                        ;-------------------------------------------------------------------
                                        ; CLOCK 3RD MESSAGE ("MSG1" DATA)
                                        ;-------------------------------------------------------------------
036242  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. = 12
036250  112737  000200  002352          MOVB    #IC,WRIBYT      ;SET IC TO CLEAR RECEIVER FOR NEW MSG
036256  004737  003450                  JSR     PC,WRITLU
036262  012737  000013  002364          MOV     #13,REGNUM      ;RESTORE REG NO. TO 13
036270  004737  004754                  JSR     PC,STPLU        ;CLOCK THE REST OF MSG
036274  000150                          104.
036276  004737  003372                  JSR     PC,READLU       ;READ REG 13
036302  032737  000040  002350          BIT     #RTS,REDBYT     ;SEE IF RTS IS CLEARED
036310  001407                          BEQ     14$             ;BR IF RTS CLEARED
036312  004737  004226                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT RTS NOT CLEARED
```

```
2445 036316                              ERRDF   65,EM65,ERR7
     036316  104455                                                  TRAP    C$ERDF
     036320  000101                                                  .WORD   65
     036322  015036                                                  .WORD   EM65
     036324  020302                                                  .WORD   ERR7
2446 036326  000434                      BR      24$
2447                                ;-------------------------------------------------------------------------------
2448                                ;READ AND CHECK 3RD MESSAGE AND CRC
2449                                ;-------------------------------------------------------------------------------
2450 036330  004737  007314          14$:    JSR     PC,CKDATA       ;READ AND CHECK 000 DATA CHAR
2451 036334  000000                          000
2452 036336  000000                          0
2453 036340  004737  007314                  JSR     PC,CKDATA       ;READ AND CHECK 125 DATA CHAR
2454 036344  000125                          125
2455 036346  000000                          0
2456 036350  004737  007314                  JSR     PC,CKDATA       ;READ AND CHECK 252 DATA CHAR
2457 036354  000252                          252
2458 036356  000000                          0
2459 036360  004737  007314                  JSR     PC,CKDATA       ;READ AND CHECK 377 DATA CHAR, AND BCC=0
2460 036364  100377                          CRCCHK.377
2461 036366  000000                          0
2462 036370  004737  007314                  JSR     PC,CKDATA       ;READ AND CHECK 000 DATA CHAR, AND BCC=1
2463 036374  100400                          CRCCHK!RXBCC.000
2464 036376  000000                          0
2465 036400  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
2466 036404  000160                          160
2467 036406  000000                          0
2468 036410  004737  007314                  JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
2469 036414  000034                          034
2470 036416  000000                          0
2471 036420  004737  003276          .+4$:   JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
2472 036424                          ENDTST
     036424                                                                     L10106:
     036424  104401                                                                      TRAP    C$ETST
2473
2474
2475
2476
2477
```

```
                        .SBTTL  HARDWARE PARAMETER CODING SECTION


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

                                BGNHRD
036426  000046                                                    .WORD L10107-L$HARD/2
036430                                                        L$HARD::

                                GPRMA   ADDRES,2,0,160000,177776,YES
036430  001031                                                  .WORD   T$CODE
036432  036544                                                  .WORD   ADDRES
036434  160000                                                  .WORD   T$LOLIM
036436  177776                                                  .WORD   T$HILIM
                                GPRMA   VECTOR,4,0,0,674,YES
036440  002031                                                  .WORD   T$CODE
036442  036572                                                  .WORD   VECTOR
036444  000000                                                  .WORD   T$LOLIM
036446  000674                                                  .WORD   T$HILIM
                                GPRMD   PRIRTY,6,0,7000,4,7,YES
036450  003032                                                  .WORD   T$CODE
036452  036623                                                  .WORD   PRIRTY
036454  007000                                                  .WORD   7000
036456  000004                                                  .WORD   T$LOLIM
036460  000007                                                  .WORD   T$HILIM
                                GPRMD   SWPAC1,12,0,377,0,056,YES
036462  005032                                                  .WORD   T$CODE
036464  036654                                                  .WORD   SWPAC1
036466  000377                                                  .WORD   377
036470  000000                                                  .WORD   T$LOLIM
036472  000056                                                  .WORD   T$HILIM
                                GPRMD   SWPAC2,14,0,377,0,377,YES
036474  006032                                                  .WORD   T$CODE
036476  036730                                                  .WORD   SWPAC2
036500  000377                                                  .WORD   377
036502  000000                                                  .WORD   T$LOLIM
036504  000377                                                  .WORD   T$HILIM
                                GPRMD   SWPAC3,16,0,377,0,377,YES
036506  007032                                                  .WORD   T$CODE
036510  036765                                                  .WORD   SWPAC3
036512  000377                                                  .WORD   377
036514  000000                                                  .WORD   T$LOLIM
036516  000377                                                  .WORD   T$HILIM
                                GPRMD   LOOPBK,20,0,7,0,4,YES
036520  010032                                                  .WORD   T$CODE
036522  037022                                                  .WORD   LOOPBK
036524  000007                                                  .WORD   7
036526  000000                                                  .WORD   T$LOLIM
036530  000004                                                  .WORD   T$HILIM
```

HARDWARE PARAMETER CODING SECTION

```
     23 036532                                  GPRMD   BAUDRT,22,0,7,0,7,YES
        036532  011032                                                          .WORD   T$CODE
        036534  037137                                                          .WORD   BAUDRT
        036536  000007                                                          .WORD   7
        036540  000000                                                          .WORD   T$LOLIM
        036542  000007                                                          .WORD   T$HILIM
     24
     25 036544                                  ENDHRD
                                                                                .EVEN
        036544                                                          L10107:
     26
     27 036544      104     105     126  ADDRES: .ASCIZ  /DEVICE CSR ADDRESS : /
        036547      111     103     105
        036552      040     103     123
        036555      122     040     101
        036560      104     104     122
        036563      105     123     123
        036566      040     072     040
        036571      000
     28 036572      104     105     126  VECTOR: .ASCIZ  /DEVICE VECTOR ADDRESS : /
        036575      111     103     105
        036600      040     126     105
        036603      103     124     117
        036606      122     040     101
        036611      104     104     122
        036614      105     123     123
        036617      040     072     040
        036622      000
     29 036623      104     105     126  PRIRTY: .ASCIZ  /DEVICE PRIORITY LEVEL : /
        036626      111     103     105
        036631      040     120     122
        036634      111     117     122
        036637      111     124     131
        036642      040     114     105
        036645      126     105     114
        036650      040     072     040
        036653      000
     30 036654      115     070     062  SWPAC1: .ASCIZ  /M8203 REG 11 (E121 SW10,9 , E134 SW9,10) : /
        036657      060     063     040
        036662      122     105     107
        036665      040     061     061
        036670      040     050     105
        036673      061     062     061
        036676      040     123     127
        036701      061     060     054
        036704      071     040     054
        036707      040     105     061
        036712      063     064     040
        036715      123     127     071
        036720      054     061     060
        036723      051     040     072
        036726      040     000
     31 036730      115     070     062  SWPAC2: .ASCIZ  /M8203 REG 15 (E134 SW1-8) : /
        036733      060     063     040
        036736      122     105     107
        036741      040     061     065
        036744      040     050     105
```

HARDWARE PARAMETER CODING SECTION

```
        036747  061  063  064
        036752  040  123  127
        036755  061  055  070
        036760  051  040  072
        036763  040  000
     32 036765  115  070  062  SWPAC3: .ASCIZ  /M8203 REG 16 (E121 SW1-8) : /
        036770  060  063  040
        036773  122  105  107
        036776  040  061  066
        037001  040  050  105
        037004  061  062  061
        037007  040  123  127
        037012  061  055  070
        037015  051  040  072
        037020  040  000
     33 037022  124  125  122  LOOPBK: .ASCII  /TURNAROUND TYPE -/<15><12>
        037025  116  101  122
        037030  117  125  116
        037033  104  040  124
        037036  131  120  105
        037041  040  055  015
        037044  012
     34 037045  050  060  075          .ASCIZ  /(0=H3254&H3255, 1=CABLE, 2=MOD LOC, 3=MOD REM, 4=NONE) : /
        037050  110  063  062
        037053  065  064  046
        037056  110  063  062
        037061  065  065  054
        037064  040  061  075
        037067  103  101  102
        037072  114  105  054
        037075  040  062  075
        037100  115  117  104
        037103  040  114  117
        037106  103  054  040
        037111  063  075  115
        037114  117  104  040
        037117  122  105  115
        037122  054  040  064
        037125  075  116  117
        037130  116  105  051
        037133  040  072  040
        037136  000
     35 037137  120  114  105  BAUDRT: .ASCII  /PLEASE SELECT BAUD RATE; TYPE '0' FOR 2.4K; '1' FOR 4.8K;/<15><12>
        037142  101  123  105
        037145  040  123  105
        037150  114  105  103
        037153  124  040  102
        037156  101  125  104
        037161  040  122  101
        037164  124  105  073
        037167  040  124  131
        037172  120  105  040
        037175  047  060  047
        037200  040  106  117
        037203  122  040  062
        037206  056  064  113
        037211  073  040  047
```

HARDWARE PARAMETER CODING SECTION

```
        037214      061     047     040
        037217      106     117     122
        037222      040     064     056
        037225      070     113     073
        037230      015     012
     36 037232      047     062     047         .ASCII  /'2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;/<15><12>
        037235      040     106     117
        037240      122     040     071
        037243      056     066     113
        037246      073     040     047
        037251      063     047     040
        037254      106     117     122
        037257      040     061     071
        037262      056     062     113
        037265      073     040     047
        037270      064     047     040
        037273      106     117     122
        037276      040     065     066
        037301      113     073     040
        037304      047     065     047
        037307      040     106     117
        037312      122     040     062
        037315      065     060     113
        037320      073     015     012
     37 037323      047     066     047         .ASCIZ  /'6' FOR 500K; OR '7' FOR 1 MEG BAUD : /
        037326      040     106     117
        037331      122     040     065
        037334      060     060     113
        037337      073     040     117
        037342      122     040     047
        037345      067     047     040
        037350      106     117     122
        037353      040     061     040
        037356      115     105     107
        037361      040     102     101
        037364      125     104     040
        037367      072     040     000
     38                                     .EVEN
     39
     40
     41
     42
     43
     44
```

```
                        .SBTTL  SOFTWARE PARAMETER CODING SECTION


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

037372                          BGNSFT
037372  000016                                                  .WORD L10110-L$SOFT/2
037374                                                  L$SOFT::

