M8203

M8203 STATIC DIAG. # 2

CZDMSB0

AH-E235B-MC

FICHE 1 OF 2

JAN 1980

digital

MADE IN USA

M8203

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IDENTIFICATION

PRODUCT CODE: AC-E234B-MC

PRODUCT NAME: CZDMSB0 M8203 STATIC DIAG #2

PRODUCT DATE: OCTOBER 1979

MAINTAINER: DIAGNOSTIC ENGINEERING

AUTHOR: DAVID HOFFMAN

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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, AND WHICH IS CURRENTLY EMPLOYED IN THE DMP-11 DDCMP MULTIDROP PROJECT. 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-B-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:"ER:HOE 1:UAM:LOE

THIS COMMAND WILL CAUSE THREE PASSES TO BE MADE, EACH PASS CONSISTING OF TESTS 1,2,3,4,6,8,9, AND 10 EXECUTED AGAINST ALL UNITS. THERE IS NO DIFFERENCE BETWEEN SAYING <FLAG> AND SAYING <FLAG=1>. THE NOTATION <FLAG=0> IS MEANINGFUL ONLY ON A COMMAND OTHER THAN START TO CLEAR A FLAG THAT WAS PREVIOUSLY SET. NOTE THAT ON ALL COMMANDS ONLY THE FIRST THREE LETTERS ARE SCANNED.

6.3.2 RESTART COMMAND

****
RES(TART)/TESTS:<TEST-LIST>/PASS:<PASS-CNT>/FLAGS:
   <FLAG-LIST>/UNITS:<UNIT-LIST>
****

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

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

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

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

6.3.2.3 EFFECT OF RESTART COMMAND

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

6.3.3 CONTINUE COMMAND

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

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

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

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

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

6.3.3.3 EFFECT OF CONTINUE COMMAND

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

6.3.4 PROCEED COMMAND

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

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

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

6.3.4.2 EFFECT OF PROCEED COMMAND

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

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 16K 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.

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

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 (SEL0) 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 SWITCH PACK #1 (REG 11) : (O) 0 ?

THIS IS THE EXPECTED CONTENT (OCTAL) OF SWITCH PACK #1, WHICH RESIDES IN INBUS REG 11. THE ALLOWABLE RANGE IS 000-053, AND THE DEFAULT VALUE IS 000.

5. M8203 SWITCH PACK #2 (REG 15) : (O) 0 ?

THIS IS THE EXPECTED CONTENT (OCTAL) OF SWITCH PACK #2, WHICH RESIDES IN INBUS REG 15. THE ALLOWABLE RANGE IS 000-377, AND THE DEFAULT VALUE IS 000.

6. M8203 SWITCH PACK #3 (REG 16) : (O) 0 ?

```
                        THIS IS THE EXPECTED CONTENT (OCTAL) OF SWITCH PACK #3,
                        WHICH RESIDES IN INBUS REG 16. THE ALLOWABLE RANGE IS
                        000-377, AND THE DEFAULT VALUE IS 000.

                        7.   TURNAROUND TYPE -
                             (0=H3254&H3255, 1-CABLE, 2=MOD LOC, 3-MOD REM, 4=NONE)
                             : (0) 0 ?

                        THIS INDICATOR TELLS THE PROGRAM WHETHER TEST CONNECTOR(S)
                        WILL BE MOUNTED SO THAT CERTAIN TESTS CAN BE RUN IN EXTERNAL
                        LOOPBACK MODE. THE ALLOWABLE ANSWERS ARE 0-4, AND THE
                        DEFAULT VALUE IS 0. 0 MEANS THAT THE H3254 AND H3255 TEST
                        CONNECTORS WILL BE USED. 1 MEANS THAT EXTERNAL TURNAROUND
                        WILL BE PROVIDED AT THE FAR END OF A CABLE ATTACHED TO THE
                        J1 OR J2 CONNECTOR. 2 MEANS THAT MODEM LOCAL LOOPBACK WILL
                        BE USED, AND 3 MEANS THAT MODEM REMOTE LOOPBACK WILL BE
                        USED. 4 MEANS THAT NO EXTERNAL TURNAROUND WILL BE PROVIDED.
                        WHEN 0 IS SELECTED, ALL TESTS WILL BE RUN, AND IF 1-4 IS
                        SELECTED, CERTAIN TESTS CANNOT BE RUN, AND THE PROGRAM W'LL
                        TYPE THE NUMBER(S) OF TEST(S) TO BE SKIPPED.

                        8.   PLEASE SELECT BAUD RATE; TYPE '0' FOR 2.4K; '1' FOR 4.8K;
                             '2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;
                             '6' FOR 500K; OR '7' FOR 1 MEG BAUD :  (0)  4?

                        THIS IS THE BAUD RATE WHICH IS SELECTED IN THE SWITCH PACK ON
                        THE M8203. THE ALLOWABLE RANGE IS 0-7, AND THE DEFAULT VALUE IS
                        4 (FOR 56K).


                        6.3.13 SOFTWARE PARAMETERS

                        FOUR SOFTWARE PARAMETER QUESTIONS ARE ASKED BY THE M8203
                        STATIC LOGIC TESTS PROGRAM, PART 2. THESE QUESTIONS ARE THE
                        FOLLOWING:

                        1.   IS MAN. INTERVEN. DESIRED TO MOUNT TEST CONNECTOR(S)
                        (L) N?

                        IF THE OPERATOR ANSWERS THE QUESTION WITH Y (YES), THE
                        PROGRAM WILL LATER PAUSE BEFORE TESTING EACH LOGICAL UNIT
                        AND INFORM THE OPERATOR TO INSTALL THE APPROPRIATE TEST
                        CONNECTOR(S) ON THAT UNIT, AND THEN PROCEED TO TEST THAT
                        UNIT. IF THE OPERATOR ANSWERS N (NO) TO THE ABOVE QUESTION,
                        THE PROGRAM WILL PERFORM TESTING ON ALL UNITS WITHOUT
                        ALLOWING MANUAL INTERVENTION BETWEEN UNITS. IN THIS CASE,
                        ALL TEST CONNECTOR(S) ON ALL UNITS SHOULD BE INSTALLED PRIOR
                        TO RUNNING THE PROGRAM.

                        2.   SHOULD SWITCH PACK AND AX3-15 PRINTOUT BE ALLOWED (L) N
                        ?

                        IF THE OPERATOR ANSWERS YES, THE PROGRAM WILL ALLOW THE
                        PRINTOUT OF SWITCH PACKS 1-3 AND MODEM INTERFACE REG AX3-15
                        ON ANY PASS IN WHICH THE CORRESPONDING TESTS ARE RUN. THE
                        DEFAULT IS NO, WHICH ONLY ALLOWS THE PRINTOUT ON THE FIRST
                        PASS AFTER LOADING, IF THE TESTS ARE RUN.
```

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

IF THE OPERATOR ANSWERS YES, THE PROGRAM WILL ALLOW THE READING AND COMPARISON OF SWITCH PACKS 1-3 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).

```
                        7.0 DEVICE INFORMATION TABLES



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

                        ;*****************************************************************************
                        * OBUS 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
                        CAPR    = 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
                        * 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 SWITCH PACK  1 :
                * 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). THE
                * SWITCHES ARE IN BITS 1,2,3,5.
                *
                * - READ AND PRINT SWITCH PACK  2 :
                * 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). THE
                * SWITCHES ARE IN BITS 0-7.
                *
                * - READ AND PRINT SWITCH PACK  3 :
                * 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). THE
                * SWITCHES ARE IN BITS 0-7.
                ;*****************************************************************************




                ;*****************************************************************************
                        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 Q 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 Q 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 Q ARE TRANSMITTED, AND AS THE 8TH BIT (PARITY _ T)
```

```
                        * OF EACH DATA CHAR IS SENT THE PROGRAM CHECKS TXDATA FOR THE PROPER STATE.
                        * FOR THE FIRST 4 CHARS IN PATTERN Q 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.
                        ;*******************************************************************************
```

```
400
401
402
403
404                     ;*****************************************************************************
405                         TEST 22 - HALF-DUPLEX RCV DISABLED TEST WITH SILOS DISABLED
406                     *
407                     * THIS TEST SENDS A MESSAGE IN HDX, CHAR MODE, WITH NO ERROR DETECTION, AND
408                     * THE SILOS DISABLED. THE MSG CONSISTS OF 2 SYNCHS AND 2 000 CHARS.
409                     * THE DATA IS SENT WITH LULOOP SET FOR TTL DATA LOOPBACK. THE PROGRAM CHECKS
410                     * THAT THE RECEIVER NEVER BECOMES ACTIVE, BECAUSE THE RCV CLOCK IS INHIBITED
411                     * WHEN THE HDX BIT IS SET.
412                     ;*****************************************************************************
413
414
415
416
417
418                     ;*****************************************************************************
419                         TEST 23 - INTERACTION OF MODEM CONTROL BITS
420                     *
421                     * THIS TEST WILL BE RUN ONLY IF THE P-TABLE FOR THIS UNIT INDICATES THAT
422                     * THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED. OTHERWISE, THE TEST WILL
423                     * BE SKIPPED FOR THE UNIT.
424                     * THE FOLLOWING SUBTESTS ARE PERFORMED:
425                     * - A MASTER CLEAR IS DONE AND REG 13 IS READ AND CHECKED FOR INITIALIZED
426                     *   STATE, WITH LULOOP SET TO 1. THEN, LULOOP IS CLEARED AND REG 13 IS READ
427                     *   AND CHECKED FOR THE PROPER STATE, WITH LULOOP CLEARED.
428                     *   REG 13 IS THEN LOADED WITH 0'S, AND READ AND CHECKED FOR THE
429                     *   INITIALIZED STATE.
430                     *   REG 17 IS THEN READ AND CHECKED FOR INITIALIZED STATE.
431                     * - RUN IS SET IN BSEL1, AND REG 13 IS READ AND CHECKED FOR RING SET.
432                     * - POLL IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGQ SET.
433                     * - BPOLL IS SET IN REG 12, ONLY TO LIGHT THE LED FOR THIS SIGNAL.
434                     * - DTR IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR DTR AND MODR SET.
435                     * - SELFR IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR SIGR SET.
436                     * - HDX IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR HDX SET.
437                     * - MAINT1 IS SET IN REG 13, AND REG 17 IS READ AND CHECKED FOR TEST MODE SET.
438                     * - SELSBY IS SET IN REG 13, AND REG 13 IS READ AND CHECKED FOR STBY SET.
439                     * - A MASTER CLEAR IS DONE, 2 TSOM'S ARE LOADED ITNO THE TX SILO, THE LINE
440                     *   UNIT IS CLOCKED UNTIL THE TRANSMITTER IS ACTIVE, AND REG 13 IS READ AND
441                     *   CHECKED FOR RTS, CS, CARR SET.
442                     ;*****************************************************************************
443
444
445
446
447
448                     ;*****************************************************************************
449                         TEST 24 - DATA TEST - BIT MODE, NO ERR DET
450                     *
451                     * A MESSAGE IS INITIATED IN BIT-STUFF MODE, WITH ERROR DETECTION
452                     * INHIBITED. THE MESSAGE CONSISTS OF 5 FLAGS, PAT A REPEATED 2 TIMES,
453                     * AND 2 FLAGS. IF THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED,
454                     * THE TEST WILL BE RUN WITH THE V.35 INTERFACE SELECTED.
455                     * IF EXTERNAL TURNAROUND IS PROVIDED ON A PARTICULAR INTERFACE, THE
456                     * 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
```

PROGRAM DOCUMENT

```
                        .BYTE   377

                ***** DATA PATTERN 1 *****
PATT:           .BYTE   000
                .BYTE   125
                .BYTE   252
                .BYTE   176
                .BYTE   177
```

```
                        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 CZDMSB 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,B,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       102                                                              .ASCII  /B/
 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    036344                                                              .WORD   L$HARD
 002020                                                                L$SPCP::
 002020    037306                                                              .WORD   L$SOFT
 002022                                                                L$HPTP::
 002022    002226                                                              .WORD   L$HW
 002024                                                                L$SPTP::
 002024    002256                                                              .WORD   L$SW
 002026                                                                L$LADP::
 002026    037756                                                              .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$AUT::
002070  023136                                  .WORD   L$AU
002072                                  L$DUT::
002072  023054                                  .WORD   L$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$ICP::
002104  022020                                  .WORD   L$INIT
002106                                  L$CCP::
002106  023052                                  .WORD   L$CLEAN
002110                                  L$ACP::
002110  022772                                  .WORD   L$AUTO
002112                                  L$PRT::
002112  022012                                  .WORD   L$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
```

```
                                  .SBTTL  DISPATCH TABLE

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

 002122                                 DISPATCH 32
 002122  000040                                                          .WORD   32
 002124                                                          L$DISPATCH::
 002124  023140                                                          .WORD   T1
 002126  023270                                                          .WORD   T2
 002130  023644                                                          .WORD   T3
 002132  024202                                                          .WORD   T4
 002134  024264                                                          .WORD   T5
 002136  024354                                                          .WORD   T6
 002140  024550                                                          .WORD   T7
 002142  025320                                                          .WORD   T8
 002144  025560                                                          .WORD   T9
 002146  025764                                                          .WORD   T10
 002150  026120                                                          .WORD   T11
 002152  026572                                                          .WORD   T12
 002154  026706                                                          .WORD   T13
 002156  027244                                                          .WORD   T14
 002160  027654                                                          .WORD   T15
 002162  030326                                                          .WORD   T16
 002164  031030                                                          .WORD   T17
 002166  031312                                                          .WORD   T18
 002170  031564                                                          .WORD   T19
 002172  031746                                                          .WORD   T20
 002174  032130                                                          .WORD   T21
 002176  032226                                                          .WORD   T22
 002200  032436                                                          .WORD   T23
 002202  033744                                                          .WORD   T24
 002204  034134                                                          .WORD   T25
 002206  034324                                                          .WORD   T26
 002210  034514                                                          .WORD   T27
 002212  034704                                                          .WORD   T28
 002214  035074                                                          .WORD   T29
 002216  035260                                                          .WORD   T30
 002220  035444                                                          .WORD   T31
 002222  035556                                                          .WORD   T32

                                  ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
                                  ;       CHANGE THE ARGUMENT OF ''DISPATCH'' TO BE THE
                                  ;       NUMBER OF HARDWARE TESTS IN YOUR PROGRAM.
                                  ;%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
```

```
                                                                D 4
                        .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   L'0000-L$HW/2
 002226                                                                L$HW::
 002226                                                                DFPTBL::

 002226  000007                 .WORD       7          ;MICROPROCESSOR TYPE = M8207
 002230  160170                 .WORD  160170          ;DMC11 OR KMC11 CSR UNIBUS ADDRESS
 002232  000300                 .WORD     300          ;DMC11 OR KMC11 INTERRUPT VECTOR
 002234  005000                 .WORD    5000          ;DMC11 OR KMC11 INTERRUPT PRIORITY LEVEL - 5
 002236  000003                 .WORD       3          ;LINE UNIT = M8203
 002240  000056                 .WORD     056          ;SWITCH PACK #1 (REG 11)
 002242  000000                 .WORD     000          ;SWITCH PACK #2 (REG 15)
 002244  000000                 .WORD     000          ;SWITCH PACK #3 (REG 16)
 002246  000000                 .WORD       0          ;H3254&H3255 USED
 002250  000004                 .WORD       4          ;BAUD RATE - 56 K
 002252  000001                 .WORD       1          ;RUN SWITCH ON MICROPROCESSOR IS ON

 002254                         FNDHW
 002254                                                                L10000:
```

SOFTWARE P-TABLE

```
                        .SBTTL  SOFTWARE P-TABLE

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

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                  PRI04== 200
000140                  PRI03== 140
000100                  PRI02== 100
000040                  PRI01== 40
000000                  PRI00== 0
                        ;
                        ;OPERATOR FLAG BITS
                        ;
000004                  EVL==     4
000010                  LOT==    10
000020                  ADR==    20
000040                  IDU==    40
000100                  ISR==   100
000200                  UAM==   200
000400                  BOE==   400
001000                  PNT==  1000
002000                  PRI==  2000
004000                  IXE=   4000
010000                  IBE==  10000
020000                  IER==  20000
040000                  LOE==  40000
100000                  HOE=  100000
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
```

GLOBAL EQUATES SECTION

```
000001          DDCMP   = BIT0

                ;;*****************************************************************************
                ;* 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
```

```
                        WAX     = BIT3
000004                  ENAX    = BIT2
000002                  AX2     = BIT1
000001                  AX1     = BIT0

                        ;;*****************************************************************************
                        ;* IBUS REG 17
                        ;;*****************************************************************************
000200                  SIGR    = BIT7
000100                  SIGQ    = BIT6
000040                  TXDATA  = BIT5
000020                  OCOR    = 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
```

GLOBAL EQUATES SECTION

```
                        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
                        CRCT/0  = 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
```

```
                        ;*****************************************************************************
                        ;* 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
```

GLOBAL DATA SECTION

```
                        .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

```
                                        .BYTE   377             ;MASK FOR AX0-16
                                        .BYTE   000             ;MASK FOR AX1-15
                                        .BYTE   360             ;MASK FOR AX1-16
                                        .BYTE   000             ;MASK FOR AX2-15
                                        .BYTE   000             ;MASK FOR AX2-16
                                        .BYTE   004             ;MASK FOR AX3-15
                                        .BYTE   030             ;MASK FOR AX3-16

                                ;***** 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 B *****
                                PATB:
                                        .BYTE   000
                                        .BYTE   000
                                        .BYTE   040
                                        .BYTE   100
                                        .BYTE   220
                                        .BYTE   000
                                        .BYTE   000
                                        .BYTE   051

                                ;***** 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
```

GLOBAL DATA SECTION

```
    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 SUBPOUTINES
                        ;////////////////////////////////////////////////////////////////////////////////
                        ;/      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  112777  000100  177132         MOVB    #MCLR,@BSEL1    ;SET MASTER CLEAR BIT
003306  142777  000300  177124         BICB    #RUN!MCLR,@BSEL1 ;CLEAR RUN AND MCLR BITS
003314  012701  000024                 MOV     #20.,R1         ;INITIALIZE STALL COUNTER
003320  000240                 2$:     NOP                     ;STALL IN LOOP FOR SEVERAL MICRO-SEC
003322  005301                         DEC     R1
003324  001375                         BNE     2$
003326  152777  000010  177104         BISB    #LULOOP,@BSEL1  ;SET LU LOOP
003334  012601                         MOV     (SP)+,R1        ;RESTORE R1
003336  005037  002424                 CLR     SAVLEN          ;CLEAR SAVED CHAR LENGTH FROM SETUP
003342  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.
                        ;*******************************************************************************
003344                  READLU:
003344  010146                         MOV     R1,-(SP)        ;SAVE R1
003346  013701  002364                 MOV     REGNUM,R1       ;GET LINE UNIT REG NUMBER
003352  006301                         ASL     R1              ;SHIFT INTO SOURCE BITS 4-7
003354  006301                         ASL     R1
003356  006301                         ASL     R1
```

GLOBAL SUBROUTINES

```
003360  006301                          ASL     R1
003362  052701  000004                  BIS     #4,R1           ;SET DESTINATION  BSEL4
003366  052701  021000                  BIS     #MVIOX,R1       ;SET REST OF MOVE INSTRUCTION
003372  010137  003402                  MOV     R1,2$           ;SET INSTRUCTION AS SUBROUTINE ARGUMENT
003376  004737  003240                  JSR     PC,STPCLK       ;EXECUTE MOVE INSTRUCTION
003402  000000                  2$:     .WORD   0               ;INSTRUCTION GOES HERE
003404  117737  177032  002350          MOVB    @#BSEL4,REDBYT  ;GET LU REG CONTENTS INTO REDBYT
003412  105037  002351                  CLRB    REDBYT+1        ;CLR HI BYTE OF STORAGE
003416  012601                          MOV     (SP)+,R1        ;RESTORE R1
003420  000207                          RTS     PC              ;RETURN


;*********************************************************************************
;* WRITLU - THIS SUBROUTINE FORCES THE DMC11 OR KMC11 MICROPROCESSOR TO
;*      EXECUTE AN INSTRUCTION WHICH LOADS THE BYTE CONTAINED IN WRIBYT
;*      INTO THE LU REG WHOSE NUMBER IS PASSED IN REGNUM.
;*********************************************************************************
003422                          WRITLU:
003422  010146                          MOV     R1,-(SP)        ;SAVE R1
003424  013701  002364                  MOV     REGNUM,R1       ;GET LINE UNIT REG NUMBER
003430  052701  000100                  BIS     #100,R1         ;SET SOURCE = BSEL4
003434  052701  122000                  BIS     #MVIXO,R1       ;SET REST OF MOVE INSTRUCTION
003440  010137  003462                  MOV     R1,2$           ;SET INSTRUCTION AS SUBROUTINE ARGUMENT
003444  105037  002353                  CLRB    WRIBYT+1        ;CLR HI BYTE OF STORAGE
003450  113777  002352  176764          MOVB    WRIBYT,@#BSEL4  ;LOAD BYTE INTO BSEL4
003456  004737  003240                  JSR     PC,STPCLK       ;EXECUTE MOVE INSTRUCTION
003462  000000                  2$:     .WORD   0
003464  012601                          MOV     (SP)+,R1        ;RESTORE R1
003466  000207                          RTS     PC              ;RETURN


;*********************************************************************************
;* GETREG - THIS SUBROUTINE READS THE LINE UNIT REGISTERS 10-17 INTO THE
;*      REGISTER STORAGE TABLE (LUREG:).
;*********************************************************************************
003470  010146                  GETREG: MOV     R1,-(SP)        ;SAVE R1
003472  013746  002364                  MOV     REGNUM,-(SP)    ;SAVE CURRENT REG NO.
003476  012701  002266                  MOV     #LUR10,R1       ;INIT POINTER TO REG STORAGE TABLE
003502  012737  000010  002364          MOV     #10,REGNUM      ;INIT LU REG NO. TO 10
003510  004737  003344          3$:     JSR     PC,READLU       ;READ A LINE UNIT REG
003514  113721  002350                  MOVB    REDBYT,(R1)+    ;PUT BYTE READ INTO TABLE
003520  105021                          CLRB    (R1)+           ;CLEAR UPPER BYTE OF TABLE ENTRY
003522  005237  002364                  INC     REGNUM          ;INCREMENT REG NO.
003526  023727  002364  000020          CMP     REGNUM,#20      ;SEE IF ALL REGS READ YET
003534  002765                          BLT     3$              ;BR IF NOT
003536  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE CURRENT REG NO.
003542  012601                          MOV     (SP)+,R1        ;RESTORE R1
003544  000207                          RTS     PC              ;RETURN
```