037374                          GPRML   ISMANI,0,1,YES
037374  000130                                                  .WORD   T$CODE
037376  037430                                                  .WORD   ISMANI
037400  000001                                                  .WORD   1
037402                          GPRML   ISPRNT,2,1,YES
037402  001130                                                  .WORD   T$CODE
037404  037516                                                  .WORD   ISPRNT
037406  000001                                                  .WORD   1
037410                          GPRML   ISWPAK,4,1,YES
037410  002130                                                  .WORD   T$CODE
037412  037601                                                  .WORD   ISWPAK
037414  000001                                                  .WORD   1
037416                          GPRMD   TIMCNT,6,0,177777,0,177777,YES
037416  003032                                                  .WORD   T$CODE
037420  037646                                                  .WORD   TIMCNT
037422  177777                                                  .WORD   177777
037424  000000                                                  .WORD   T$LOLIM
037426  177777                                                  .WORD   T$HILIM

037430                          ENDSFT
                                                                .EVEN
037430                                                  L10110:

037430  111  123  040  ISMANI: .ASCIZ  /IS MAN. INTERVEN. DESIRED TO MOUNT TEST CONNECTOR(S) /
037433  115  101  116
037436  056  040  111
037441  116  124  105
037444  122  126  105
037447  116  056  040
037452  104  105  123
037455  111  122  105
037460  104  040  124
037463  117  040  115
037466  117  125  116
037471  124  040  124
037474  105  123  124
037477  040  103  117
037502  116  116  105
037505  103  124  117
037510  122  050  123
037513  051  040  000
```

SOFTWARE PARAMETER CODING SECTION

```
     23 037516     123     110     117  ISPRNT: .ASCIZ  /SHOULD SWITCH PACK AND AX3-15 PRINTOUT BE ALLOWED /
        037521     125     114     104
        037524     040     123     127
        037527     111     124     103
        037532     110     040     120
        037535     101     103     113
        037540     040     101     116
        037543     104     040     101
        037546     130     063     055
        037551     061     065     040
        037554     120     122     111
        037557     116     124     117
        037562     125     124     040
        037565     102     105     040
        037570     101     114     114
        037573     117     127     105
        037576     104     040     000
     24 037601     123     110     117  ISWPAK: .ASCIZ  /SHOULD SWITCH PACK TESTS BE ALLOWED /
        037604     125     114     104
        037607     040     123     127
        037612     111     124     103
        037615     110     040     120
        037620     101     103     113
        037623     040     124     105
        037626     123     124     123
        037631     040     102     105
        037634     040     101     114
        037637     114     117     127
        037642     105     104     040
        037645     000
     25 037646     115     123     107  TIMCNT: .ASCIZ  /MSG TIMER VALUE (0-177777), 0 = LONGEST TIME-OUT : /
        037651     040     124     111
        037654     115     105     122
        037657     040     126     101
        037662     114     125     105
        037665     040     050     060
        037670     055     061     067
        037673     067     067     067
        037676     067     051     054
        037701     040     060     040
        037704     075     040     114
        037707     117     116     107
        037712     105     123     124
        037715     040     124     111
        037720     115     105     055
        037723     117     125     124
        037726     040     072     040
        037731     000
     26                             .EVEN
     27
     28
     29
     30
     31
     32
     33
     34
```

```
     35                                 ;****** PATCH AREA FOR DEBUG ******
     36 037732                          PATCH:
     37          040032                         .=.+100
     38 040032   000240                         NOP
     39 040034   000240                         NOP
     40 040036   000240                         NOP
     41                                 ;**********************************
     42
     43
     44
     45 040040                                  ENDMOD
     46
     47 040040                                  LASTAD

                                                                    .EVEN
        040040   000000                                            .WORD   0
        040042   000000                                            .WORD   0
        040044                          L$LAST::
     48
     49          000001                 .END
```

SYMBOL TABLE

```
ABORT = 000004          BSEL4   002442          C$RDBU= 000007          EM40    014063          FMT18   013101
ADDRES  036544          CARR  = 000001          C$REFG= 000047          EM41    014077          FMT19   013143
ADR   = 000020 G        CHKABT  012156          C$RESE= 000033          EM42    014120          FMT2    012314
ANBITS  002547          CHPCHK= 100000          C$REVI= 000003          EM43    014135          FMT25   013174
APA   = 000200          CHPTYP  002420          C$RFLA= 000021          EM44    014167          FMT26   013224
ASBC0 = 000020          CKDATA  007314          C$RPT = 000025          EM45    014221          FMT27   023170
ASBC1 = 000040          CKLPBK  011016          C$SEFG= 000046          EM46    014253          FMT3    012336
ASBC2 = 000100          CRCCHK= 100000          C$SPRI= 000041          EM47    014306          FMT4    012400
ASSEMB= 000010          CRCTY0= 000001          C$SVEC= 000037          EM48    014341          FMT5    012413
AXNUM   002366          CRCTY1= 000002          C$TPRI= 000013          EM49    014374          FMT6    012443
AX0.15= 002306          CRCTY2= 000004          C32BCC= 000040          EM50    014433          FMT7    012476
AX0.16= 002310          CRC1  = 000100          C32ENB= 000004          EM51    014467          FMT8    012506
AX1   = 000001          CRC2  = 000200          DDC   = 000100          EM52    014527          FMT9    012542
AX1.15= 002312          CS    = 000004          DDCMP = 000001          EM53    014563          FRSPAS  002400
AX1.16= 002314          C$AU  = 000052          DEVMAP  002426          EM54    014617          FRSTIM  002376
AX2   = 000002          C$AUTO= 000061          DEVPTR  002430          EM55    014641          F$AU  = 000015
AX2.15= 002316          C$BRK = 000022          DFPTBL  002226 G        EM56    014655          F$AUTO= 000020
AX2.16= 002320          C$BSEG= 000004          DH1     015077          EM57    014672          F$BGN = 000040
AX3.15= 002322          C$BSUB= 000002          DH2     015121          EM58    014707          F$CLEA= 000007
AX3.16= 002324          C$CEFG= 000045          DH3     015150          EM59    014723          F$DU  = 000016
AX315U= 000372          C$CLCK= 000062          DH4     015206          EM60    014740          F$END = 000041
A11     025512          C$CLEA= 000012          DH5     015250          EM61    014754          F$HARD= 000004
A12     034022          C$CLOS= 000035          DH6     015253          EM62    014767          F$HW  = 000013
BADDAT  002372          C$CLP1= 000006          DH7     015256          EM63    015004          F$INIT= 000006
BAUDRT  037137          C$CVEC= 000036          DH8     015310          EM64    015021          F$JMP = 000050
BCC   = 000001          C$DCLN= 000044          DH9     015347          EM65    015036          F$MOD = 000000
BCCCHK= 100000          C$DODU= 000051          DIAGMC= 000000          EM66    015056          F$MSG = 000011
BDRATE  002464          C$DRPT= 000024          DISILO  002416          EM7     013343          F$PROT= 000021
BIT0  = 000001 G        C$DU  = 000053          DISSI = 000040          EM8     013360          F$PWR = 000007
BIT00 = 000001 G        C$EDIT= 000003          DTR   = 000100          EM9     013401          F$RPT = 000012
BIT01 = 000002 G        C$ERDF= 000055          EBLK  = 000002          ENAX  = 000004          F$SEG = 000003
BIT02 = 000004 G        C$ERHR= 000056          EF.CON= 000036 G        ENDIT   022576          F$SOFT= 000005
BIT03 = 000010 G        C$ERRO= 000060          EF.NEW= 000035 G        ENDPAT  002667          F$SRV = 000010
BIT04 = 000020 G        C$ERSF= 000054          EF.PWR= 000034 G        EOM   = 000002          F$SUB = 000002
BIT05 = 000040 G        C$ERSO= 000057          EF.RES= 000037 G        ERRFLG  002342          F$SW  = 000014
BIT06 = 000100 G        C$ESCA= 000010          EF.STA= 000040 G        ERROR1  002410          F$TEST= 000001
BIT07 = 000200 G        C$ESEG= 000005          EM10    013416          ERR1    015412 G        GETALL  004226
BIT08 = 000400 G        C$ESUB= 000003          EM11    013437          ERR10   021442 G        GETPRM  022300
BIT09 = 001000 G        C$ETST= 000001          EM12    013454          ERR2    015444 G        GETREG  003516
BIT1  = 000002 G        C$EXIT= 000032          EM17    013475          ERR3    015752 G        GOAH  = 000010
BIT10 = 002000 G        C$GETB= 000026          EM18    013512          ERR4    016434 G        GOODAT  002370
BIT11 = 004000 G        C$GETW= 000027          EM19    013533          ERR5    017112 G        G$CNTO= 000200
BIT12 = 010000 G        C$GMAN= 000043          EM2     013265          ERR6    017624 G        G$DELM= 000372
BIT13 = 020000 G        C$GPHR= 000042          EM20    013550          ERR7    020302 G        G$DISP= 000003
BIT14 = 040000 G        C$GPLO= 000030          EM21    013571          ERR8    020734 G        G$EXCP= 000400
BIT15 = 100000 G        C$GPRI= 000040          EM22    013606          EVL   = 000004 G        G$HILI= 000002
BIT2  = 000004 G        C$INIT= 000011          EM28    013627          E$END = 002100          G$LOLI= 000001
BIT3  = 000010 G        C$INLP= 000020          EM29    013650          E$LOAD= 000035          G$NO  = 000000
BIT4  = 000020 G        C$MANI= 000050          EM3     013324          FMT1    012304          G$OFFS= 000400
BIT5  = 000040 G        C$MEM = 000031          EM30    013665          FMT10   012547          G$OFSI= 000376
BIT6  = 000100 G        C$MSG = 000023          EM31    013706          FMT11   012600          G$PRMA= 000001
BIT7  = 000200 G        C$OPEN= 000034          EM34    013723          FMT12   012637          G$PRMD= 000002
BIT8  = 000400 G        C$PNTB= 000014          EM35    013751          FMT13   012722          G$PRML= 000000
BIT9  = 001000 G        C$PNTF= 000017          EM36    013771          FMT14   012766          G$RADA= 000140
BOE   = 000400 G        C$PNTS= 000016          EM37    014005          FMT15   013032          G$RADB= 000000
BPOLL = 000100          C$PNTX= 000015          EM38    014026          FMT16   022600          G$RADD= 000040
BSEL1   002440          C$QIO = 000377          EM39    014043          FMT17   022722          G$RADL= 000120
```

SYMBOL TABLE

```
G$RADO= 000020          LOT   = 000010 G      L$REPP  002062 G      L10056  031646      O$DU  = 000001
G$XFER= 000004          LULOOP= 000010         L$REV   002010 G      L10057  032030      O$ERRT= 000000
G$YES = 000010          LULP  = 000040         L$RPT   022074 G      L10060  032212      O$GNSW= 000001
HDX   = 000020          LUREG   002266         L$SOFT  037374 G      L10061  032310      O$POIN= 000001
HELP  = 000001          LUR10 = 002266         L$SPC   002056 G      L10062  032520      O$SETU= 000000
HOE   = 100000 G        LUR11 = 002270         L$SPCP  002020 G      L10063  034026      PATA    002557
IACT  = 000100          LUR12 = 002272         L$SPTP  002024 G      L10064  033016      PATB    002603
IACTIV  006260          LUR13 = 002274         L$STA   002030 G      L10065  033110      PATCH   037732
IBE   = 010000 G        LUR14 = 002276         L$SW    002256 G      L10066  033176      PATQ    002613
IC    = 000200          LUR15 = 002300         L$TEST  002114 G      L10067  033226      PATR    002623
ICIR  = 000010          LUR16 = 002302         L$TIML  002014 G      L10070  033344      PATS    002642
IDL   = 000010          LUR17 = 002304         L$UNIT  002012 G      L10071  033432      PATT    002662
IDLE  = 000040          LUSWI1  002454         L10000  002254        L10072  033512      PNT   = 001000 G
IDU   = 000040 G        LUSWI2  002456         L10001  002266        L10073  033606      POLL  = 000200
IER   = 020000 G        LUSWI3  002460         L10002  015442        L10074  033666      PRI   = 002000 G
IERR  = 000002          LU2MOD  002000 G       L10003  015750        L10075  034020      PRIOR   002334
INITRN  005240          L$ACP   002110 G       L10004  016432        L10076  034216      PRIRTY  036623
INTFLG  002340          L$APT   002036 G       L10005  017110        L10077  034406      PRI00 = 000000 G
INTGRL= 000010          L$AU    023222 G       L10006  017622        L10100  034576      PRI01 = 000040 G
IRDY  = 000020          L$AUT   002070 G       L10007  020300        L10101  034766      PRI02 = 000100 G
ISIRDY  005774          L$AUTO  023056 G       L10010  020732        L10102  035156      PRI03 = 000140 G
ISMANI  037430          L$CCP   002106 G       L10011  021440        L10103  035342      PRI04 = 000200 G
ISPRNT  037516          L$CLEA  023136 G       L10012  022072        L10104  035526      PRI05 = 000240 G
ISR   = 000100 G        L$CO    002032 G       L10013  022074        L10105  035640      PRI06 = 000300 G
ISWPAK  037601          L$DEPO  002011 G       L10015  022576        L10106  036424      PRI07 = 000340 G
IXE   = 004000 G        L$DESC  003170 G       L10016  023134        L10107  036544      PRNFLG  002260
I$AU  = 000041          L$DESP  002076 G       L10017  023136        L10110  037430      PSTACK  002332
I$AUTO= 000041          L$DEVP  002060 G       L10020  023166        MAINT1= 000010      RAB   = 000004
I$CLN = 000041          L$DISP  002124 G       L10021  023222        MAINT2= 000004      RABT  = 000004
I$DU  = 000041          L$DLY   002116 G       L10022  023352        MCLK  = 000002      RAX15   002354
I$HRD = 000041          L$DTP   002040 G       L10023  023726        MCLR  = 000100      RAX16   002356
I$INIT= 000041          L$DTYP  002034 G       L10024  024264        MIFLAG  002256      RCVBUF  002762
I$MOD = 000041          L$DU    023140 G       L10025  024346        MODINT  002422      RCV1ST  007000
I$MSG = 000041          L$DUT   002072 G       L10026  024436        MODR  = 000010      RDALL = 000004
I$PROT= 000040          L$DVTY  003162 G       L10027  024632        MPCSR   002436      RDAX  = 000020
I$PTAB= 000041          L$EF    002052 G       L10030  025402        MPIVEC  002446      RDRXSI  006720
I$PWR = 000041          L$ENVI  002044 G       L10031  025642        MPOVEC  002450      READAX  003624
I$RPT = 000041          L$ETP   002102 G       L10032  025504        MPRIOR  002452      READLU  003372
I$SEG = 000041          L$EXP1  002046 G       L10033  025624        MSG1    002670      READY = 000200
I$SETU= 000041          L$EXP4  002064 G       L10034  026046        MSG2    002716      REDBYT  002350
I$SFT = 000041          L$EXP5  002066 G       L10035  025744        MSG3    002732      REDDAT  002466
I$SRV = 000041          L$HARD  036430 G       L10036  026044        MSTCLR  003276      REGNUM  002364
I$SUB = 000041          L$HIME  002120 G       L10037  026202        MVIOX = 021000      REG0    002476
I$TST = 000041          L$HPCP  002016 G       L10040  026654        MVIXO = 122000      REG1    002500
I422  = 000200          L$HPTP  002022 G       L10041  026366        NEWST   022254      REG2    002502
J$JMP = 000167          L$HW    002226 G       L10042  026520        OACT  = 000100      REG3    002504
LDBYTS  010574          L$ICP   002104 G       L10043  026652        OACTIV  005052      REG4    002506
LDMSG1  010656          L$INIT  022104 G       L10044  026770        OC    = 000200      REG5    002510
LDTXSI  004674          L$LADP  002026 G       L10045  027326        OCOR  = 000020      REG6    002512
LOADAT  002374          L$LAST  040044 G       L10046  027736        OP    = 000002      REG7    002514
LODATA  010204          L$LOAD  002100 G       L10047  030410        ORDY  = 000020      REOM  = 000002
LODMSG  010516          L$LUN   002074 G       L10050  030160        OSIRDY  004362      RERR  = 000200
LODSIL  010746          L$MREV  002050 G       L10051  030402        OVRR  = 000010      RETADR  002346
LOE   = 040000 G        L$NAME  002000 G       L10052  031112        O$APTS= 000000      RING  = 000200
LOGDEV  002330          L$PRIO  002042 G       L10053  030646        O$AU  = 000001      ROMI  = 000002
LOOPBK  037022          L$PROT  022076 G       L10054  031104        O$BGNR= 000000      ROMO  = 000004
LOOPIN  003574          L$PRT   002112 G       L10055  031374        O$BGNS= 000001      ROR   = 000010
```

SYMBOL TABLE

```
RRDYTO= 000001          STR   = 000040          TXAB  = 000004          T$TSTM= 177777          T23.6   033346
RSEOM   006446          STRIP = 000010          TXABT = 002000          T$TSTS= 000001          T23.7   033434
RSOM  = 000001          SUBRPC  002336          TXCHAR  005622          T$$AU = 010021          T23.8   033514
RTS   = 000040          SVCGBL= 000000          TXDATA= 000040          T$$AUT= 010016          T23.9   033610
RUN   = 000200          SVCINS= 000001          TXEN  = 000100          T$$CLE= 010017          T24     034030 G
RXABT = 002000          SVCSUB= 000001          TXEOM = 001000          T$$DU = 010020          T25     034220 G
RXBCC = 000400          SVCTAG= 000001          TXGA  = 000010          T$$HAR= 010107          T26     034410 G
RXEBL = 001000          SVCTST= 000001          TXGOA = 004000          T$$HW = 010000          T27     034600 G
RXLEN0= 000001          SWIFLG  002262          TXLEN0= 000040          T$$INI= 010015          T28     034770 G
RXLEN1= 000002          SWPAC1  036654          TXLEN1= 000100          T$$MSG= 010012          T29     035160 G
RXLEN2= 000004          SWPAC2  036730          TXLEN2= 000200          T$$PRO= 010014          T3      023730 G
RXOVR = 004000          SWPAC3  036765          TXSOM = 000400          T$$RPT= 010013          T30     035344 G
RXWORD  002414          SW0   = 000002          TXWORD  002412          T$$SOF= 010110          T31     035530 G
RX0   = 000001          SW1   = 000004          TX0   = 000001          T$$SUB= 010075          T32     035642 G
RX1   = 000002          SW2   = 000010          TX1   = 000002          T$$SW = 010001          T4      024266 G
RX2   = 000004          SW3   = 000040          TX2   = 000004          T$$TES= 010106          T5      024350 G
RX3   = 000010          SYNCH = 000226          TX3   = 000010          T1      023224 G        T6      024440 G
RX4   = 000020          SYN0  = 000001          TX4   = 000020          T10     026050 G        T7      024634 G
RX5   = 000040          SYN1  = 000002          TX5   = 000040          T11     026204 G        T8      025404 G
RX6   = 000100          SYN2  = 000004          TX6   = 000100          T11.1   026204          T8.1    025404
RX7   = 000200          SYN3  = 000010          TX7   = 000200          T11.2   026370          T8.2    025512
R14NRW  002546          SYN4  = 000020          TYPEY   023011          T11.3   026522          T9      025644 G
SAVE4   002404          SYN5  = 000040          T$ARGC= 000002          T12     026656 G        T9.1    025644
SAVE6   002406          SYN6  = 000100          T$CODE= 003032          T13     026772 G        T9.2    025746
SAVLEN  002424          SYN7  = 000200          T$ERRN= 000101          T14     027330 G        UAM   = 000200 G
SCRACH  002326          S$LSYM= 010000          T$EXCP= 000000          T15     027740 G        UNIT    002432
SEC   = 000020          TCCHEK= 100000          T$FLAG= 000040          T15.1   027754          UNRR  = 000001
SECA  = 000020          TCOUNT  002264          T$GMAN= 000000          T15.2   030176          UPBITS  002536
SELFR = 000040          TEOM  = 000002          T$HILI= 177777          T16     030412 G        VECTOR  036572
SELSBY= 000002          TERR  = 000200          T$LAST= 000001          T16.1   030426          V35   = 000020
SEL4    002442          TEST  = 000001          T$LOLI= 000000          T16.2   030664          WAIT50  004646
SEL6    002444          TESTMD= 000004          T$LSYM= 010000          T17     031114 G        WAX   = 000010
SETUP   010324          TIMCNT  037646          T$LTNO= 000040          T18     031376 G        WAX15   002360
SFPTBL  002256 G        TIMFLG  002344          T$NEST= 177777          T19     031650 G        WAX16   002362
SIGQ  = 000100          TMP0    002516          T$NS0 = 000000          T2      023354 G        WRDYTO= 000002
SIGR  = 000200          TMP1    002520          T$NS1 = 000005          T20     032032 G        WRIBYT  002352
SOM   = 000001          TMP2    002522          T$NS2 = 000002          T21     032214 G        WRITAX  004012
STALL   004664          TMP3    002524          T$PTNU= 000000          T22     032312 G        WRITLU  003450
STARES  002402          TMP4    002526          T$SAVL= 177777          T23     032522 G        XYZ   = 000100
STARST  022244          TMP5    002530          T$SEGL= 177777          T23.1   032544          X$ALWA= 000000
STBY  = 000002          TMP6    002532          T$SUBN= 000000          T23.10  033670          X$FALS= 000040
STEPLU= 000020          TMP7    002534          T$TAGL= 177777          T23.2   033020          X$OFFS= 000400
STEPMP= 000001          TSOM  = 000001          T$TAGN= 010111          T23.3   033112          X$TRUE= 000020
STPCLK  003240          TSTCON  002462          T$TEMP= 000000          T23.4   033200          $LSTIN= 000001
STPERR  007212          TSTNUM  002434          T$TEST= 000040          T23.5   033230          $LSTTA= 000001
STPLU   004754