```
                                ;*****************************************************************************
                                ;* LOOPIN - THIS SUBROUTINE PLACES THE MICROPROCESSOR IN A LOOP ON AN
                                ;*      INSTRUCTION, BY MOVING THE INSTRUCTION FROM THE WORD FOLLOWING THE CALL
                                ;*      INTO SEL6, AND SETTING RUN AND ROMI IN BSEL1. THE SUBROUTINE RETURNS
                                ;*      WITH THE MICROPROCESSOR STUCK IN THE LOOP, AND IF IT IS DESIRED TO
                                ;*      TERMINATE THE LOOP, THE PDP-11 PROGRAM MUST CLEAR THE RUN BIT IN
                                ;*      BSEL1, OR CALL SUBROUTINE MSTCLR TO DO THIS.
                                ;*****************************************************************************
003546                          LOOPIN:
003546  152777  000006  176664          BISB    #ROMO!ROMI,@BSEL1       ;SET ROMO, ROMI BITS IN BSEL1
003554  017677  000000  176662          MOV     @(SP),@SEL6     ;PUT MICROINSTRUCTION INTO SEL6
003562  152777  000206  176650          BISB    #RUN!ROMO!ROMI,@BSEL1 ;SET RUN, ROMO, ROMI IN BSEL1
003570  062716  000002                  ADD     #2,(SP)         ;FIX UP RETURN PC
003574  000207                          RTS     PC              ;RETURN WITH MICROPROCESSOR STUCK IN SINGLE
                                                                ;    INSTRUCTION LOOP
                                ;*****************************************************************************
                                ;* READAX - THIS SUBROUTINE READS THE USYRT REG PAIR WHOSE NUMBER (0-3)
                                ;*      IS PASSED IN BITS 1,2 OF AXNUM ON ENTRY, AND RETURNS THE BYTES READ IN
                                ;*      RAX15 AND RAX16. IF THE LINE UNIT DOES NOT RESPOND WITH READY IN REG 14,
                                ;*      RRDYTO BIT IS SET IN ERROR1 ON RETURN.
                                ;*****************************************************************************
003576  010146                  READAX: MOV     R1,-(SP)        ;SAVE R1
003600  013746  002364                  MOV     REGNUM,-(SP)    ;STORE CURRENT REG NO.
003604  042737  000001  002410          BIC     #RRDYTO,ERROR1  ;CLEAR ERROR BIT
003612  012737  000014  002364          MOV     #14,REGNUM      ;SET LU REG NO. = 14
003620  113737  002366  002352          MOVB    AXNUM,WRIBYT    ;SET UP AX REG NO. BITS
003626  006237  002352                  ASR     WRIBYT
003632  152737  000024  002352          BISB    #RDAX!ENAX,WRIBYT ;SET UP BITS TO LOAD INTO REG 14
003640  053737  002416  002352          BIS     DISILO,WRIBYT   ;SET PROPER STATE OF DISSI BIT
003646  004737  003422                  JSR     PC,WRITLU       ;SET RDAX AND ENAX IN REG 14
003652  005001                          CLR     R1              ;INIT TIMER
003654  004737  003344          6$:     JSR     PC,READLU       ;READ REG 14
003660  132737  000200  002350          BITB    #READY,REDBYT   ;SEE IF READY BIT SET IN REG 14 YET
003666  001006                          BNE     9$              ;BR IF READY SET
003670  005201                          INC     R1              ;INCR TIMER
003672  001370                          BNE     6$              ;BR IF TIMER DIDN'T TIME OUT YET
003674  052737  000001  002410          BIS     #RRDYTO,ERROR1  ;SET ERROR FLAG FOR TIME OUT ON READ RDY
003702  000424                          BR      12$             ;BR TO RETURN
003704  012737  000015  002364  9$:     MOV     #15,REGNUM      ;SET REG NO. = 15
003712  004737  003344                  JSR     PC,READLU       ;READ REG 15
003716  113737  002350  002354          MOVB    REDBYT,RAX15    ;STORE REG AX-15
003724  105037  002355                  CLRB    RAX15+1         ;CLR HI BYTE OF STORAGE
003730  012737  000016  002364          MOV     #16,REGNUM      ;SET REG NO. = 16
003736  004737  003344                  JSR     PC,READLU       ;READ REG 16
003742  113737  002350  002356          MOVB    REDBYT,RAX16    ;STORE REG AX-16
003750  105037  002357                  CLRB    RAX16+1         ;CLR HI BYTE OF STORAGE
003754  012637  002364          12$:    MOV     (SP)+,REGNUM    ;RESTORE CURRENT REG NO.
003760  012601                          MOV     (SP)+,R1        ;RESTORE R1
003762  000207                          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.
                        ;*****************************************************************************
004364 010146           WRITAX: MOV     R1,-(SP)          ;SAVE R1
004366 013746 002364            MOV     REGNUM,-(SP)      ;SAVE CURRENT REG NO.
004372 042737 000002 002410     BIC     #WRDYTO,ERROR1    ;CLEAR ERROR BIT
004000 012737 000014 002364     MOV     #14,REGNUM        ;SET LU REG NO.   14
004006 113737 002366 002352     MOVB    AXNUM,WRIBYT      ;SET AX REG NO. BITS
004014 006237 002352            ASR     WRIBYT
004020 053737 002416 002352     BIS     DISILO,WRIBYT     ;SET PROPER STATE OF DISSI BIT
004026 004737 003422            JSR     PC,WRITLU         ;SET AX NO. BITS IN REG 14
004032 012737 000015 002364     MOV     #15,REGNUM        ;SET REG NO. = 15
004040 105037 002361            CLRB    WAX15+1           ;CLR HI BYTE OF STORAGE
004044 113737 002360 002352     MOVB    WAX15,WRIBYT      ;SET UP BYTE TO WRITE INTO REG 15
004052 004737 003422            JSR     PC,WRITLU         ;WRITE BYTE INTO REG 15
004056 005237 002364            INC     REGNUM            ;SET REG NO. = 16
004062 105037 002363            CLRB    WAX16+1           ;CLR HI BYTE OF STORAGE
004066 113737 002362 002352     MOVB    WAX16,WRIBYT      ;SET UP BYTE TO WRITE INTO REG 16
004074 004737 003422            JSR     PC,WRITLU         ;WRITE BYTE INTO REG 16
004100 012737 000014 002364     MOV     #14,REGNUM        ;SET REG NO. = 14
004106 113737 002366 002352     MOVB    AXNUM,WRIBYT      ;SET AX REG NO. BITS
004114 006237 002352            ASR     WRIBYT
004120 152737 000014 002352     BISB    #ENAX!WAX,WRIBYT  ;SET UP BITS TO LOAD INTO REG 14
004126 053737 002416 002352     BIS     DISILO,WRIBYT     ;SET PROPER STATE OF DISSI BIT
004134 004737 003422            JSR     PC,WRITLU         ;SET ENAX AND WAX IN REG 14
004140 005001                   CLR     R1                ;INIT PROGRAM TIMER
004142 004737 003344    6$:     JSR     PC,READLU         ;READ REG 14
004146 132737 000200 002350     BITB    #READY,REDBYT     ;SEE IF READY BIT SET IN REG 14 YET
004154 001005                   BNE     9$                ;BR IF READY SET
004156 005201                   INC     R1                ;INCR TIMER
004160 001370                   BNE     6$                ;BR IF TIMER DIDN'T TIME OUT YET
004162 052737 000002 002410     BIS     #WRDYTO,ERROR1    ;SET ERROR FLAG BIT FOR TIME OUT ON WRITE RDY
004170 012637 002364    9$:     MOV     (SP)+,REGNUM      ;RESTORE CURRENT REG NO.
004174 012601                   MOV     (SP)+,R1          ;RESTORE R1
004176 000207                   RTS     PC                ;RETURN


                        ;*****************************************************************************
                        ;* GETALL - THIS SUBROUTINE READS THE LINE UNIT REGS 10-17 AND THE EXTENDED
                        ;*      REGISTERS AX0-AX3 INTO REGISTER STORAGE TABLE (LUREG:).
                        ;*****************************************************************************
004200 010146           GETALL: MOV     R1,-(SP)          ;SAVE R1
004202 013746 002366            MOV     AXNUM,-(SP)       ;SAVE CURRENT AX REG BYTE NO.
004206 012737 015164 002516     MOV     #DH5,TMP0         ;SET AX LO BYTE NO.
004214 032737 000001 002366     BIT     #BIT0,AXNUM       ;SEE IF LO OR HI BYTE
004222 001403                   BEQ     1$                ;BR IF LO BYTE
004224 012737 015167 002516     MOV     #DH6,TMP0         ;SET AX HI BYTE NO.
004232 004737 003470    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
                                TRAP    C$ERDF
                                .WORD   8
                                .WORD   EM8
```

```
                                                                                .WORD   ERR4
279 004462  000436                          BR      16$             ;TAKE ERROR RETURN
280 004464  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
281 004472  004737  003344                  JSR     PC,READLU       ;READ LU REG 17
282 004476  132776  000002  000004          BITB    #BIT1,@4(SP)    ;GET EXPECTED STATE OF OCOR
283 004504  001413                          BEQ     12$             ;BR IF EXPECTED OCOR = 0
284 004506  132737  000020  002350          BITB    #OCOR,REDBYT    ;SEE IF OCOR = 1
285 004514  001031                          BNE     20$             ;BR IF OCOR = 1
286 004516  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
287                             ;REPORT OCOR NOT SET
288 004522                                  ERRDF   9,EM9,ERR4
    004522  104455                                                  TRAP    C$ERDF
    004524  000011                                                 .WORD   9
    004526  013334                                                 .WORD   EM9
    004530  016350                                                 .WORD   ERR4
289 004532  000412                          BR      16$             ;TAKE ERROR RETURN
290 004534  132737  000020  002350  12$:     BITB    #OCOR,REDBYT    ;SEE IF OCOR = 0
291 004542  001416                          BEQ     20$             ;BR IF OCOR = 0
292 004544  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
293                             ;REPORT OCOR NOT CLEARED
294 004550                                  ERRDF   10,EM10,ERR4
    004550  104455                                                  TRAP    C$ERDF
    004552  000012                                                 .WORD   10
    004554  013351                                                 .WORD   EM10
    004556  016350                                                 .WORD   ERR4
295 004560  016637  000002  002364  16$:     MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
296 004566  013706  002332                  MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
297 004572  013746  002346                  MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
298 004576  000407                          BR      23$
299 004600  062766  000002  000004  20$:     ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
300 004606  012637  002336                  MOV     (SP)+,SUBRPC
301 004612  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
302 004616  000207                  23$:    RTS     PC              ;RETURN
303
304
305
306
307
308                             ;*****************************************************************************
309                             ;* WAIT50 - THIS SUBROUTINE STALLS FOR AT LEAST 50 MICRO-SEC, AND THEN RETURNS.
310                             ;*****************************************************************************
311 004620  010146              WAIT50: MOV     R1,-(SP)        ;SAVE R1
312 004622  012701  000310              MOV     #200.,R1        ;INIT COUNTER
313 004626  005301              3$:     DEC     R1              ;DECREMENT COUNTER
314 004630  001376                      BNE     3$              ;BR IF NOT DONE YET
315 004632  012601                      MOV     (SP)+,R1        ;RESTORE R1
316 004634  000207                      RTS     PC              ;RETURN
317
318
319
320
321
322                             ;*****************************************************************************
323                             ;* STALL - THIS SUBROUTINE STALLS FOR ABOUT A MICRO-SEC.
324                             ;*****************************************************************************
325 004636  000240              STALL:  NOP
326 004640  000240                      NOP
```

```
004642  000240                                  NOP
004644  000207                                  RTS     PC





                                        ;*****************************************************************************
                                        ;* LDTXSI - THIS SUBROUTINE LOADS THE TX SILO (REGS 10,11) WITH THE DATA PASSED
                                        ;*        IN BITS 0-11 OF TXWORD.
                                        ;*****************************************************************************
004646  013746  002364                  LDTXSI: MOV     REGNUM,-(SP)        ;SAVE LU REG NO.
004652  042737  170000  002412                  BIC     #170000,TXWORD      ;CLEAR UNUSED BITS
004660  012737  000011  002364                  MOV     #11,REGNUM          ;SET REG NO. = 11
004666  113737  002413  002352                  MOVB    TXWORD+1,WRIBYT     ;SET DATA TO BE WRITTEN INTO REG 11
004674  004737  003422                          JSR     PC,WRITLU           ;LOAD DATA INTO REG 11
004700  012737  000010  002364                  MOV     #10,REGNUM          ;SET REG NO. = 10
004706  113737  002412  002352                  MOVB    TXWORD,WRIBYT       ;SET DATA TO BE WRITTEN INTO REG 10
004714  004737  003422                          JSR     PC,WRITLU           ;LOAD DATA INTO REG 10
004720  012637  002364                          MOV     (SP)+,REGNUM        ;RESTORE LU REG NO.
004724  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.
                                        ;*****************************************************************************
004726  010146                          STPLU:  MOV     R1,-(SP)            ;SAVE R1
004730  017601  000002                          MOV     @2(SP),R1           ;GET DESIRED NO. OF CYCLES
004734  001426                                  BEQ     6$                  ;IF DESIRED CYCLES = 0, RETURN
004736  100006                                  BPL     2$                  ;BR IF CHIP TYPE CHECK NOT NECESSARY
004740  042701  100000                          BIC     #BIT15,R1           ;CLEAR FLAG BIT
004744  005737  002420                          TST     CHPTYP              ;SEE IF SIG USYRT
004750  001401                                  BEQ     2$                  ;BR IF YES
004752  005301                                  DEC     R1                  ;DECREMENT CYCLE COUNT
004754  152777  000010  175456  2$:     BISB    #LULOOP,@BSEL1      ;SET LU LOOP BIT
004762  152777  000020  175450  3$:     BISB    #STEPLU,@BSEL1      ;SET THE STEPLU BIT (CLOCK THE TRANSMITTER)
004770  004737  004636                          JSR     PC,STALL            ;STALL
004774  142777  000020  175436                  BICB    #STEPLU,@BSEL1      ;CLEAR THE STEPLU BIT (CLOCK THE RECEIVER)
005002  004737  004636                          JSR     PC,STALL            ;STALL
005006  005301                                  DEC     R1                  ;DECREMENT CYCLE COUNTER
005010  001364                                  BNE     3$                  ;BR IF NOT DONE YET
005012  062766  000002  000002  6$:     ADD     #2,2(SP)            ;FIX UP RETURN PC
005020  012601                                  MOV     (SP)+,R1            ;RESTORE R1
005022  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.
                                        ;*****************************************************************************
005024  013746  002364          OACTIV: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
005030  013746  002336                  MOV     SUBRPC,-(SP)
005034  005737  002336                  TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
005040  001006                          BNE     1$              ;BR IF YES
005042  016637  000004  002336          MOV     4(SP),SUBRPC
005050  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
005056  012737  000011  002364  1$:     MOV     #11,REGNUM      ;SET REG NO. = 11
005064  004737  003344                  JSR     PC,READLU       ;READ REG 11
005070  032776  000001  000004          BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF OACT
005076  001413                          BEQ     3$              ;BR IF EXPECTED OACT = 0
005100  132737  000100  002350          BITB    #OACT,REDBYT    ;SEE IF OACT = 1
005106  001031                          BNE     9$              ;BR IF OACT = 1
005110  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT OACT NOT SET
005114                                  ERRDF   11,EM11,ERR4
005114  104455                                                  TRAP    C$ERDF
005116  000013                                                  .WORD   11
005120  013372                                                  .WORD   EM11
005122  016350                                                  .WORD   ERR4
005124  000412                          BR      6$              ;TAKE ERROR RETURN
005126  132737  000100  002350  3$:     BITB    #OACT,REDBYT    ;SEE IF OACT = 0
005134  001416                          BEQ     9$              ;BR IF OACT = 0
005136  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT OACT NOT CLEARED
005142                                  ERRDF   12,EM12,ERR4
005142  104455                                                  TRAP    C$ERDF
005144  000014                                                  .WORD   12
005146  013407                                                  .WORD   EM12
005150  016350                                                  .WORD   ERR4
005152  016637  000002  002364  6$:     MOV     2(SP),REGNUM    ;RESTORE LU REG NO.
005160  013706  002332                  MOV     PSTACK,SP       ;RESTORE PROGRAM STACK TO BASE LEVEL
005164  013746  002346                  MOV     RETADR,-(SP)    ;FIX UP FRROR RETURN PC
005170  000407                          BR      12$
005172  062766  000002  000004  9$:     ADD     #2 4(SP)        ;FIX UP ERROR-FREE RETURN PC
005200  012637  002336                  MOV     (SP)+,SUBRPC
005204  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
005210  000207                  12$:    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.
                                        ;*      IF THE SUBROUTINE DETECTS AN ERROR, A RETURN IS MADE TO THE TEST, AT THE
                                        ;*      ADDRESS CONTAINED IN RETADR.
                                        ;*****************************************************************************
005212  010146                  INITRN: MOV     R1,-(SP)        ;SAVE R1
005214  013746  002364                  MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
```

GLOBAL SUBROUTINES