. ABS.  040044      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  21865 WORDS  ( 86 PAGES)
DYNAMIC MEMORY AVAILABLE FOR  69 PAGES
CZDMSD.BIC,CZDMSD.SEQ/C/N:TOC=SVC34R.MLB,CZDMSD.P11
```

CROSS REFERENCE TABLE (CREF V01-05)

CROSS REFERENCE TABLE (CREF V01-05)

```
BIT3    14-20#  14-39   14-51   14-60   14-79   14-89   14-101  14-113  14-125  14-137  14-149  14-161  14-173  14-185
        14-197  14-209  14-218  14-230  14-243  14-255
BIT4    14-20#  14-38   14-50   14-78   14-88   14-100  14-112  14-124  14-136  14-148  14-160  14-172  14-184  14-196
        14-208  14-229  14-242  14-254
BIT5    14-20#  14-49   14-70   14-77   14-87   14-99   14-111  14-123  14-135  14-147  14-159  14-171  14-183  14-195
        14-207  14-228  14-241  14-253  14-266
BIT6    14-20#  14-37   14-48   14-69   14-76   14-86   14-98   14-110  14-122  14-134  14-146  14-158  14-170  14-182
        14-194  14-206  14-227  14-240  14-252  14-265
BIT7    14-20#  14-36   14-47   14-59   14-68   14-75   14-97   14-109  14-121  14-133  14-145  14-157  14-169  14-181
        14-193  14-205  14-217  14-226  14-239  14-251  14-264  17-819  17-820
BIT8    14-20#  14-281  14-293
BIT9    14-20#  14-280  14-292
BOE     14-20#
BPOLL   14-69#  26-A66
BSEL1   15-56#  17-16*  17-18*  17-19*  17-33*  17-34*  17-39*  17-131*  17-133*  17-234*  17-372*  17-373*  17-375*  17-465*
        17-466* 17-471* 17-484* 17-987* 17-989* 17-;32* 17-<84*  21-60*  21-61*  26-814*  26-=61*  26->25*  26->36*  26->38*
        26->88* 26-?38* 26-@94* 26-A28* 26-A29* 26-A30* 26-A79*  26-B39*  26-C31*  26-C85*  26-D39*  26-D93*  26-E47*  26-F00*
        26-F54*
BSEL4   15-57#  17-69   17-90*
C$AU     9-18#  25-10
C$AUTO   9-18#  22-20
C$BRK    9-18#  21-86
C$BSEG   9-18#
C$BSUB   9-18#  26-510  26-539  26-593  26-620  26-724  26-752  26-777  26-;08  26-;54  26-<30  26-<83  26-@82  26-A26
        26-A45  26-A63  26-A73  26-A98  26-B16  26-B33  26-B52  26-B69
C$CEFG   9-18#
C$CLCK   9-18#
C$CLEA   9-18#  23-11
C$CLOS   9-18#
C$CLP1   9-18#
C$CVEC   9-18#
C$DCLN   9-18#
C$DODU   9-18#  22-17
C$DRPT   9-18#
C$DU     9-18#  24-13
C$EDIT   9-18#  10-17
C$ERDF   9-18#  17-277  17-283  17-293  17-299  17-406  17-412  17-570  17-576  17-586  17-592  17-627  17-633  17-667
        17-673  17-681  17-687  17-833  17-838  17-857  17-863  17-872  17-878  17-887  17-893  17-902  17-908  17-<54
        17-<70  17-=06  17-=12  26-105  26-145  26-224  26-251  26-364  26-419  26-458  26-471  26-746  26-771  26-796
        26-;37  26-;43  26-;83  26-;89  26-=72  26-=94  26->34  26->49  26->99  26-?49  26-@92  26-A02  26-A37  26-A56
        26-A85  26-A91  26-B09  26-B26  26-B45  26-B62  26-B79  26-B85  26-B91  26-C42  26-C96  26-D50  26-E04  26-E58
        26-F11  26-F65  26-G71  26-G83  26-H45
C$ERHR   9-18#
C$ERRO   9-18#
C$ERSF   9-18#
C$ERSO   9-18#
C$ESCA   9-18#  26-;38  26-;44  26-;84  26-;90  26-@93  26-A03  26-A38  26-A86  26-B80  26-B86
C$ESEG   9-18#
C$ESUB   9-18#  26-533  26-565  26-616  26-643  26-748  26-773  26-798  26-;48  26-;94  26-<77  26-=30  26-A21  26-A40
        26-A58  26-A68  26-A93  26-B11  26-B28  26-B47  26-B64  26-B93
C$ETST   9-18#  26-46   26-147  26-253  26-284  26-317  26-366  26-480  26-570  26-644  26-695  26-799  26-827  26-944
        26-:77  26-;96  26-=32  26-=96  26->58  26-?08  26-?58  26-?94  26-@42  26-B97  26-C51  26-D05  26-D59  26-E13
        26-E67  26-F21  26-F75  26-G18  26-H72
C$EXIT   9-18#
C$GETB   9-18#
C$GETW   9-18#
C$GMAN   9-18#  21-94
```

CROSS REFERENCE TABLE (CREF V01-05)

```
C$GPHR   9-18#   21-52
C$GPLO   9-18#
C$GPRI   9-18#
C$INIT   9-18#   21-99
C$INLP   9-18#
C$MANI   9-18#   21-81
C$MEM    9-18#
C$MSG    9-18#   18-103   18-116   18-135   18-154   18-174   18-193   18-211   18-231   18-249
C$OPEN   9-18#
C$PNTB   9-18#   18-102   18-108   18-109   18-110   18-111   18-123   18-124   18-125   18-126   18-142   18-143   18-144   18-145
         18-161  18-162   18-163   18-164   18-165   18-181   18-182   18-183   18-184   18-200   18-201   18-202   18-218   18-219
         18-220  18-221   18-222   18-238   18-239   18-240
C$PNTF   9-18#   17-;61   17-;66   17-;75   21-85    21-90    24-12    26-735   26-737   26-762   26-787   26-823   26-825
C$PNTS   9-18#
C$PNTX   9-18#   18-112   18-113   18-114   18-115   18-127   18-128   18-129   18-130   18-131   18-132   18-133   18-134   18-146
         18-147  18-148   18-149   18-150   18-151   18-152   18-153   18-166   18-167   18-168   18-169   18-170   18-171   18-172
         18-173  18-185   18-186   18-187   18-188   18-189   18-190   18-191   18-192   18-203   18-204   18-205   18-206   18-207
         18-208  18-209   18-210   18-223   18-224   18-225   18-226   18-227   18-228   18-229   18-230   18-241   18-242   18-243
         18-244  18-245   18-246   18-247   18-248
C$QIO    9-18#
C$RDBU   9-18#
C$REFG   9-18#   21-25    21-28    21-31    21-34
C$RESE   9-18#    9-18#   24-10
C$REVI   9-18#   10-17
C$RFLA   9-18#
C$RPT    9-18#   19-11
C$SEFG   9-18#
C$SPRI   9-18#   22-10
C$SVEC   9-18#
C$TPRI   9-18#
C32BCC   14-253#  14-259
C32ENB   14-256#
CARR     14-152#  26->28   26-B87
CHKABT   17-<97#
CHPCHK   14-322#  26-672   26-979   26-:14   26-:49
CHPTYP   15-46#   17-369   17-479*  17-483*  17-523   21-13*   26-436   26-442
CKDATA   17-810#  26-35    26-42    26-86    26-91    26-94    26-127   26-132   26-135   26-186   26-189   26-196   26-210   26-213
         26-238   26-241   26-277   26-280   26-310   26-313   26-558   26-561   26-636   26-639   26-688   26-691   26-866   26-869
         26-872   26-875   26-878   26-896   26-899   26-902   26-905   26-908   26-927   26-930   26-933   26-936   26-939   26-990
         26-993   26-996   26-999   26-:02   26-:25   26-:28   26-:31   26-:34   26-:37   26-:60   26-:63   26-:66   26-:69   26-:72
         26-<63   26-<71   26-=16   26-=24   26-=75   26->52   26-?02   26-?52   26-C45   26-C99   26-D53   26-E07   26-E61   26-F15
         26-F69   26-G05   26-G09   26-G14   26-G92   26-G97   26-H00   26-H03   26-H06   26-H14   26-H19   26-H22   26-H25   26-H28
         26-H50   26-H53   26-H56   26-H59   26-H62   26-H65   26-H68
CKLPBK   17-;18#  26-=52   26->17   26->79   26-?29   26-@76   26-C21   26-C75   26-D29   26-D83   26-E37   26-E91   26-F45
CRC1     14-98#   26-24    26-72    26-113   26-393   26-919   26-:46   26-:56   26-;12   26-<34   26-<52   26-@14   26-C26   26-C80
         26-D88   26-E96   26-F96
CRC2     14-97#   26-24    26-72    26-113   26-393   26-;58   26-<87   26-=05   26-@14   26-C26   26-C80   26-F50   26-F96
CRCCHK   14-325#  17-953   17-:68   26-562   26-640   26-879   26-909   26-940   26-:03   26-:38   26-:73   26-D38   26-D92   26-E46
         26-G98   26-H01   26-H20   26-H23   26-H60   26-H63
CRCTY0   14-246#
CRCTY1   14-245#
CRCTY2   14-244#
CS       14-150#  26-B81
DDC      14-240#
DDCMP    14-104#  14-176#  26-72    26-113   26-667   26-674   26-679   26-684   26-858   26-976   26-986   26-;12   26-;58   26-<34
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CROSS REFERENCE TABLE (CREF V01-05)

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DH2     18-86#   18-112   18-127   18-146   18-166   18-185   18-203   18-223   18-241
DH3     18-87#   18-112   18-127   18-146   18-166   18-185   18-203   18-223   18-241
DH4     18-88#   18-114   18-129   18-148   18-168   18-187   18-205   18-225   18-243
DH5     17-229   18-89#
DH6     17-232   18-90#
DH7     18-91#   18-131   18-150   18-170   18-189   18-207   18-227   18-245
DH8     18-92#   18-131   18-150   18-170   18-189   18-207   18-227   18-245
DH9     18-93#   18-133   18-152   18-172   18-191   18-209   18-229   18-247
DIAGMC   9-18     9-18
DISILO  15-45#   17-155   17-192   17-206   21-12*   26-304*  26-399*  26-478*  26-@23*  26-@40*
DISSI   14-87#   14-159#  26-397   26-399   26-@21   26-@23
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ESEND    9-18#
ESLOAD   9-18#   10-17
EBLK    14-139#  17-866   17-868   17-874
EF.CON  14-20#   21-34
EF.NEW  14-20#   21-31
EF.PWR  14-20#
EF.RES  14-20#   2i-28
EF.STA  14-20#   21-25
EM10    17-299   18-36#
EM11    17-406   18-37#   26-419
EM12    17-412   18-38#
EM17    17-570   18-39#   26-=72   26->49   26->99   26-?49   26-C42   26-C96   26-D50   26-E04   26-E58   26-F11   26-F65
EM18    17-576   18-40#
EM19    17-586   18-41#
EM2     18-31#   26-A02
EM20    17-592   18-42#
EM21    17-627   18-43#
EM22    17-633   18-44#
EM28    17-673   18-45#
EM29    17-667   18-46#
EM3     18-32#   26-=94   26-@92
EM30    17-687   18-47#
EM31    17-681   17-=12   18-48#   26-458
EM34    17-838   18-49#
EM35    17-857   18-50#
EM36    17-863   18-51#
EM37    17-872   18-52#
EM38    17-878   18-53#
EM39    17-887   18-54#   26-224   26-251
EM40    17-893   17-=06   18-55#
EM41    17-902   18-56#   26-105   26-145
EM42    17-908   18-57#
EM43    18-58#   26-746
EM44    18-59#   26-771
EM45    18-60#   26-796
EM46    18-61#   26-364
EM47    18-62#   26-471
EM48    18-63#   26-;37
EM49    18-64#   26-;43
EM50    18-65#   26-;89
EM51    18-66#   26-;83
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CROSS REFERENCE TABLE (CREF V01-05)

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EM57    18-72#   26-A91
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EM59    18-74#   26-B62
EM60    18-75#   26-B79   26-G71   26-G83
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EM62    18-77#   26-B91
EM63    18-78#   26-A56
EM64    18-79#   26-B09
EM65    18-80#   26-H45
EM66    18-81#   26->34
EM7     17-277   18-33#
EM8     17-283   18-34#
EM9     17-293   18-35#
ENAX    14-90#   14-162#  17-154   17-205
ENDIT   21-35    21-98#
ENDPAT  15-210#  2 -567
EOM     14-62#
ERR1    18-101#
ERR10   18-237#  26-458
ERR2    18-107#  26-364   26-746   26-771   26-796   26-=94   26-@92   26-A02
ERR3    18-122#  26-471
ERR4    17-277   17-283   17-293   17-299   17-406   17-412   17-570   17-576   17-586   17-592   17-627   17-633   17-833   17-<54
        17-<70   18-141#
ERR5    18-160#
ERR6    17-667   17-673   17-681   17-687   17-=06   17-=12   18-180#
ERR7    18-199#  26-105   26-145   26-224   26-251   26-419   26-;37   26-;43   26-;83   26-;89   26-=72   26->34   26->49   26->99
        26-?49   26-A37   26-A56   26-A85   26-A91   26-B09   26-B26   26-B45   26-B62   26-B79   26-B85   26-B91   26-C42   26-C96
        26-D50   26-E04   26-E58   26-F11   26-F65   26-G71   26-G83   26-H45
ERR8    17-838   17-857   17-863   17-872   17-878   17-887   17-893   17-902   17-908   18-217#
ERRFLG  15-23#
ERROR1  15-42#   17-150*  17-163*  17-188*  17-214*  21-14*
EVL     14-20#
F$AU     9-18#   25-9     25-10
F$AUTO   9-18#   22-8     22-20
F$BGN    9-18#    9-24    18-101   18-107   18-122   18-141   18-160   18-180   18-199   18-217   18-237   19-9     20-8     21-8
        22-8     23-8     24-8     25-9     26-20    26-46    26-65    26-147   26-173   26-253   26-267   26-284   26-299   26-317
        26-332   26-366   26-384   26-480   26-506   26-510   26-510   26-533   26-539   26-539   26-565   26-570   26-589   26-593
        26-593   26-616   26-620   26-620   26-643   26-644   26-663   26-695   26-720   26-724   26-724   26-748   26-752   26-752
        26-773   26-777   26-777   26-798   26-799   26-812   26-827   26-850   26-944   26-969   26-:77   26-;02   26-;08   26-:08
        26-;38   26-;44   26-;48   26-:54   26-:54   26-;84   26-;90   26-;94   26-;96   26-<24   26-<30   26-<30   26-<77   26-<83
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        26-@42   26-@73   26-@82   26-@82   26-@93   26-A03   26-A21   26-A26   26-A26   26-A38   26-A40   26-A45   26-A45   26-A58
        26-A63   26-A63   26-A68   26-A73   26-A73   26-A86   26-A93   26-A98   26-A98   26-B11   26-B16   26-B16   26-B28   26-B33
        26-B33   26-B47   26-B52   26-B52   26-B64   26-B69   26-B69   26-B80   26-B86   26-B93   26-B97   26-C17   26-C51   26-C71
        26-D05   26-D25   26-D59   26-D79   26-E13   26-E33   26-E67   26-E87   26-F21   26-F41   26-F75   26-F92   26-G18   26-G37
        26-H72   27-14    28-13    28-45
F$CLEA   9-18#   23-8     23-11
F$DU     9-18#   24-8     24-13
F$END    9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18     9-18
         9-18     9-18     9-18#    9-24    18-103   18-116   18-135   18-154   18-174   18-193   18-211   18-231   18-249   19-11
        21-99    22-20    23-11    24-13    25-10    26-20    26-20    26-20    26-46    26-46    26-65    26-65    26-65    26-147
        26-147   26-173   26-173   26-173   26-253   26-253   26-267   26-267   26-267   26-284   26-284   26-299   26-299   26-299
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CROSS REFERENCE TABLE (CREF V01-05)

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                26-G18  26-G18  26-G37  26-G37  26-G37  26-H72  26-H72  27-25   28-20   28-45
FSHARD           9-18#  27-14   27-25
FSHW             9-18#  12-9    12-23
FSINIT           9-18#  21-8    21-99
FSJMP            9-18#
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                18-211  18-217  18-231  18-237  18-249
FSPROT           9-18#  20-8    20-12
FSPWR            9-18#
FSRPT            9-18#  19-9    19-11
FSSEG            9-18#
FSSOFT           9-18#  28-13   28-20
FSSRV            9-18#
FSSUB            9-18#  26-510  26-533  26-539  26-565  26-593  26-616  26-620  26-643  26-724  26-748  26-752  26-773  26-777
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                26-B93
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                26-E67  26-E87  26-F21  26-F41  26-F75  26-F92  26-G18  26-G37  26-H72
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FMT11           18-19#  18-162
FMT12           18-20#  26-737
FMT13           18-21#  26-762
FMT14           18-22#  26-787
FMT15           18-23#  26-825
FMT16            21-85  21-101#
FMT17            21-90  21-103#
FMT18           18-24#  26-735  26-823
FMT19           17-;66  18-25#
FMT2            18-10#  18-109  18-124  18-144  18-163  18-183  18-201  18-220  18-239
FMT25           17-;61  18-26#
FMT26           17-;75  18-27#
FMT27            24-12  24-15#
FMT3            18-11#  18-111  18-126  18-165  18-222
FMT4            18-12#  18-112  18-127  18-131  18-146  18-150  18-166  18-170  18-185  18-189  18-203  18-207  18-223  18-227
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CROSS REFERENCE TABLE (CREF V01-05)

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        18-242  18-246
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        18-244  18-248
FMT7    18-15#  18-110  18-145  18-202  18-221
FMT8    18-16#  18-125  18-164  18-184  18-240
FMT9    18-17#  18-114  18-129  18-133  18-148  18-152  18-168  18-172  18-187  18-191  18-205  18-209  18-225  18-229
        18-243  18-247
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G$DELM   9-18#
G$DISP   9-18#
G$EXCP   9-18#
G$HILI   9-18#
G$LOLI   9-18#
G$NO     9-18#  21-94
G$OFFS   9-18#  21-94   27-16   27-17   27-18   27-19   27-20   27-21   27-22   27-23   28-15   28-16   28-17   28-18
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G$PRMD   9-18#  27-18   27-19   27-20   27-21   27-22   27-23   28-18
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G$RADA   9-18#
G$RADB   9-18#
G$RADD   9-18#
G$RADL   9-18#  21-94   28-15   28-16   28-17
G$RADO   9-18#  27-16   27-17   27-18   27-19   27-20   27-21   27-22   27-23   28-18
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G$YES    9-18#  27-16   27-17   27-18   27-19   27-20   27-21   27-22   27-23   28-15   28-16   28-17   28-18
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        26-F09  26-F63  26-G69  26-G81  26-H43
GETPRM  21-36   21-48#  21-55
GETREG  17-104#  17-233
GOAH    14-60#
GOODAT  15-34#  17-823*  17-824*  17-845*  17-846*  18-111  18-126  18-165  18-222  26-351*  26-465*  26-466*  26-467*  26-742*
        26-767*  26-792*  26-=90*  26->30*  26-@88*  26-@98*  26-A09*  26-A17*
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HELP     9-4#   10-9     10-19   11-10   16-24
HOE     14-20#
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ISAUTO   9-18#  22-8#   22-20#
ISCLN    9-18#  23-8#   23-11#
ISDU     9-18#  24-8#   24-13#
ISHRD   27-14#  27-25#
ISINIT   9-18#  21-8#   21-99#
ISMOD    9-18#   9-24    9-24#   28-45   28-45#
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ISPWR    9-18#
ISRPT    9-18#  19-9#   19-11#
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CROSS REFERENCE TABLE (CREF V01-05)