```
433 005220  013746  002366                  MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
434 005224  016637  000006  002336          MOV     6(SP),SUBRPC
435 005232  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
436 005240  004737  003276                  JSR     PC,MSTCLR       ;ISSUE A MASTER CLEAR
437 005244  004737  004334                  JSR     PC,OSIRDY       ;CHECK ORDY-1, OCOR=0
438 005250  000001                          1
439 005252  004737  005024                  JSR     PC,OACTIV       ;CHK OACT=0
440 005256  000000                          0
441 005260  012737  000004  002366          MOV     #4,AXNUM        ;SET AX BYTE NO. = 4 FOR AX2
442 005266  117637  000006  002360          MOVB    @6(SP),WAX15    ;SET DATA BYTE TO LOAD INTO AX2-15
443 005274  012737  000400  002412          MOV     #TXSOM,TXWORD   ;SET TSOM BIT
444 005302  113737  002360  002412          MOVB    WAX15,TXWORD    ;SET SYNCH CHAR
445 005310  005037  002362                  CLR     WAX16
446 005314  004737  003764                  JSR     PC,WRITAX       ;LOAD AX2
447 005320  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
448 005326  062766  000002  000006          ADD     #2,6(SP)        ;INCR POINTER TO NEXT DATA BYTE
449 005334  117637  000006  002352          MOVB    @6(SP),WRIBYT   ;SET DATA BYTE TO LOAD INTO REG 17
450 005342  004737  003422                  JSR     PC,WRITLU       ;LOAD REG 17
451 005346  004737  004646                  JSR     PC,LDTXSI       ;LOAD THE SILO WITH SOM CHAR
452 005352  004737  004646                  JSR     PC,LDTXSI       ;LOAD ANOTHER SOM INTO SILO
453 005356  004737  004620                  JSR     PC,WAIT50       ;WAIT FOR DATA TO RIPPLE
454 005362  004737  004334                  JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=1
455 005366  000003                          3
456 005370  004737  005024                  JSR     PC,OACTIV       ;CHK FOR OACT = 0
457 005374  000000                          0
458 005376  005001                          CLR     R1              ;INIT CYCLE COUNTER
459 005400  012737  000011  002364          MOV     #11,REGNUM      ;SET LU REG NO. = 11
460 005406  152777  000010  175024  6$:     BISB    #LULOOP,@BSEL1  ;SET LINE UNIT LOOP BIT
461 005414  152777  000020  175016          BISB    #STEPLU,@BSEL1  ;SET CLOCK BIT
462 005422  004737  004636                  JSR     PC,STALL        ;STALL FOR MICRO-SEC
463 005426  004737  003344                  JSR     PC,READLU       ;READ REG 11
464 005432  132737  000100  002350          BITB    #OACT,REDBYT    ;SEE IF OACT = 1 YET
465 005440  001014                          BNE     9$              ;BR IF OACT = 1
466 005442  142777  000020  174770          BICB    #STEPLU,@BSEL1  ;CLEAR CLOCK BIT
467 005450  004737  004636                  JSR     PC,STALL        ;STALL FOR A MICRO-SEC
468 005454  005201                          INC     R1              ;INCR CYCLE COUNT
469 005456  020127  000003                  CMP     R1,#3           ;SEE IF 3 CYCLES DONE YET
470 005462  002751                          BLT     6$              ;BR IF NOT
471 005464  004737  005024                  JSR     PC,OACTIV       ;CHK FOR OACT = 1
472 005470  000001                          1
473 005472  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
474 005500  005037  002420                  CLR     CHPTYP          ;CLEAR USYRT CHIP INDICATOR
475 005504  004737  003344                  JSR     PC,READLU       ;READ REG 17
476 005510  132737  000020  002350          BITB    #OCOR,REDBYT    ;CHK FOR OCOR CLEARED YET
477 005516  001403                          BEQ     12$             ;BR IF YES - IT IS SIG CHIP
478 005520  012737  000001  002420          MOV     #1,CHPTYP       ;SET INDICATOR FOR OTHER CHIP TYPE
479 005526  142777  000020  174704  12$:    BICB    #STEPLU,@BSEL1  ;CLEAR CLOCK BIT
480 005534  004737  004636                  JSR     PC,STALL        ;STALL FOR MICRO-SEC
481 005540  004737  004334                  JSR     PC,OSIRDY       ;CHK FOR ORDY = 1, OCOR = 0
482 005544  000001                          1
483 005546  062766  000002  000006          ADD     #2,6(SP)        ;FIX UP RETURN PC
484 005554  012637  002366                  MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
485 005560  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
486 005564  012601                          MOV     (SP)+,R1        ;RESTORE R1
487 005566  005037  002336                  CLR     SUBRPC          ;CLEAR SUBR CALL PC
488 005572  000207                          RTS     PC              ;RETURN
489
```