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        26-663 26-720 26-724 26-752 26-777 26-812 26-850 26-969 26-;02 26-;08 26-;54 26-<24 26-<30 26-<83
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        26-B33 26-B52 26-B69 26-C17 26-C71 26-D25 26-D79 26-E33 26-E87 26-F41 26-F92 26-G37
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I$SFT   28-13#  28-20#
I$SRV    9-18#
I$SUB    9-18#  26-20  26-65  26-173 26-267 26-299 26-332 26-384 26-506 26-510 26-510# 26-533 26-533# 26-533#
        26-539 26-539# 26-565 26-565# 26-565# 26-589 26-593 26-593# 26-616 26-616# 26-616# 26-620 26-620# 26-643
        26-643# 26-643# 26-663 26-720 26-724 26-724# 26-748 26-748# 26-748# 26-752 26-752# 26-773 26-773# 26-773#
        26-777 26-777# 26-798 26-798? 26-798# 26-812 26-850 26-969 26-;02 26-;08 26-;08# 26-;38 26-;44 26-;48
        26-;48# 26-;48# 26-;54 26-;54# 26-;84 26-;90 26-;94 26-;94# 26-;94# 26-<24 26-<30 26-<30# 26-<77 26-<77#
        26-<77# 26-<83 26-<83# 26-=30 26-=30# 26-=30# 26-=48 26->13 26->75 26-?25 26-?76 26-@09 26-@73 26-@82
        26-@82# 26-@93 26-A03 26-A21 26-A21# 26-A21# 26-A26 26-A26# 26-A38 26-A40 26-A40# 26-A40# 26-A45 26-A45#
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        26-B47# 26-B52 26-B52# 26-B64 26-B64# 26-B64# 26-B69 26-B69# 26-B80 26-B86 26-B93 26-B93# 26-B93# 26-C17
        26-C71 26-D25 26-D79 26-E33 26-E87 26-F41 26-F92 26-G37
I$TST    9-18#  26-20  26-20# 26-46  26-46# 26-46# 26-65  26-65# 26-147 26-147# 26-147# 26-173 26-173# 26-253
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        26-366 26-366# 26-366# 26-384 26-384# 26-480 26-480# 26-480# 26-506 26-506# 26-510 26-539 26-570 26-570#
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        26-720# 26-724 26-752 26-777 26-799 26-799# 26-799# 26-812 26-812# 26-827 26-827# 26-827# 26-850 26-850#
        26-944 26-944# 26-944# 26-969 26-969# 26-:77 26-:77# 26-:77# 26-;02 26-;02# 26-;08 26-;54 26-;96 26-;96#
        26-;96# 26-<24 26-<24# 26-<30 26-<83 26-=32 26-=32# 26-=32# 26-=48 26-=48# 26-=96 26-=96# 26-=96# 26->13
        26->13# 26->58 26->58# 26->58# 26->75 26->75# 26-?08 26-?08# 26-?08# 26-?25 26-?25# 26-?58 26-?58# 26-?58#
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        26-A45 26-A63 26-A73 26-A98 26-B16 26-B33 26-B52 26-B69 26-B97 26-B97# 26-B97# 26-C17 26-C17# 26-C51
        26-C51# 26-C51# 26-C71 26-C71# 26-D05 26-D05# 26-D05# 26-D25 26-D25# 26-D59 26-D59# 26-D59# 26-D79 26-D79#
        26-E13 26-E13# 26-E13# 26-E33 26-E33# 26-E67 26-E67# 26-E67# 26-E87 26-E87# 26-F21 26-F21# 26-F21# 26-F41
        26-F41# 26-F75 26-F75# 26-F75# 26-F92 26-F92# 26-G18 26-G18# 26-G18# 26-G37 26-G37# 26-H72 26-H72# 26-H72#
I422     14-251#  14-259  17-;23  17-;42  17-;79  17-;95  17-;97  17-<02  17-<25  26-=54  26->19  26->81  26-?30
IACT     14-134#  17-623  17-629
IACTIV   17-613#  17-740  17-761  26-192  26-347  26-526  26-530  26-609  26-613  26-=83  26-@38
IBE      14-20#
IC       14-68#  14-133#  26-98  26-217  26-345  26-H35
ICIR     14-173#  17-582  17-588  26-A15  26-A17
IDL      14-243#
IDLE     14-99#  26-271
IDU      14-20#
IER      14-20#
IERR     14-103#  17-785  17-791
INITRN   17-436#  26-22  26-70  26-111  26-178  26-202  26-230  26-269  26-301  26-334  26-386  26-512  26-544  26-595
        26-622  26-665  26-974  26-:09  26-:44  26-;10  26-;56  26-<32  26-<85  26-?79  26-B70  26-F94  26-G42
INTFLG   15-21#
INTGRL   14-255#  14-259  17-;23  17-;38  17-;55  17-;69  17-<19  26-=53  26->19  26->81  26-?31
IRDY     14-136#  17-566  17-572  17-751  26-=66  26->43  26->93  26-?43  26-C36  26-C90  26-D44  26-D98  26-E52  26-F05
        26-F59
ISIRDY   17-556#  17-742  17-755  17-759  17-763  26-349  26-?91
ISMANI   28-15  28-22#
ISPRNT   28-16  28-23#
ISR      14-20#
ISWPAK   28-17  28-24#
IXE      14-20#
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CROSS REFERENCE TABLE (CREF V01-05)

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L$DESC  10-17    16-17#
L$DESP  10-17#
L$DEVP  10-17#
L$DISP  10-17    11-8#
L$DLY   10-17#
L$DTP   10-17#
L$DTYP  10-17#
L$DU    10-17    24-8#
L$DUT   10-17#
L$DVTY  10-17    16-12#
L$EF    10-17#
L$ENVI  10-17#
L$ETP   10-17#
L$EXP1  10-17#
L$EXP4  10-17#
L$EXP5  10-17#
L$HARD  10-17    27-14    27-14#
L$HIME  10-17#
L$HPCP  10-17#
L$HPTP  10-17#
L$HW    10-17    12-9     12-9#
L$ICP   10-17#
L$INIT  10-17    21-8#
L$LADP  10-17#
L$LAST  10-17    28-47#
L$LOAD  10-17#
L$LUN   10-17#
L$MREV  10-17#
L$NAME  10-17#
L$PRIO  10-17#
L$PROT  10-17    20-8#
L$PRT   10-17#
L$REPP  10-17#
L$REV   10-17#
L$RPT   19-9#
L$SOFT  10-17    28-13    28-13#
L$SPC   10-17#
L$SPCP  10-17#
L$SPTP  10-17#
L$STA   10-17#
L$SW    10-17    13-8     13-8#
L$TEST  10-17#
L$TIML  10-17#
L$UNIT  10-17#   21-50
L10000  12-9     12-23#
L10001  13-8     13-15#
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L10003  18-116#
L10004  18-135#
L10005  18-154#
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CROSS REFERENCE TABLE (CREF V01-05)

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L10016  22-20#
L10017  23-11#
L10020  24-13#
L10021  25-10#
L10022  26-46#
L10023  26-147#
L10024  26-253#
L10025  26-284#
L10026  26-317#
L10027  26-366#
L10030  26-480#
L10031  26-570#
L10032  26-533#
L10033  26-565#
L10034  26-644#
L10035  26-616#
L10036  26-643#
L10037  26-695#
L10040  26-799#
L10041  26-748#
L10042  26-773#
L10043  26-798#
L10044  26-827#
L10045  26-944#
L10046  26-:77#
L10047  26-;96#
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L10057  26-?08#
L10060  26-?58#
L10061  26-?94#
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L10063  26-B97#
L10064  26-@93    26-A03    26-A21#
L10065  26-A38    26-A40#
L10066  26-A58#
L10067  26-A68#
L10070  26-A86    26-A93#
L10071  26-B11#
L10072  26-B28#
L10073  26-B47#
L10074  26-B64#
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L10076  26-C51#
L10077  26-D05#
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CROSS REFERENCE TABLE (CREF V01-05)