```
                        ;*****************************************************************************
                        ;* 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.
                        ;*****************************************************************************
005574  010146         TXCHAR: MOV     R1,-(SP)        ;SAVE R1
005576  010246                 MOV     R2,-(SP)        ;SAVE R2
005600  016637  000004  002336         MOV     4(SP),SUBRPC
005606  162737  000004  002336         SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
005614  017637  000004  002412         MOV     @4(SP),TXWORD   ;GET DATA TO BE TRANSMITTED
005622  004737  004646                 JSR     PC,LDTXSI       ;LOAD THE TX SILO WITH THE DATA
005626  004737  004620                 JSR     PC,WAIT50       ;WAIT FOR DATA TO RIPPLE DOWN SILO
005632  062766  000002  000004         ADD     #2,4(SP)        ;INCR POINTER
005640  005001                 CLR     R1              ;INIT CYCLE COUNT
005642  017602  000004                 MOV     @4(SP),R2       ;GET DESIRED NO. OF CYCLES
005646  005702                 TST     R2              ;SEE IF CHIP TYPE CHK SHOULD BE MADE
005650  100006                 BPL     9$              ;BR IF NOT
005652  042702  100000         BIC     #BIT15,R2       ;CLEAR FLAG BIT
005656  005737  002420         TST     CHPTYP          ;SEE IF SIG USYRT
005662  001401                 BEQ     9$              ;BR IF YES
005664  005302                 DEC     R2              ;DECREMENT NO. OF CYCLES
005666  004737  005024   9$:   JSR     PC,OACTIV       ;CHK OACT = 1
005672  000001                 1
005674  020102                 CMP     R1,R2           ;SEE IF REQUIRED CYCLES DONE YET
005676  001410                 BEQ     12$             ;BR IF YES
005700  004737  004334         JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=1
005704  000003                 3
005706  004737  004726         JSR     PC,STPLU        ;STEP LU ONE CYCLE
005712  000001                 1
005714  005201                 INC     R1              ;INCR CYCLE COUNT
005716  000763                 BR      9$
005720  004737  004334   12$:  JSR     PC,OSIRDY       ;CHK ORDY=1, OCOR=0
005724  000001                 1
005726  062766  000002  000004         ADD     #2,4(SP)        ;FIX UP RETURN PC
005734  005037  002336         CLR     SUBRPC          ;CLEAR SUBR CALL PC
005740  012602                 MOV     (SP)+,R2        ;RESTORE R2
005742  012601                 MOV     (SP)+,R1        ;RESTORE R1
005744  000207                 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
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GLOBAL SUBROUTINES

```
                                        ;*      CALL.
                                        ;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS
                                        ;*      IN RETADR.
                                        ;*****************************************************************************
006746  013746  002364          ISIRDY: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
006752  013746  002336                  MOV     SUBRPC,-(SP)
006756  005737  002336                  TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
006762  001006                          BNE     1$              ;BR IF YES
006764  016637  000004  002336          MOV     4(SP),SUBRPC
006772  162737  000004  002336          SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
006000  012737  000012  002364  1$:     MOV     #12,REGNUM      ;SET REG NO. TO 12
006006  004737  003344                  JSR     PC,READLU       ;READ REG 12
006012  032776  000002  000004          BIT     #BIT1,@4(SP)    ;GET EXPECTED STATE OF IRDY
006020  001413                          BEQ     3$              ;BR IF EXPECTED IRDY - 0
006022  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY - 1
006030  001022                          BNE     9$              ;BR IF IRDY = 1
006032  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT IRDY NOT SET
                                        ERRDF   17,EM17,ERR4
006036                                                                  TRAP    C$ERDF
006036  104455                                                          .WORD   17
006040  000021                                                          .WORD   EM17
006042  013430                                                          .WORD   ERR4
006044  016350
006046  000451                          BR      16$             ;TAKE ERROR EXIT
006050  132737  000020  002350  3$:     BITB    #IRDY,REDBYT    ;SEE IF IRDY = 0
006056  001407                          BEQ     9$              ;BR IF IRDY = 0
006060  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT IRDY NOT CLEARED
                                        ERRDF   18,EM18,ERR4
006064                                                                  TRAP    C$ERDF
006064  104455                                                          .WORD   18
006066  000022                                                          .WORD   EM18
006070  013445                                                          .WORD   ERR4
006072  016350
006074  000436                          BR      6$              ;TAKE ERROR RETURN
006076  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
006104  004737  003344                  JSR     PC,READLU       ;READ REG 17
006110  132776  000001  000004          BITB    #BIT0,@4(SP)    ;GET EXPECTED STATE OF ICIR
006116  001413                          BEQ     12$             ;BR IF EXPECTED ICIR - 0
006120  132737  000010  002350          BITB    #ICIR,REDBYT    ;SEE IF ICIR = 1
006126  001031                          BNE     20$             ;BR IF ICIR - 1
006130  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT ICIR NOT SET
                                        ERRDF   19,EM19,ERR4
006134                                                                  TRAP    C$ERDF
006134  104455                                                          .WORD   19
006136  000023                                                          .WORD   EM19
006140  013466                                                          .WORD   ERR4
006142  016350
006144  000412                          BR      16$             ;TAKE ERROR RETURN
006146  132737  000010  002350  12$:    BITB    #ICIR,REDBYT    ;SEE IF ICIR = 0
006154  001416                          BEQ     20$             ;BR IF ICIR = 0
006156  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT ICIR NOT CLEARED
                                        ERRDF   20,EM20,ERR4
006162                                                                  TRAP    C$ERDF
006162  104455                                                          .WORD   20
006164  000024                                                          .WORD   EM20
006166  013503                                                          .WORD   ERR4
006170  016350
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```
006172  016637  000002  002364  16$:    MOV     2(SP),REGNUM     ;RESTORE LU REG NO.
006200  013706  002332                  MOV     PSTACK,SP        ;RESTORE STACK POINTER TO BASE LEVEL
006204  013746  002346                  MOV     RETADR,-(SP)     ;FIX ERROR RETURN PC
006210  000407                          BR      23$
006212  062766  000002  000004  20$:    ADD     #2,4(SP)         ;FIX UP ERROR-FREE RETURN PC
006220  012637  002336                  MOV     (SP)+,SUBRPC
006224  012637  002364                  MOV     (SP)+,REGNUM     ;RESTORE LU REG NO.
006230  000207                  23$:    RTS     PC               ;RETURN





                                ;*******************************************************************
                                ;* IACTIV - THIS SUBROUTINE CHECKS FOR THE PROPER STATE OF IACT (REG 12) AND
                                ;*      REPORTS AN ERROR IF IT IS NOT PROPERLY SET TO THE STATE OF BIT 0 IN THE
                                ;*      WORD FOLLOWING THE CALL.
                                ;*      IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS IN
                                ;*      RETADR.
                                ;*******************************************************************
006232  013746  002364          IACTIV: MOV     REGNUM,-(SP)     ;SAVE LU REG NO.
006236  013746  002336                  MOV     SUBRPC,-(SP)
006242  005737  002336                  TST     SUBRPC           ;SEE IF THIS IS A NESTED CALL
006246  001006                          BNE     1$               ;BR IF YES
006250  016637  000004  002336          MOV     4(SP),SUBRPC
006256  162737  000004  002336          SUB     #4,SUBRPC        ;GET PC OF SUBR CALL
006264  012737  000012  002364  1$:     MOV     #12,REGNUM       ;SET REG NO. = 12
006272  004737  003344                  JSR     PC,READLU        ;READ REG 12
006276  032776  000001  000004          BIT     #BIT0,@4(SP)     ;GET EXPECTED STATE OF IACT
006304  001413                          BEQ     3$               ;BR IF EXPECTED IACT = 0
006306  132737  000100  002350          BITB    #IACT,REDBYT     ;SEE IF IACT = 1
006314  001031                          BNE     9$               ;BR IF IACT = 1
006316  004737  004200                  JSR     PC,GETALL        ;GET REGS FOR PRINTOUT
                                ;REPORT IACT NOT SET
006322                                  ERRDF   21,EM21,ERR4
006322  104455                                                                   TRAP    C$ERDF
006324  000025                                                                   .WORD   21
006326  013524                                                                   .WORD   EM21
006330  016350                                                                   .WORD   ERR4
006332  000412                          BR      6$               ;TAKE ERROR EXIT
006334  132737  000100  002350  3$:     BITB    #IACT,REDBYT     ;SEE IF IACT = 0
006342  001416                          BEQ     9$               ;BR IF IACT = 0
006344  004737  004200                  JSR     PC,GETALL        ;GET REGS FOR PRINTOUT
                                ;REPORT IACT NOT CLEARED
006350                                  ERRDF   22,EM22,ERR4
006350  104455                                                                   TRAP    C$ERDF
006352  000026                                                                   .WORD   22
006354  013541                                                                   .WORD   EM22
006356  016350                                                                   .WORD   ERR4
006360  016637  000002  002364  6$:     MOV     2(SP),REGNUM     ;RESTORE LU REG NO.
006366  013706  002332                  MOV     PSTACK,SP        ;RESTORE PROGRAM STACK TO BASE LEVEL
006372  013746  002346                  MOV     RETADR,-(SP)     ;FIX UP ERROR RETURN PC
006376  000407                          BR      12$
006400  062766  000002  000004  9$:     ADD     #2,4(SP)         ;FIX UP ERROR-FREE RETURN PC
006406  012637  002336                  MOV     (SP)+,SUBRPC
006412  012637  002364                  MOV     (SP)+,REGNUM     ;RESTORE LU REG NO.
006416  000207                  12$:    RTS     PC               ;RETURN
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GLOBAL SUBROUTINES

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                                ;*********************************************************************************
                                ;* RSEOM - THIS SUBROUTINE CHECKS FOR THE PROPER STATES OF RSOM AND REOM IN
                                ;* AX0-16, AND REPORTS AN ERROR IF EITHER IS NOT SET TO THE STATE PASSED IN BITS
                                ;* 0,1, RESPECTIVELY, OF THE WORD FOLLOWING THE CALL.
                                ;* IF AN ERROR OCCURS, A RETURN IS MADE TO THE TEST AT THE ADDRESS IN RETADR.
                                ;*********************************************************************************
006420  013746  002366        RSEOM:  MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
006424  013746  002336                MOV     SUBRPC,-(SP)
006430  005737  002336                TST     SUBRPC          ;SEE IF THIS IS A NESTED CALL
006434  001006                        BNE     1$              ;BR IF YES
006436  016637  000004  002336        MOV     4(SP),SUBRPC
006444  162737  000004  002336        SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
006452  012737  000001  002366  1$:   MOV     #1,AXNUM        ;SET AX BYTE NO. FOR AX0-16
006460  004737  003576                JSR     PC,READAX       ;READ AX0
006464  032776  000001  000004        BIT     #BIT0,@4(SP)    ;GET EXPECTED STATE OF RSOM
006472  001413                        BEQ     3$              ;BR IF EXPECTED RSOM = 0
006474  132737  000001  002356        BITB    #RSOM,RAX'6     ;SEE IF RSOM = 1
006502  001022                        BNE     9$              ;BR IF RSOM = 1
006504  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT RSOM NOT SET
                                        ERRDF   29,EM29,ERR6
006510                                                                  TRAP    C$ERDF
006510  104455                                                          .WORD   29
006512  000035                                                          .WORD   EM29
006514  013603                                                          .WORD   ERR6
006516  017540
006520  000444                        BR      16$             ;TAKE ERROR EXIT
006522  132737  000001  002356  3$:   BITB    #RSOM,RAX16     ;SEE IF RSOM = 0
006530  001407                        BEQ     9$              ;BR IF RSOM = 0
006532  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT RSOM NOT CLEARED
006536                                  ERRDF   28,EM28,ERR6
006536  104455                                                          TRAP    C$ERDF
006540  000034                                                          .WORD   28
006542  013562                                                          .WORD   EM28
006544  017540                                                          .WORD   ERR6
006546  000431                        BR      16$             ;TAKE ERROR RETURN
006550  132776  000002  000004  9$:   BITB    #BIT1,@4(SP)    ;GET EXPECTED STATE OF REOM
006556  001413                        BEQ     12$             ;BR IF EXPECTED REOM = 0
006560  132737  000002  002356        BITB    #REOM,RAX16     ;SEE IF REOM = 1
006566  001031                        BNE     20$             ;BR IF REOM = 1
006570  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT REOM NOT SET
                                        ERRDF   31,EM31,ERR6
006574                                                                  TRAP    C$ERDF
006574  104455                                                          .WORD   31
006576  000037                                                          .WORD   EM31
006600  013641                                                          .WORD   ERR6
006602  017540
006604  000412                        BR      16$             ;TAKE ERROR RETURN
006606  132737  000002  002356  12$:  BITB    #REOM,RAX16     ;SEE IF REOM = 0
006614  001416                        BEQ     20$             ;BR IF REOM = 0
006616  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                ;REPORT REOM NOT CLEARED
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                                                ERRDF   30,EM30,ERR6
                                                                                        TRAP    C$ERDF
                                                                                        .WORD   30
                                                                                        .WORD   EM30
                                                                                        .WORD   ERR6
                        16$:    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
                        CLR     R1              ;INIT CYCLE COUNT TO 0
                        MOV     @6(SP),R3       ;GET CYCLE COUNT LIMIT
                        ADD     #3,R3
                        TST     @6(SP)          ;SEE IF DESIRED CYCLES = 0
                        BEQ     8$              ;BR IF YES
```

```
                                JSR     PC,IACTIV       ;CHK FOR IACT = 0
                                0
                                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 0
                                1
                                JSR     PC,RSEOM        ;CHK RSOM = 0, REOM = 0 IN AX0-16
                                0
                        6$:     JSR     PC,STPLU        ;CLOCK LU FOR 1 CYCLE
                                1
                        8$:     JSR     PC,WAIT50       ;ALLOW SILO DATA TO RIPPLE
                                INC     R1              ;INCREMENT CYCLE COUNT
                                JSR     PC,READLU       ;READ REG 12
                                BITB    #IRDY,REDBYT    ;SEE IF IRDY = 1 YET
                                BNE     9$              ;BR IF IRDY = 1
                                CMP     R1,R3           ;SEE IF LIMIT EXCEEDED
                                BLT     6$              ;BR IF NOT YET
                                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 1
                                3
                        9$:     CMP     R1,@6(SP)       ;SEE IF LESS THAN REQUIRED CYCLES
                                BGE     12$             ;BR IF NOT
                                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 0
                                1
                        12$:    JSR     PC,IACTIV       ;CHK FOR IACT = 1
                                1
                                JSR     PC,ISIRDY       ;CHK FOR ICIR = 1, IRDY = 1
                                3
                                ADD     #2,6(SP)        ;FIX UP RETURN PC
                                MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
                                MOV     (SP)+,R3        ;RESTORE R3
                                MOV     (SP)+,R1        ;RESTORE R1
                                CLR     SUBRPC          ;CLEAR SUBR CALL PC
                                RTS     PC              ;RETURN


;*****************************************************************************
;* STPERR - THIS SUBROUTINE LOADS THE CONTENTS OF THE FIRST WORD FOLLOWING THE
;*      CALL INTO REG 17, AND SETS THE IERR BIT, AND CLOCKS THE LINE UNIT
;*      FOR THE NO. OF CYCLES PASSED IN THE 2ND WORD FOLLOWING THE CALL. THEN,
;*      IT RESTORES REG 17 TO ITS ORIGINAL CONTENTS, CLEARING THE IERR BIT.
;*****************************************************************************
;
STPERR: MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
        MOV     #17,REGNUM      ;SET LU REG NO. = 17
        MOV     @2(SP),WRIBYT
        BISB    #IERR,WRIBYT
        JSR     PC,WRITLU       ;SET IERR BIT IN REG 17
        ADD     #2,2(SP)        ;INCREMENT SUBR ARGUMENT POINTER
        MOV     @2(SP),3$       ;GET DESIRED NO. OF CYCLES
        JSR     PC,STPLU        ;CLOCK LU FOR DESIRED NO. OF CYCLES
3$:     .WORD   0               ;NO. OF CYCLES GOES HERE
        BICB    #IERR,WRIBYT
        JSR     PC,WRITLU       ;CLEAR IERR BIT IN REG 17
        ADD     #2,2(SP)        ;FIX UP RETURN PC
        MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
        RTS     PC              ;RETURN
```

```
                        ;*****************************************************************************
                        ;* CKDATA - THIS SUBROUTINE READS THE RCV SILO AND COMPARES THE SILO ENTRY
                        ;*      TO BITS 0-11 OF THE FIRST WORD FOLLOWING THE CALL. IF THERE IS A
                        ;*      MISMATCH, THE ERROR IS REPORTED AND A RETURN IS MADE TO THE TEST AT THE
                        ;*      ADDRESS CONTAINED IN RETADR. IF BIT 15 = 0 IN THE FIRST WORD
                        ;*      FOLLOWING THE CALL, THE SUBROUTINE WILL NOT CHECK THE BCC BIT (SILO
                        ;*      BIT 8). IF THERE ARE NO ERRORS, THE LINE UNIT IS CLOCKED FOR THE
                        ;*      NUMBER OF CYCLES PASSED IN THE SECOND WORD FOLLOWING THE CALL.
                        ;*****************************************************************************
007266  010146         CKDATA: MOV     R1,-(SP)          ;SAVE R1
007270  013746 002364           MOV     REGNUM,-(SP)      ;SAVE LU REG NO.
007274  016637 000004 002336   MOV     4(SP),SUBRPC
007302  162737 000004 002336   SUB     #4,SUBRPC         ;GET PC OF SUBR CALL
007310  017601 000004          MOV     @4(SP),R1         ;GET EXPECTED SILO ENTRY
007314  042701 170000          BIC     #170000,R1        ;CLEAR UNUSED BITS FOR COMPARE
007320  004737 006672          JSR     PC,RDRXSI         ;READ RCV SILO
007324  023727 002424 000347   CMP     SAVLEN,#TXLEN2.TXLEN1.TXLEN0!RXLEN2!RXLEN1 RXLEN0
007332  001005                 BNE     4$                ;BR IF CHAR LENGTH NOT   7
007334  042701 000200          BIC     #BIT7,R1          ;MASK OFF 8TH BIT
007340  042737 000200 002414   BIC     #BIT7,RXWORD
007346  120137 002414       4$: CMPB    R1,RXWORD         ;COMPARE EXPECTED BITS 0-7 TO ACTUAL
007352  001445                 BEQ     6$                ;BR IF MATCH
007354  005037 002370          CLR     GOODAT
007360  110137 002370          MOVB    R1,GOODAT         ;GET EXPECTED DATA
007364  005037 002372          CLR     BADDAT
007370  113737 002414 002372   MOVB    RXWORD,BADDAT     ;GET ACTUAL DATA
007376  012737 000011 002364   MOV     #11,REGNUM        ;SET REG NO. = 11
007404  004737 003344          JSR     PC,READLU         ;READ REG 11
007410  132737 000001 002350   BITB    #UNRR,REDBYT      ;SEE IF TX UNDERRUN ERROR
007416  001410                 BEQ     5$                ;BR IF NOT,TO REPORT DATA ERROR
007420  004737 004200          JSR     PC,GETALL         ;GET REGS FOR PRINTOUT
                        ;REPORT TX UNDERRUN ERROR
007424                         ERRDF   54,EM54,ERR4
007424  104455                                                          TRAP    C$ERDF
007426  000066                                                          .WORD   54
007430  014533                                                          .WORD   EM54
007432  016350                                                          .WORD   ERR4
007434  000137 010116          JMP     36$               ;TAKE ERROR EXIT
007440  012737 000010 002364 5$: MOV     #10,REGNUM        ;SET REG NO.   10
007446  004737 004200          JSR     PC,GETALL         ;GET REGS FOR PRINTOU
                        ;REPORT RCV'D DATA MISCOMPARE
007452                         ERRDF   34,EM34,ERR8
007452  104455                                                          TRAP    C$ERDF
007454  000042                                                          .WORD   34
007456  013656                                                          .WORD   EM34
007460  020650                                                          .WORD   ERR8
007462  000137 010116          JMP     36$               ;TAKE ERROR EXIT
007466  000301             6$: SWAB    R1
007470  012737 000012 002364   MOV     #12,REGNUM        ;SET LU REG NO. FOR ERROR REPORTS
007476  120137 002415          CMPB    R1,RXWORD+1       ;COMPARE EXPECTED SILO BITS 8-11 TO ACTUAL
007502  001002                 BNE     7$                ;BR IF MISMATCH
007504  000137 010072          JMP     22$               ;CONTINUE
007510  005037 002370      7$: CLR     GOODAT
```

```
841 007514  110137  002370                  MOVB    R1,GOODAT           ;SET EXPECTED DATA
842 007520  005037  002372                  CLR     BADDAT
843 007524  113737  002415  002372          MOVB    RXWORD+1,BADDAT     ;SET ACTUAL DATA
844 007532  032776  100000  000004          BIT     #BCCCHK,@4(SP)      ;SEE IF BCC SHOULD BE IGNORED
845 007540  001433                          BEQ     10$                 ;BR IF YES
846 007542  132701  000001                  BITB    #BCC,R1             ;SEE IF EXPECTED BIT   1
847 007546  001014                          BNE     8$                  ;BR IF YES
848 007550  132737  000001  002415          BITB    #BCC,RXWORD+1       ;SEE IF ACTUAL BIT = 0
849 007556  001424                          BEQ     10$                 ;BR IF YES
850 007560  004737  004200                  JSR     PC,GETALL           ;GET REGS FOR PRINTOUT
851                                 ;REPORT BCC NOT CLEARED
852 007564                                  ERRDF   35,EM35,ERR8
    007564  104455                                                                  TRAP    C$ERDF
    007566  000043                                                                  .WORD   35
    007570  013704                                                                  .WORD   EM35
    007572  020650                                                                  .WORD   ERR8
853 007574  000137  010116                  JMP     36$                 ;TAKE ERROR EXIT
854 007600  132737  000001  002415  8$:     BITB    #BCC,RXWORD+1       ;SEE IF ACTUAL BIT   1
855 007606  001010                          BNE     10$                 ;BR IF YES
856 007610  004737  004200                  JSR     PC,GETALL           ;GET REGS FOR PRINTOUT
857                                 ;REPORT BCC NOT SET
858 007614                                  ERRDF   36,EM36,ERR8
    007614  104455                                                                  TRAP    C$ERDF
    007616  000044                                                                  .WORD   36
    007620  013724                                                                  .WORD   EM36
    007622  020650                                                                  .WORD   ERR8
859 007624  000137  010116                  JMP     36$                 ;TAKE ERROR EXIT
860 007630                          10$:
861 007630  132701  000002                  BITB    #EBLK,R1            ;SEE IF EXPECTED BIT   1
862 007634  001014                          BNE     12$                 ;BR IF YES
863 007636  132737  000002  002415          BITB    #EBLK,RXWORD+1      ;SEE IF ACTUAL BIT - 0
864 007644  001424                          BEQ     14$                 ;BR IF YES
865 007646  004737  004200                  JSR     PC,GETALL           ;GET REGS FOR PRINTOUT
866                                 ;REPORT EBLK NOT CLEARED
867 007652                                  ERRDF   37,EM37,ERR8
    007652  104455                                                                  TRAP    C$ERDF
    007654  000045                                                                  .WORD   37
    007656  013740                                                                  .WORD   EM37
    007660  020650                                                                  .WORD   ERR8