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L10104  26-F75#
L10105  26-G18#
L10106  26-H72#
L10107  27-14    27-25#
L10110  28-13    28-20#
LDBYTS  17-:30#  26-25    26-;13   26-;59   26-<38   26-<91   26-G45   26-G51
LDMSG1  17-:55#  26-=60   26->37   26->87   26-?37
LDTXSI  17-343#  17-456   17-457   17-515   17-948   17-955   17-956   17-:12   17-:38   17-:88   26-29    26-30
LOADAT  15-36#   18-162
LODATA  17-936#  26-C29   26-C83   26-D37   26-D91   26-E45   26-E99   26-F53
LODMSG  17-:05#  17-:60   26-181   26-205   26-233   26-272   26-668   26-861   26-891   26-922   26-980   26-:15   26-:50   26-?84
        26-G60
LODSIL  17-939   17-:57   17-:84#  26-73    26-80    26-114   26-121   26-305   26-337   26-515   26-518   26-521   26-547   26-550
        26-553   26-598   26-601   26-604   26-625   26-628   26-631   26-;16   26-;62   26-<35   26-<41   26-<88   26-<94   26-F97
        26-G00   26-G48   26-G54   26-G57
LOE     14-20#
LOGDEV  15-17#   21-42*   21-49*   21-50    21-52    22-17    24-12
LOOPBK  27-22    27-33#
LOOPIN  17-130#
LOT     14-20#
LU2MOD   9-24#
LULOOP  14-39#   17-39    17-234   17-372   17-465   17-987   17-989   17-;32   17-<84   26-814   26-=61   26->25   26->36   26->38
        26->88   26-?38   26-@94   26-A30   26-A79   26-B39   26-C31   26-C85   26-D39   26-D93   26-E47   26-F00   26-F54
LULP    14-70#   14-135#  26-401
LUR10   14-301#  17-106   18-113   18-128   18-147   18-167   18-186   18-204   18-224   18-242
LUR11   14-302#  18-113   18-128   18-147   18-167   18-186   18-204   18-224   18-242
LUR12   14-303#  18-113   18-128   18-147   18-167   18-186   18-204   18-224   18-242
LUR13   14-304#  18-113   18-128   18-147   18-167   18-186   18-204   18-224   18-242
LUR14   14-305#  18-115   18-130   18-149   18-169   18-188   18-206   18-226   18-244
LUR15   14-306#  18-115   18-130   18-149   18-169   18-188   18-206   18-226   18-244
LUR16   14-307#  18-115   18-130   18-149   18-169   18-188   18-206   18-226   18-244
LUR17   14-308#  18-115   18-130   18-149   18-169   18-188   18-206   18-226   18-244
LUREG   14-301   14-302   14-303   14-304   14-305   14-306   14-307   14-308   14-309   14-310   14-311   14-312   14-313   14-314
        14-315   14-316   15-11#
LUSWI1  15-63#   21-71*   26-740   26-742
LUSWI2  15-64#   21-72*   26-765   26-767
LUSWI3  15-65#   21-73*   26-790   26-792
MAINT1  14-79#   17-<43   26-B35
MAINT2  14-80#   17-;83   17-<14   17-<59   26-A76
MCLK    14-175#  26-A14
MCLR    14-37#   17-33    17-34
MIFLAG  13-10#   21-78
MODINT  15-47#   17-;23*  17-;55*  17-;84*  17-;88*  17-;95*  17-<11*  26-C23   26-C77   26-D31   26-D85   26-E39   26-E93   26-F47
MODR    14-149#  26-=87   26-@86   26-@88   26-A87
MPCSR   15-55#   18-102   18-108   18-123   18-143   18-161   18-182   18-200   18-219   18-238   21-59*   21-90    22-13    26-735
        26-823
MPIVEC  15-60#   21-66*
MPOVEC  15-61#   21-67*   21-68*
MPRIOR  15-62#   21-69*
MSG1    15-219#  17-:61   17-:63   17-:66   26-862   26-892   26-923   26-981   26-:16   26-:51   26-?85   26-G61
MSG2    15-231#  26-669
MSG3    15-238#  26-182   26-206   26-234   26-273
MSTCLR  17-30#   17-441   26-45    26-139   26-146   26-245   26-252   26-283   26-316   26-365   26-390   26-479   26-569   26-694
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        26-?28   26-?93   26-@11   26-@41   26-@83   26-A27   26-A46   26-A64   26-A74   26-A99   26-B17   26-B34   26-B53   26-B96
        26-C20   26-C74   26-D28   26-D82   26-E36   26-E90   26-F44   26-G17   26-H71
MVIOX   14-336#  17-65
MVIXO   14-337#  17-87
NEWST   21-32    21-41#   21-51
O$APTS   9-18#   10-17
O$AU     9-18#   10-7#    10-17
O$BGNR   9-18#   10-17
O$BGNS   9-18#   10-7#    10-17
O$DU     9-18#   10-7#    10-17
O$ERRT   9-18#   10-17
O$GNSW   9-18#   10-7#    10-17
O$POIN   9-18#   10-7     10-7#    10-7#    10-7#    10-7#    10-17
O$SETU   9-18#   10-17    28-47
OACT    14-122#  17-402   17-408   17-469   26-412
OACTIV  17-392#  17-444   17-461   17-476   17-526   26-=81
OC      14-59#   14-121#
OCOR    14-172#  17-289   17-295   17-481
OP      14-257#  14-259   17-;23   26-=54   26->19   26->81   26-?31
ORDY    14-124#  17-273   17-279
OSIRDY  17-263#  17-442   17-459   17-486   17-530   17-536   26-?89
OVRR    14-137#  17-896   17-898   17-904   26-101   26-141
PATA    15-124#  17-944   26-G46   26-G52   26-G90   26-H12
PATB    15-147#  17-949   26-G95   26-H17
PATCH   28-36#
PATQ    15-159#  26-;14   26-;60
PATR    15-169#  26-<39   26-<61   26-<92   26-=14
PATS    15-186#  26-26    26-33    26-38
PATT    15-204#  26-537
PNT     14-20#
POLL    14-75#   26-A47
PRI     14-20#
PRI00   14-20#
PRI01   14-20#
PRI02   14-20#
PRI03   14-20#
PRI04   14-20#
PRI05   14-20#
PRI06   14-20#
PRI07   14-20#   22-10    22-12
PRIOR   15-19#
PRIRTY  27-18    27-29#
PRNFLG  13-11#   26-731   26-758   26-783   26-819
PSTACK  15-18#   17-301   17-414   17-594   17-635   17-689   17-917   17-=14   21-10*
R14NRW  15-110#
RAB     14-138#  17-881   17-883   17-889   26-220   26-247
RABT    14-198#  17-=02
RAX15   15-28#   17-167*  17-168*  17-238   17-;69   17-;79   17-;86   17-,97   17-<02   17-<05   17-<19   17-<22   17-<25   17-<31
        26-825
RAX16   15-29#   17-171*  17-172*  17-240   17-663   17-669   17-677   17-683   17-=02   17-=08   26-449   26-460   26-468
RCV1ST  17-729#  26-76    26-117   26-184   26-194   26-208   26-236   26-275   26-308   26-340   26-556   26-634   26-686
RCVBUF  15-256#  17-943   17-:64   26-=63   26-=78   26->40   26->55   26->90   26-?05   26-?40   26-?55   26-C30*  26-C33   26-C48
        26-C84*  26-C87   26-D02   26-D38*  26-D41   26-D56   26-D92*  26-D95   26-E10   26-E46*  26-E49   26-E64   26-F02   26-F18
        26-F56   26-F72
RDALL   14-102#  26-624
RDAX    14-88#   14-160#  17-154
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READAX  17-148#  17-237   17-660   17-;34   17-=01   26-448   26-816
READLU  17-57#   17-108   17-158   17-166   17-170   17-209   17-270   17-286   17-399   17-468   17-480   17-563   17-579   17-620
        17-707   17-711   17-750   17-828   17-<47   17-<63   26-411   26-727   26-755   26-780   26-;29   26-;75   26-=65   26-=86
        26->27   26->42   26->92   26-?42   26-@85   26-@95   26-A06   26-A13   26-A32   26-A51   26-A80   26-B04   26-B21   26-B40
        26-B57   26-B74   26-C35   26-C89   26-D43   26-D97   26-E51   26-F04   26-F58   26-G66   26-G78   26-H40
READY   14-157#  17-159   17-210
REDBYT  15-26#   17-69*   17-70*   17-109   17-159   17-167   17-171   17-210   17-273   17-279   17-289   17-295   17-402   17-408
        17-469   17-481   17-566   17-572   17-582   17-588   17-623   17-629   17-708   17-712   17-751   17-829   17-<48   17-<64
        26-412   26-728*  26-737   26-740   26-743   26-762   26-765   26-768   26-787   26-790   26-793   26-;33   26-;39   26-;79
        26-;85   26-=66   26-=87*  26-=88   26-=91   26->28   26->31   26->43   26->93   26-?43   26-@86   26-@89   26-@96   26-@99
        26-A07   26-A10   26-A14*  26-A15   26-A18   26-A33   26-A52   26-A81   26-A87   26-B05   26-B22   26-B41   26-B58   26-B75
        26-B81   26-B87   26-C36   26-C90   26-D44   26-D98   26-E52   26-F05   26-F59   26-G67   26-G79   26-H41
REDDAT  15-70#
REG0    15-80#
REG1    15-81#
REG2    15-82#   21-91*   21-94    21-95
REG3    15-83#
REG4    15-84#
REG5    15-85#
REG6    15-86#
REG7    15-87#
REGNUM  15-32#   17-32    17-40*   17-43*   17-59    17-85    17-105   17-107*  17-111*  17-112   17-114*  17-149   17-151*  17-165*
        17-169*  17-173*  17-187   17-189*  17-194*  17-198*  17-202*  17-215*  17-263   17-269*  17-285*  17-300*  17-306*  17-343
        17-345*  17-348*  17-351*  17-392   17-398*  17-413*  17-419*  17-437   17-452*  17-464*  17-478*  17-490*  17-556   17-562*
        17-578*  17-593*  17-599*  17-613   17-619*  17-634*  17-640*  17-705   17-706*  17-710*  17-713*  17-731   17-734*  17-766*
        17-782   17-783*  17-794*  17-811   17-827*  17-835*  17-841*  17-916*  17-921*  17-972   17-977*  17-991*  17-;18   17-<40*
        17-<45*  17-<61*  17-<73*  17-<83*  18-110   18-145   18-162   18-202   18-221   26-97*   26-138*  26-216*  26-244*  26-344*
        26-356*  26-360*  26-396*  26-400*  26-408*  26-726*  26-754*  26-779*  26-;07*  26-;53*  26-<29*  26-<82*  26-=62*  26-=85*
        26->26*  26->39*  26->89*  26-?39*  26-?78*  26-@17*  26-@20*  26-@84*  26-A12*  26-A31*  26-A48*  26-A50*  26-A65*  26-A75*
        26-B01*  26-B03*  26-B19*  26-B36*  26-B38*  26-B55*  26-B73*  26-C32*  26-C86*  26-D40*  26-D94*  26-E48*  26-F01*  26-F55*
        26-G65*  26-H34*  26-H37*
REOM    14-199#  17-677   17-683   17-=08   26-449   26-467
RERR    14-193#
RETADR  15-25#   17-302   17-415   17-595   17-636   17-690   17-918   17-;67   17-=15   26-21*   26-66*   26-174*  26-268*  26-300*
        26-333*  26-385*  26-511*  26-540*  26-594*  26-621*  26-664*  26-854*  26-973*  26-;09*  26-;55*  26-<31*  26-<84*  26-=50*
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        26-G38*
RING    14-145#  26-=87   26-@86   26-@88   26-A33
ROMI    14-41#   17-16    17-18    17-19    17-131   17-133
ROMO    14-40#   17-16    17-18    17-19    17-131   17-133
ROR     14-197#
RRDYTO  14-342#  17-150   17-163
RSEOM   17-653#  17-744
RSOM    14-200#  17-663   17-669
RTS     14-147#  26-B75   26-G67   26-G79   26-H41
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CROSS REFERENCE TABLE (CREF V01-05)