868 007662  000137  010116                  JMP     36$                 ;TAKE ERROR EXIT
869 007666  132737  000002  002415  12$:    BITB    #EBLK,RXWORD+1      ;SEE IF ACTUAL BIT   1
870 007674  001010                          BNE     14$                 ;BR IF YES
871 007676  004737  004200                  JSR     PC,GETALL           ;GET REGS FOR PRINTOUT
872                                 ;REPORT EBLK NOT SET
873 007702                                  ERRDF   38,EM38,ERR8
    007702  104455                                                                  TRAP    C$ERDF
    007704  000046                                                                  .WORD   38
    007706  013761                                                                  .WORD   EM38
    007710  020650                                                                  .WORD   ERR8
874 007712  000137  010116                  JMP     36$                 ;TAKE ERROR EXIT
875 007716                          14$:
876 007716  132701  000004                  BITB    #RAB,R1             ;SEE IF EXPECTED BIT - 1
877 007722  001014                          BNE     16$                 ;BR IF YES
878 007724  132737  000004  002415          BITB    #RAB,RXWORD+1       ;SEE IF ACTUAL BIT = 0
879 007732  001424                          BEQ     18$                 ;BR IF YES
880 007734  004737  004200                  JSR     PC,GETALL           ;GET REGS FOR PRINTOUT
881                                 ;REPORT RAB NOT CLEARED
```

```
                                                ERRDF   39,EM39,ERR8
    007740  104455                                                                  TRAP    C$ERDF
    007742  000047                                                                  .WORD   39
    007744  013776                                                                  .WORD   EM39
    007746  020650                                                                  .WORD   ERR8
                                                JMP     36$             ;TAKE ERROR EXIT
007754  132737  000004  002415  16$:          BITB    #RAB,RXWORD+1   ;SEE IF ACTUAL BIT = 1
007762  001010                                BNE     18$             ;BR IF YES
007764  004737  004200                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT RAB NOT SET
                                                ERRDF   40,EM40,ERR8
    007770  104455                                                                  TRAP    C$ERDF
    007772  000050                                                                  .WORD   40
    007774  014016                                                                  .WORD   EM40
    007776  020650                                                                  .WORD   ERR8
010000  000137  010116                        JMP     36$             ;TAKE ERROR EXIT
010004                                  18$:
010004  132701  000010                        BITB    #OVRR,R1        ;SEE IF EXPECTED BIT = 1
010010  001014                                BNE     20$             ;BR IF YES
010012  132737  000010  002415                BITB    #OVRR,RXWORD+1  ;SEE IF ACTUAL BIT = 0
010020  001424                                BEQ     22$             ;BR IF YES
010022  004737  004200                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OVRR NOT CLEARED
                                                ERRDF   41,EM41,ERR8
    010026  104455                                                                  TRAP    C$ERDF
    010030  000051                                                                  .WORD   41
    010032  014032                                                                  .WORD   EM41
    010034  020650                                                                  .WORD   ERR8
010036  000137  010116                        JMP     36$             ;TAKE ERROR EXIT
010042  132737  000010  002415  20$:          BITB    #OVRR,RXWORD+1  ;SEE IF ACTUAL BIT = 1
010050  001010                                BNE     22$             ;BR IF YES
010052  004737  004200                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OVRR NOT SET
                                                ERRDF   42,EM42,ERR8
    010056  104455                                                                  TRAP    C$ERDF
    010060  000052                                                                  .WORD   42
    010062  014053                                                                  .WORD   EM42
    010064  020650                                                                  .WORD   ERR8
010066  000137  010116                        JMP     36$             ;TAKE ERROR EXIT
010072                                  22$:
010072  062766  000002  000004                ADD     #2,4(SP)        ;INCR SUBROUTINE ARGUMENT POINTER
010100  017637  000004  010112                MOV     @4(SP),24$      ;GET DESIRED CYCLE COUNT
010106  004737  004726                        JSR     PC,STPLU        ;CLOCK LU FOR DESIRED CYCLES
010112  000000                          24$:  .WORD   0
010114  000407                                BR      38$             ;TAKE ERROR-FREE EXIT
010116  011637  002364                  36$:  MOV     (SP),REGNUM     ;RESTORE LU REG NO.
010122  013706  002332                        MOV     PSTACK,SP       ;RESTORE PROGRAM STACK TO BASE LEVEL
010126  013746  002346                        MOV     RETADR,-(SP)    ;FIX UP ERROR RETURN PC
010132  000406                                BR      40$
010134  062766  000002  000004  38$:          ADD     #2,4(SP)        ;FIX UP ERROR-FREE RETURN PC
010142  012637  002364                        MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
010146  012601                                MOV     (SP)+,R1        ;RESTORE R1
010150  005037  002336                  40$:  CLR     SUBRPC          ;CLEAR SUBROUTINE PC
010154  000207                                RTS     PC              ;RETURN
```

```
                        ;*****************************************************************************
                        ;* 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.
                        ;*****************************************************************************
010156  010146          LODATA: MOV     R1,-(SP)        ;SAVE R1
010160  010346                  MOV     R3,-(SP)        ;SAVE R3
010162  010446                  MOV     R4,-(SP)        ;SAVE R4
010164  004737  010720          JSR     PC,LODSIL       ;LOAD 5 SOM'S INTO TX SILO
010170  000400                  TXSOM
010172  000005                  5
010174  012701  000002          MOV     #2,R1           ;INIT COUNTER
010200  012704  002762          MOV     #RCVBUF,R4      ;GET POINTER TO RCV BUF
010204  012703  002557  3$:     MOV     #PATA,R3        ;GET POINTER TO DATA PATTERN
010210  005037  002412  6$:     CLR     TXWORD
010214  112337  002412          MOVB    (R3)+,TXWORD    ;GET A DATA CHAR
010220  013724  002412          MOV     TXWORD,(R4)+    ;LOAD A DATA CHAR INTO RCV BUF
010224  004737  004646          JSR     PC,LDTXSI       ;LOAD DATA CHAR INTO TX SILO
010230  020327  002603          CMP     R3,#PATB        ;SEE IF AT END OF PATTERN A YET
010234  103765                  BLO     6$              ;BR IF NOT YET
010236  005301                  DEC     R1              ;DECREMENT COUNTER
010240  001361                  BNE     3$              ;BR IF NOT DONE YET
010242  052764  100400  177776  BIS     #CRCCHK!RXBCC,-2(R4) ;SET UP TO CHK BCC   1 ON LAST DATA CHAR
010250  012737  001000  002412  MOV     #TXEOM,TXWORD
010256  004737  004646          JSR     PC,LDTXSI       ;LOAD AN EOM INTO TX SILO
010262  004737  004646          JSR     PC,LDTXSI       ;LOAD ANOTHER EOM
010266  012604                  MOV     (SP)+,R4        ;RESTORE R4
010270  012603                  MOV     (SP)+,R3        ;RESTORE R3
010272  012601                  MOV     (SP)+,R1        ;RESTORE R1
010274  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.
                        ;*****************************************************************************
010276  013746  002366  SETUP:  MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
010302  013746  002364          MOV     REGNUM,-(SP)    ;SAVE LU REG NO.
010306  012737  000004  002366  MOV     #4,AXNUM        ;SET AX BYTE NO. FOR AX2
010314  017637  000004  002360  MOV     @4(SP),WAX15
010322  005037  002362          CLR     WAX16
010326  004737  003764          JSR     PC,WRITAX       ;SET SYNCH CHAR IN AX2-15, CLEAR AX2-16
010332  012737  000017  002364  MOV     #17,REGNUM      ;SET LU REG NO. = 17
010340  062766  000002  000004  ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
010346  017637  000004  002352  MOV     @4(SP),WRIBYT
010354  004737  003422          JSR     PC,WRITLU       ;LOAD REG 17
010360  012737  000006  002366  MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
010366  062766  000002  000004  ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
010374  017637  000004  002360  MOV     @4(SP),WAX15
010402  062766  000002  000004  ADD     #2,4(SP)        ;INCREMENT ARGUMENT POINTER
```

```
 980 010410  017637  000004  002362          MOV     @4(SP),WAX16
 981 010416  013737  002362  002424          MOV     WAX16,SAVLEN    ;STORE TX AND RCV CHAR LENGTHS
 982 010424  142777  000010  172006          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
 983 010432  004737  003764                  JSR     PC,WRITAX       ;LOAD AX3-15, AX3-16
 984 010436  152777  000010  171774          BISB    #LULOOP,@BSEL1  ;SET LULOOP
 985 010444  062766  000002  000004          ADD     #2,4(SP)        ;FIX RETURN PC
 986 010452  012637  002364                  MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
 987 010456  012637  002366                  MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
 988 010462  005037  002336                  CLR     SUBRPC          ;CLEAR SUBROUTINE PC STORAGE
 989 010466  000207                          RTS     PC              ;RETURN
 990
 991
 992
 993
 994
 995                                ;*************************************************************************
 996                                ;* LODMSG - THIS SUBROUTINE LOADS THE NO. OF WORDS PASSED IN THE SECOND WORD
 997                                ;*       FOLLOWING THE CALL FROM THE MSG BUFFER WHOSE ADDRESS IS IN THE FIRST
 998                                ;*       WORD FOLLOWING THE CALL, INTO THE TRANSMITTER SILO.
 999                                ;*************************************************************************
1000 010470  010146                LODMSG: MOV     R1,-(SP)        ;SAVE R1
1001 010472  010246                        MOV     R2,-(SP)        ;SAVE R2
1002 010474  017601  000004                MOV     @4(SP),R1       ;GET MSG POINTER INTO R1
1003 010500  062766  000002  000004        ADD     #2,4(SP)        ;INCR ARG POINTER
1004 010506  017602  000004                MOV     @4(SP),R2       ;GET WORD COUNT INTO R2
1005 010512  062766  000002  000004        ADD     #2,4(SP)        ;FIX UP RETURN PC
1006 010520  012137  002412          6$:   MOV     (R1)+,TXWORD    ;GET NEXT MSG WORD
1007 010524  004737  004646                JSR     PC,LDTXSI       ;LOAD A WORD INTO TX SILO
1008 010530  005302                        DEC     R2              ;DECR COUNT
1009 010532  001372                        BNE     6$              ;BR IF NOT DONE YET
1010 010534  004737  004620                JSR     PC,WAIT50       ;WAIT FOR SILO TO RIPPLE
1011 010540  012602                        MOV     (SP)+,R2        ;RESTORE R2
1012 010542  012601                        MOV     (SP)+,R1        ;RESTORE R1
1013 010544  000207                        RTS     PC              ;RETURN
1014
1015
1016
1017
1018
1019                               ;*************************************************************************
1020                               ;* LDBYTS - THIS SUBROUTINE LOADS THE NO. OF BYTES PASSED IN THE SECOND WORD
1021                               ;*       FOLLOWING THE CALL FROM THE MSG BUFFER WHOSE ADDRESS IS IN THE FIRST
1022                               ;*       WORD FOLLOWING THE CALL, INTO THE LOW BYTE OF THE TX SILO. FOR EACH
1023                               ;*       BYTE LOADED, A 0 IS LOADED INTO THE HI 4 BITS OF THE TX SILO.
1024                               ;*************************************************************************
1025 010546  010146                LDBYTS: MOV     R1,-(SP)        ;SAVE R1
1026 010550  010246                        MOV     R2,-(SP)        ;SAVE R2
1027 010552  017601  000004                MOV     @4(SP),R1       ;GET DATA POINTER INTO R1
1028 010556  062766  000002  000004        ADD     #2,4(SP)        ;INCR ARGUMENT POINTER
1029 010564  017602  000004                MOV     @4(SP),R2       ;GET BYTE COUNT INTO R2
1030 010570  062766  000002  000004        ADD     #2,4(SP)        ;FIX UP RETURN PC
1031 010576  112137  002412          6$:   MOVB    (R1)+,TXWORD    ;GET NEXT DATA BYTE
1032 010602  105037  002413                CLRB    TXWORD+1        ;CLEAR HI BYTE
1033 010606  004737  004646                JSR     PC,LDTXSI       ;LOAD A SILO ENTRY
1034 010612  005302                        DEC     R2              ;DECR BYTE COUNT
1035 010614  001370                        BNE     6$              ;BR IF NOT DONE YET
1036 010616  004737  004620                JSR     PC,WAIT50       ;WAIT FOR SILO TO RIPPLE
```