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SEL6    15-59#   17-17*   17-132*  21-64*   21-65*
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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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        18-193#  18-211  18-211#  18-231  18-231#  18-249  18-249#  19-11  19-11#  20-12  20-12#  21-94  21-94  21-94
        21-94#  21-94#  21-94#  21-99  21-99#  22-20  22-20#  23-11  23-11#  24-13  24-13#  25-10  25-10#  26-46
        26-46#  26-147  26-147#  26-253  26-253#  26-284  26-284#  26-317  26-317#  26-366  26-366#  26-480  26-480#  26-533
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        28-18#   28-18#   28-18#   28-20    28-20#   28-45    28-45#
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        26-589   26-589#  26-593   26-620   26-663   26-663   26-663#  26-720   26-720   26-720#  26-724   26-752   26-777   26-812
        26-812   26-812#  26-850   26-850   26-850#  26-969   26-969   26-969#  26-;02   26-;02   26-;02#  26-;08   26-;54   26-<24
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        26-D25   26-D25#  26-D79   26-D79   26-D79#  26-E33   26-E33   26-E33#  26-E87   26-E87   26-E87#  26-F41   26-F41   26-F41#
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        17-673   17-681   17-687   17-833   17-838   17-857   17-863   17-872   17-878   17-887   17-893   17-902   17-908   17-;61
        17-;66   17-;75   17-<54   17-<70   17-=06   17-=12   18-102   18-103   18-108   18-109   18-110   18-111   18-112   18-113
        18-114   18-115   18-116   18-123   18-124   18-125   18-126   18-127   18-128   18-129   18-130   18-131   18-132   18-133
        18-134   18-135   18-142   18-143   18-144   18-145   18-146   18-147   18-148   18-149   18-150   18-151   18-152   18-153
        18-154   18-161   18-162   18-163   18-164   18-165   18-166   18-167   18-168   18-169   18-170   18-171   18-172   18-173
        18-174   18-181   18-182   18-183   18-184   18-185   18-186   18-187   18-188   18-189   18-190   18-191   18-192   18-193
        18-200   18-201   18-202   18-203   18-204   18-205   18-206   18-207   18-208   18-209   18-210   18-211   18-218   18-219
        18-220   18-221   18-222   18-223   18-224   18-225   18-226   18-227   18-228   18-229   18-230   18-231   18-238   18-239
        18-240   18-241   18-242   18-243   18-244   18-245   18-246   18-247   18-248   18-249   19-11    21-25    21-28    21-31
        21-34    21-52    21-81    21-85    21-86    21-90    21-94    21-99    22-10    22-17    22-20    23-11    24-10    24-12
        24-13    25-10    26-46    26-105   26-145   26-147   26-224   26-251   26-253   26-284   26-317   26-364   26-366   26-419
        26-458   26-471   26-480   26-510   26-533   26-539   26-565   26-570   26-593   26-616   26-620   26-643   26-644   26-695
        26-724   26-735   26-737   26-746   26-748   26-752   26-762   26-771   26-773   26-777   26-787   26-796   26-798   26-799
        26-823   26-825   26-827   26-944   26-:77   26-;08   26-;37   26-;38   26-;43   26-;44   26-;48   26-;54   26-;83   26-;84
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        26-B85   26-B86   26-B91   26-B93   26-B97   26-C42   26-C51   26-C96   26-D05   26-D50   26-D59   26-E04   26-E13   26-E58
        26-E67   26-F11   26-F21   26-F65   26-F75   26-G18   26-G71   26-G83   26-H45   26-H72
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T10      11-8     26-663#
T11      11-8     26-720#
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T11.2    26-752#
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T23.3   26-A45#
T23.4   26-A63#
T23.5   26-A73#
T23.6   26-A98#
T23.7   26-B16#
T23.8   26-B33#
T23.9   26-B52#
T24     11-8     2o-C17#
T25     11-8     26-C71#
T26     11-8     26-D25#
T27     11-8     26-D79#
T28     11-8     26-E33#
T29     11-8     26-E87#
T3      11-8     26-173#
T30     11-8     26-F41#
T31     11-8     26-F92#
T32     11-8     26-G37#
T4      11-8     26-267#
T5      11-8     26-299#
T6      11-8     26-332#
T7      11-8     26-384#
T8      11-8     26-506#
T8.1    26-510#
T8.2    26-539#
T9      11-8     26-589#
T9.1    26-593#
T9.2    26-620#
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TCOUNT  13-13#   26-=64   26->41   26->91   26-?41   26-C34   26-C88   26-D42   26-D96   26-E50   26-F03   26-F57
TEOM    14-220#  26-438   26-444
TERR    14-217#
TEST    14-258#  17-;23   26-=54   26->19   26->81   26-?31
TESTMD  14-174#  17-<48   17-<64   26-841
TIMCNT  28-18    28-25#
TIMFLG  15-24#
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TMP4    15-94#
TMP5    15-95#
TMP6    15-96#
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TX2     14-52#   14-210#
TX3     14-51#   14-209#
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TX5     14-49#   14-207#
TX6     14-48#   14-206#
TX7     14-47#   14-205#
TXAB    14-219#
TXABT   14-279#  15-242
TXCHAR  17-510#  26-977   26-:12   26-:47
TXDATA  14-171#  26-;33   26-;39   26-;79   26-;85   26-A15   26-A17
TXEN    14-86#   14-158#  26-304   26-397   26-399   26-@21   26-@23
TXEOM   14-280#  15-226   15-227   15-228   15-229   15-235   15-236   17-954   26-28    26-522   26-554   26-605   26-632   26-;17
        26-;63   26-<42   26-<95   26-G01   26-G49   26-G55
TXGA    14-218#
TXGOA   14-278#
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TXLEN2  14-264#  17-817   26-;20   26-;66   26-<45   26-<98   26-E98   26-F52
TXSOM   14-281#  15-219   15-220   15-231   15-232   15-243   15-244   17-448   17-940   17-:58   26-<36   26-<89   26-G58
TXWORD  15-43#   17-344*  17-346   17-349   17-448*  17-449*  17-514*  17-945*  17-946*  17-947   17-954*  17-:1?*  17-:36*  17-:37*
        17-:85*  26-28*
TYPEY   21-94    21-104#
UAM     14-20#
UNIT    15-51#
UNRR    14-128#  17-829
UPBITS  15-100#
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WAX     14-89#   14-161#  17-205
WAX15   15-30#   17-195*  17-196   17-447*  17-449   17-974*  17-983*  26-404*  26-;19*  26-;65*  26-<44*  26-<97*  26-@25*  26-@30*
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        26-;66*  26-<45*  26-<46   26-<98*  26-<99   26-@26*  26-@31*
WRDYTO  14-343#  17-188   17-214
WRIBYT  15-27#   17-41*   17-89*   17-90     17-152*  17-153*  17-154*  17-155*  17-190*  17-191*  17-192*  17-196*  17-200*  17-203*
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        26-B00*  26-B18*  26-B35*  26-B54*  26-H35*
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        26-B02   26-B20   26-B37   26-B56   26-H36
XSALWA   9-18#
XSFALS   9-18#
XSOFFS   9-18#
XSTRUE   9-18#
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BGNAUT   1-31#   9-18#   22-8
BGNCLN   1-39#   9-18#   23-8
BGNDU    1-47#   9-18#   24-8
BGNHRD   1-55#   9-18#   27-14
BGNHW    1-66#   9-18#   12-9
BGNINI   1-77#   9-18#   21-8
BGNMOD   1-85#   9-18#    9-24
BGNMSG   1-98#   9-18#   18-101  18-107  18-122  18-141  18-160  18-180  18-199  18-217  18-237
BGNPRO   1-106#  9-18#   20-8
BGNPTA   1-114#  9-18#
BGNRPT   1-144#  9-18#   19-9
BGNSEG   1-152#  9-18#
BGNSET   1-161#  9-18#
BGNSFT   1-182#  9-18#   28-13
BGNSRV   1-193#  9-18#
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BGNTST   1-236#  9-18#   26-20   26-65   26-173  26-267  26-299  26-332  26-384  26-506  26-589  26-663  26-720  26-812
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        26-D79  26-E33  26-E87  26-F41  26-F92  26-G37
BNCOMP   1-266#  9-18#
BNERRO   1-270#  9-18#
BREAK    1-274#  9-18#   21-86
BRESET   1-278#  9-18#   24-10
CKLOOP   1-282#  9-18#
CLOCK    1-286#  9-18#
CLOSE    1-292#  9-18#
CLRVEC   1-296#  9-18#
COMMEN   1-301#  9-18#
DELAY    1-322#  9-18#
DESCRI   1-317#  9-18#   16-17
DEVTYP   1-341#  9-18#   16-12
DISPAT   1-346#  9-18#   11-8
DISPLA   1-360#  9-18#
DOCLN    1-376#  9-18#
DODU     1-380#  9-18#   22-17
DORPT    1-385#  9-18#
ENDAU    1-389#  9-18#   25-10
ENDAUT   1-401#  9-18#   22-20
ENDCLN   1-413#  9-18#   23-11
ENDCOM   1-425#  9-18#
ENDDU    1-441#  9-18#   24-13
ENDHRD   1-453#  9-18#   27-25
ENDHW    1-465#  9-18#   12-23
ENDINI   1-475#  9-18#   21-99
ENDMOD   1-487#  9-18#   28-45
ENDMSG   1-500#  9-18#   18-103  18-116  18-135  18-154  18-174  18-193  18-211  18-231  18-249
ENDPRO   1-512#  9-18#   20-12
ENDPTA   1-520#  9-18#
ENDRPT   1-529#  9-18#   19-11
ENDSEG   1-541#  9-18#
ENDSET   1-555#  9-18#
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ENDTST   1-624#  9-18#  26-46  26-147  26-253  26-284  26-317  26-366  26-480  26-570  26-644  26-695  26-799  26-827
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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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	26-A45	26-A45#	26-A63	26-A63#	26-A73	26-A73#	26-A98	26-A98#	26-B16	26-B16#	26-B33	26-B33#	26-B52	26-B52#
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CROSS REFERENCE TABLE (CREF V01-05)

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        26-H45   26-H45#  27-16    27-16#   27-17    27-17#   27-18    27-18#   27-19    27-19#   27-20    27-20#   27-21    27-21#
        27-22    27-22#   27-23    27-23#   28-15    28-15#   28-16    28-16#   28-17    28-17#   28-18    28-18#   28-47    28-47
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MANUAL   1-;62#   9-18#   21-81
MEMORY   1-;66#   9-18#
OPEN     1-;71#   9-18#
POINTE   1-;76#   9-18#   10-7
PRINTB   1-<39#   9-18#   18-102   18-108   18-109   18-110   18-111   18-123   18-124   18-125   18-126   18-142   18-143   18-144
        18-145   18-161   18-162   18-163   18-164   18-165   18-181   18-182   18-183   18-184   18-200   18-201   18-202   18-218
        18-219   18-220   18-221   18-222   18-238   18-239   18-240
PRINTF   1-<79#   9-18#   17-;61   17-;66   17-;75   21-85    21-90    24-12    26-735   26-737   26-762   26-787   26-823   26-825
PRINTS   1-=19#   9-18#
PRINTX   1-=59#   9-18#   18-112   18-113   18-114   18-115   18-127   18-128   18-129   18-130   18-131   18-132   18-133   18-134
        18-146   18-147   18-148   18-149   18-150   18-151   18-152   18-153   18-166   18-167   18-168   18-169   18-170   18-171
        18-172   18-173   18-185   18-186   18-187   18-188   18-189   18-190   18-191   18-192   18-203   18-204   18-205   18-206
        18-207   18-208   18-209   18-210   18-223   18-224   18-225   18-226   18-227   18-228   18-229   18-230   18-241   18-242
        18-243   18-244   18-245   18-246   18-247   18-248
READBU   1-=99#   9-18#
READEF   1->03#   9-18#   21-25    21-28    21-31    21-34
RFLAGS   1->08#   9-18#
SETPRI   1->13#   9-18#   22-10
SETVEC   1->18#   9-18#
SLASH    1->24#   9-18#
STARS    1->38#   9-18#
SVC      1->52#   9-17#    9-18
XFER     1-@12#   9-18#
XFERF    1-@16#   9-18#
XFERT    1-@20#   9-18#
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