GLOBAL SUBROUTINES

```
1037 010622  012602                    MOV     (SP)+,R2        ;RESTORE R2
1038 010624  012601                    MOV     (SP)+,R1        ;RESTORE R1
1039 010626  000207                    RTS     PC              ;RETURN
1040
1041
1042
1043
1044
1045                            ;*****************************************************************************
1046                            ;* LDMSG1 - THIS SUBROUTINE LOADS THE TRANSMITTER SILO WITH MSG1, AND LOADS
1047                            ;*      THE DATA CHARS INTO THE RCV MSG BUFFER (RCVBUF:), AS EXPECTED DATA
1048                            ;*      FOR LATER COMPARISON.
1049                            ;*****************************************************************************
1050 010630  010146            LDMSG1: MOV     R1,-(SP)        ;SAVE R1
1051 010632  010246                    MOV     R2,-(SP)        ;SAVE R2
1052 010634  004737  010720            JSR     PC,LODSIL       ;LOAD 3 SOM'S INTO TX SILO
1053 010640  000400                    TXSOM
1054 010642  000003                    3
1055 010644  004737  010470            JSR     PC,LODMSG       ;LOAD MSG1 INTO TX SILO (WITH 2 SOM'S, 1 EOM)
1056 010650  002670                    MSG1
1057 010652  000010                    8.
1058 010654  012701  002674            MOV     #MSG1+4,R1      ;GET POINTER TO MSG1
1059 010660  012702  002762            MOV     #RCVBUF,R2      ;GET POINTER TO MSG BUF
1060 010664  012122            3$:     MOV     (R1)+,(R2)+     ;LOAD A CHAR INTO MSG BUF
1061 010666  020127  002706            CMP     R1,#MSG+14.     ;SEE IF DID LAST DATA CHAR YET
1062 010672  103774                    BLO     3$              ;BR IF NOT
1063 010674  052762  100400  177776    BIS     #CRCCHK,RXBCC,-2(R2) ;SET EXPECTED BCC
1064 010702  012722  000160            MOV     #160,(R2)+      ;LOAD HI CRC BYTE
1065 010706  012722  000034            MOV     #034,(R2)+      ;LOAD LO CRC BYTE
1066 010712  012602                    MOV     (SP)+,R2        ;RESTORE R2
1067 010714  012601                    MOV     (SP)+,R1        ;RESTORE R1
1068 010716  000207                    RTS     PC              ;RETURN
1069
1070
1071
1072
1073
1074                            ;*****************************************************************************
1075                            ;* LODSIL - THIS SUBROUTINE REPEATEDLY LOADS THE DATA PASSED IN THE FIRST WORD
1076                            ;*      FOLLOWING THE CALL INTO THE TX SILO, FOR THE NO. OF TIMES PASSED IN THE
1077                            ;*      SECOND WORD FOLLOWING THE CALL.
1078                            ;*****************************************************************************
1079 010720  010146            LODSIL: MOV     R1,-(SP)        ;SAVE R1
1080 010722  017637  000002  002412    MOV     @2(SP),TXWORD   ;GET DATA
1081 010730  062766  000002  000002    ADD     #2,2(SP)        ;INCR ARGUMENT POINTER
1082 010736  017601  000002            MOV     @2(SP),R1       ;GET COUNT
1083 010742  004737  004646    3$:     JSR     PC,LDTXSI       ;LOAD WORD INTO TX SILO
1084 010746  005301                    DEC     R1              ;DECR COUNT
1085 010750  001374                    BNE     3$              ;BR IF NOT ALL LOADED YET
1086 010752  004737  004620            JSR     PC,WAIT50       ;ALLOW SILO DATA TO RIPPLE
1087 010756  062766  000002  000002    ADD     #2,2(SP)        ;FIX UP RETURN PC
1088 010764  012601                    MOV     (SP)+,R1        ;RESTORE R1
1089 010766  000207                    RTS     PC              ;RETURN
1090
1091
1092
1093
```

```
1094
1095                                    ;*******************************************************************************
1096                                    ;* CKLPBK - THIS SUBROUTINE DETERMINES IF THE TEST CALLING IT CAN BE RUN. THE
1097                                    ;*      TEST PASSES THE DESIRED MODEM INTERFACE TYPE IN THE WORD FOLLOWING THE
1098                                    ;*      CALL, AND IF THE PROPER EXTERNAL LOOPBACK HAS BEEN PROVIDED BY THE
1099                                    ;*      OPERATOR FOR THAT INTERFACE, AND IF THE BAUD RATE IS CORRECT, A NORMAL
1100                                    ;*      RETURN IS MADE TO RUN THE TEST. IF NOT, A RETURN IS MADE TO THE TEST,
1101                                    ;*      AT THE ADDRESS IN RETADR (RETADR CONTAINS THE TEST EXIT ADDRESS, SO
1102                                    ;*      THE TEST GETS SKIPPED).
1103                                    ;*      IF BIT 15 IS SET IN THE WORD FOLLOWING THE CALL, THE TEST WILL NOT
1104                                    ;*      BE RUN UNLESS THE H3254 AND H3255 TEST CONNECTORS ARE INSTALLED. IF THE
1105                                    ;*      TEST IS TO BE RUN, THE SUBROUTINE RETURNS THE MODEM SELECT BITS FOR
1106                                    ;*      AX3-15 IN MODINT. IF NECESSARY, THE SUBROUTINE WILL SET MAINT1, MAINT2,
1107                                    ;*      OR DTR.
1108                                    ;*      IF THE PROGRAM PASSES '0' IN THE WORD FOLLOWING THE CALL, THE SUBROUTINE
1109                                    ;*      WILL ATTEMPT TO RUN WHICHEVER MODEM INTERFACE IS SELECTED BY CABLE,
1110                                    ;*      SWITCH, OR TEST CONNECTOR. IF SUCCESSFUL, THE SELECTED INTERFACE WILL
1111                                    ;*      BE PASSED BACK TO THE TEST IN MODINT.
1112                                    ;*******************************************************************************
1113 010770  013746  002364            CKLPBK: MOV     REGNUM,-(SP)    ;SAVE REG NO.
1114 010774  013746  002366                    MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
1115 011000  010246                            MOV     R2,-(SP)        ;SAVE R2
1116 011002  016637  000006  002336            MOV     6(SP),SUBRPC
1117 011010  162737  000004  002336            SUB     #4,SUBRPC       ;GET PC OF SUBR CALL
1118 011016  012737  000333  002422            MOV     #I422!XYZ.V35.INTGRL!OP!TEST,MODINT ;INIT MODEM SELECT BITS
1119 011024  032776  100000  000006            BIT     #TCCHEK,@6(SP)  ;SEE IF H3254,5 CHECK IS DESIRED
1120 011032  001405                            BEQ     1$              ;BR IF NOT
1121 011034  005737  002462                    TST     TSTCON          ;SEE IF H3254,5 INSTALLED
1122 011040  001074                            BNE     7$              ;BR IF NOT, TO SKIP TEST
1123 011042  000137  012074                    JMP     32$             ;BR TO RUN TEST
1124                                    ;IF NO EXTERNAL LPBK, SKIP TEST
1125 011046  023727  002462  000004    1$:     CMP     TSTCON,#4       ;SEE IF NO LPBK
1126 011054  001466                            BEQ     7$              ;BR IF NO LPBK, TO SKIP TEST
1127 011056  142777  000010  171354            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1128 011064  012737  000006  002366            MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3-15
1129 011072  004737  003576                    JSR     PC,READAX       ;READ AX3-15
1130
1131                                    ;*** SEE IF AN INTERFACE IS REQUESTED ***
1132
1133 011076  027627  000006  000010            CMP     @6(SP),#INTGRL  ;SEE IF INTEGRAL MODEM REQUESTED
1134 011104  001422                            BEQ     4$              ;BR IF INTGRL MODEM REQUESTED
1135 011106  027627  000006  000020            CMP     @6(SP),#V35     ;SEE IF V.35 REQUESTED
1136 011114  001512                            BEQ     10$             ;BR IF V.35 REQUESTED
1137 011116  027627  000006  000200            CMP     @6(SP),#I422    ;SEE IF 422 REQUESTED
1138 011124  001002                            BNE     2$              ;BR IF 422 NOT REQUESTED
1139 011126  000137  011426                    JMP     14$             ;422 REQUESTED
1140 011132  027627  000006  000100    2$:     CMP     @6(SP),#XYZ     ;SEE IF XYZ REQUESTED
1141 011140  001002                            BNE     3$              ;BR IF XYZ NOT REQUESTED
1142 011142  000137  011462                    JMP     17$             ;XYZ REQUESTED
1143 011146  000137  011554            3$:     JMP     21$             ;NONE REQUESTED, FIND AN INTERFACE TO TEST
1144
1145                                    ;SEE IF INTEGRAL MODEM CAN BE RUN
1146 011152  005737  002462            4$:     TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1147 011156  001050                            BNE     8$              ;BR IF NOT
1148 011160  023727  002464  000004    5$:     CMP     BDRATE,#4       ;SEE IF BAUD RATE > OR = 56K
1149 011166  002405                            BLT     6$              ;BR IF BAUD RATE TOO SLOW FOR INTGRL MODM
1150 011170  042737  000010  002422            BIC     #INTGRL,MODINT  ;ASSERT INTEGRAL MODEM
```

```
1151 011176  000137  012074                    JMP     32$             ;GO TO RUN TEST
1152                                ;PRINT 'BAUD RATE INCORRECT'
1153 011202                         6$:
1154 011202  023727  002402  000001            CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1155 011210  001026                            BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1156 011212                                    PRINTF  #FMT25
     011212  012746  013127                                                    MOV     #FMT25,-(SP)
     011216  012746  000001                                                    MOV     #1,-(SP)
     011222  010600                                                            MOV     SP,R0
     011224  104417                                                            TRAP    C$PNTF
     011226  062706  000004                                                    ADD     #4,SP
1157                                ;PRINT 'TEST XX NOT RUN'
1158 011232                         7$:
1159 011232  023727  002402  000001            CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1160 011240  001012                            BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1161 011242                                    PRINTF  #FMT19,TSTNUM
     011242  013746  002434                                                    MOV     TSTNUM,-(SP)
     011246  012746  013076                                                    MOV     #FMT19,-(SP)
     011252  012746  000002                                                    MOV     #2,-(SP)
     011256  010600                                                            MOV     SP,R0
     011260  104417                                                            TRAP    C$PNTF
     011262  062706  000006                                                    ADD     #6,SP
1162 011266  013766  002346  000006  40$:       MOV     RETADR,6(SP)    ;SET TEST EXIT ADDRESS FOR ERRORS
1163 011274  000137  012102                    JMP     33$             ;GO TO SKIP TEST
1164 011300  032737  000010  002354  8$:       BIT     #INTGRL,RAX15   ;SEE IF INTEGRAL MODEM IS SELECTED
1165 011306  001324                            BNE     5$              ;BR IF YES, TO CHECK BAUD RATE
1166                                ;PRINT 'MODEM INTERFACE NOT SELECTED'
1167 011310                         9$:
1168 011310  023727  002402  000001            CMP     STARES,#1       ;SEE IF THIS IS FIRST PASS SINCE STA OR RES
1169 011316  001363                            BNE     40$             ;BR IF NOT, TO SKIP PRINTING
1170 011320                                    PRINTF  #FMT26
     011320  012746  013157                                                    MOV     #FMT26,-(SP)
     011324  012746  000001                                                    MOV     #1,-(SP)
     011330  010600                                                            MOV     SP,R0
     011332  104417                                                            TRAP    C$PNTF
     011334  062706  000004                                                    ADD     #4,SP
1171 011340  000734                            BR      7$              ;GO TO PRINT 'TEST NOT RUN'
1172
1173                                ;SEE IF V.35 CAN BE RUN
1174 011342  032737  000200  002354  10$:      BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1175 011350  001357                            BNE     9$              ;BR IF YES, TO SKIP TEST
1176 011352  005737  002462                    TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1177 011356  001010                            BNE     12$             ;BR IF H3254 AND H3255 NOT USED
1178 011360  012737  000004  002352  11$:      MOV     #MAINT2,WRIBYT  ;SET MAINT2 FOR MANUFACTURING TEST CONN.
1179 011366  042737  000020  002422            BIC     #V35,MODINT     ;ASSERT V.35
1180 011374  000137  011656                    JMP     42$             ;GO SET DTR AND RUN THE TEST
1181 011400  032737  000020  002354  12$:      BIT     #V35,RAX15      ;SEE IF V.35 IS SELECTED
1182 011406  001405                            BEQ     13$             ;BR IF NOT
1183 011410  042737  000020  002422            BIC     #V35,MODINT     ;ASSERT V.35
1184 011416  000137  011652                    JMP     27$             ;GO SET DTR AND RUN THE TEST
1185 011422  000137  011310            13$:    JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1186
1187                                ;SEE IF 422 CAN BE RUN
1188 011426  005737  002462            14$:    TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1189 011432  001005                            BNE     16$             ;BR IF NOT
1190 011434  042737  000200  002422  15$:      BIC     #I422,MODINT    ;ASSERT 422
1191 011442  000137  011652                    JMP     27$             ;GO TO RUN TEST
```

```
1192 011446  032737  000200  002354  16$:    BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1193 011454  001367                          BNE     15$             ;IF YES, GO ASSERT 422 AND RUN TEST
1194 011456  000137  011310                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1195
1196                                 ;SEE IF XYZ CAN BE RUN
1197 011462  032737  000200  002354  17$.    BIT     #I422,RAX15     ;SEE IF 422 IS SELECTED
1198 011470  001402                          BEQ     18$             ;BR IF NOT
1199 011472  000137  011310                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1200 011476  032737  000100  002354  18$:    BIT     #XYZ,RAX15      ;SEE IF XYZ IS SELECTED
1201 011504  001002                          BNE     19$             ;BR IF YES
1202 011506  000137  011310                  JMP     9$              ;WRONG INTRFCE, GO SKIP TEST
1203 011512  023727  002464  000004  19$:    CMP     BDRATE,#4       ;SEE IF BAUD RATE < OR = 56K
1204 011520  003402                          BLE     20$             ;BR IF YES
1205 011522  000137  011202                  JMP     6$              ;BAUD RATE TOO FAST FOR XYZ
1206 011526  042737  000100  002422  20$:    BIC     #XYZ,MODINT     ;ASSERT XYZ
1207 011534  005737  002462                  TST     TSTCON          ;SEE IF H3254,5 BEING USED
1208 011540  001044                          BNE     27$             ;BR IF NOT
1209 011542  012737  000004  002352          MOV     #MAINT2,WRIBYT
1210 011550  000137  011656                  JMP     42$             ;GO SET MAINT2 FOR MANUFACTURING TEST CONN.
1211
1212                                 ;*** NO INTERFACE REQUESTED - FIND ONE TO TEST ***
1213
1214 011554  032737  000010  002354  21$:    BIT     #INTGRL,RAX15   ;SEE IF INTEGRAL MODEM SELECTED
1215 011562  001402                          BEQ     22$             ;BR IF NOT
1216 011564  000137  011160                  JMP     5$              ;SEE IF INTEGRAL MODEM CAN BE RUN
1217 011570  032737  000020  002354  22$:    BIT     #V35,RAX15      ;SEE IF V.35 SELECTED
1218 011576  001402                          BEQ     23$             ;BR IF NOT
1219 011600  000137  011342                  JMP     10$             ;GO SEE IF V.35 CAN BE RUN
1220 011604  032737  000200  002354  23$:    BIT     #I422,RAX15     ;SEE IF 422 SELECTED
1221 011612  001402                          BEQ     24$             ;BR IF NOT
1222 011614  000137  011434                  JMP     15$             ;GO ASSERT AND RUN 422
1223 011620  005737  002462          24$:    TST     TSTCON          ;SEE IF H3254 AND H3255 USED
1224 011624  001002                          BNE     25$             ;BR IF NOT
1225 011626  000137  011360                  JMP     11$             ;GO ASSERT AND RUN V.35 BY DEFAULT
1226 011632  032737  000100  002354  25$:    BIT     #XYZ,RAX15      ;SEE IF XYZ SELECTED
1227 011640  001402                          BEQ     26$             ;BR IF NOT
1228 011642  000137  011512                  JMP     19$             ;GO SEE IF XYZ CAN BE RUN
1229 011646  000137  011310          26$:    JMP     9$              ;GO SKIP TEST
1230
1231                                 ;*** SET MAINT1 OR MAINT2 IF NEEDED, AND SET DTR ***
1232
1233                                 ;SET MAINT1 IF LOCAL LOOPBACK DESIRED
1234 011652  005037  002352          27$:    CLR     WRIBYT          ;INIT DATA TO BE WRITTEN
1235 011656  012737  000013  002364  42$:    MOV     #13,REGNUM      ;SET REG NO. = 13
1236 011664  023727  002462  000002          CMP     TSTCON,#2       ;SEE IF MODEM LOCAL LPBK DESIRED
1237 011672  001032                          BNE     29$             ;BR IF NOT, TO CHK REMOTE LPBK
1238 011674  112737  000010  002352          MOVB    #MAINT1,WRIBYT
1239 011702  004737  003422                  JSR     PC,WRITLU       ;SET MAINT1 IN REG 13
1240 011706  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
1241 011714  012702  000000                  MOV     #0,R2           ;INIT TIMER
1242 011720  004737  003344          28$:    JSR     PC,READLU       ;READ REG 17
1243 011724  132737  000004  002350          BITB    #TESTMD,REDBYT  ;SEE IF TEST MODE BIT SET IN REG 17 YET
1244 011732  001050                          BNE     31$             ;BR IF YES, TO SET DTR
1245 011734  005202                          INC     R2              ;INCREMENT TIMER
1246 011736  001370                          BNE     28$             ;BR IF NO TIME-OUT YET
1247 011740  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1248                                 ;REPORT TEST MODE NOT SET BY MAINT1
```

```
1249 011744                                    ERRDF   52,EM52,ERR4
     011744  104455                                                                TRAP    C$ERDF
     011746  000064                                                                .WORD   52
     011750  014443                                                                .WORD   EM52
     011752  016350                                                                .WORD   ERR4
1250 011754  000137  011232                    JMP     7$              ;BR TO SKIP TEST
1251                              ;SET MAINT2 IF REMOTE LOOPBACK DESIRED
1252 011760  023727  002462  000003  29$:     CMP     TSTCON,#3       ;SEE IF MODEM REMOTE LPBK DESIRED
1253 011766  001032                           BNE     31$             ;BR IF NOT, TO SET DTR
1254 011770  112737  000004  002352           MOVB    #MAINT2,WRIBYT
1255 011776  004737  003422                   JSR     PC,WRITLU       ;SET MAINT2 IN REG 13
1256 012002  012737  000017  002364           MOV     #17,REGNUM      ;SET REG NO. = 17
1257 012010  012702  000000                   MOV     #0,R2           ;INIT TIMER
1258 012014  004737  003344           30$:    JSR     PC,READLU       ;READ REG 17
1259 012020  132737  000004  002350           BITB    #TESTMD,REDBYT  ;SEE IF TEST MODE BIT SET IN REG 17 YET
1260 012026  001012                           BNE     31$             ;BR IF YES, TO SET DTR
1261 012030  005202                           INC     R2              ;INCREMENT TIMER
1262 012032  001370                           BNE     30$             ;BR IF NO TIME-OUT YET
1263 012034  004737  004200                   JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1264                              ;REPORT TEST MODE NOT SET BY MAINT2
1265 012040                                    ERRDF   53,EM53,ERR4
     012040  104455                                                                TRAP    C$ERDF
     012042  000065                                                                .WORD   53
     012044  014477                                                                .WORD   EM53
     012046  016350                                                                .WORD   ERR4
1266 012050  000137  011232                    JMP     7$              ;BR TO SKIP TEST
1267                              ;SET DTR
1268 012054  012737  000013  002364  31$:     MOV     #13,REGNUM      ;SET REG NO. = 13
1269 012062  152737  000100  002352           BISB    #DTR,WRIBYT     ;SET DTR BIT TO BE WRITTEN
1270 012070  004737  003422                   JSR     PC,WRITLU       ;LOAD REG 13
1271
1272                              ;*** BRANCH HERE TO RUN TEST ***
1273 012074  062766  000002  000006  32$:     ADD     #2,6(SP)        ;INCREMENT RETURN ADRS
1274
1275                              ;*** BRANCH HERE TO SKIP TEST ***
1276 012102  012602                   33$:     MOV     (SP)+,R2        ;RESTORE R2
1277 012104  012637  002366                   MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
1278 012110  012637  002364                   MOV     (SP)+,REGNUM    ;RESTORE LU REG NO.
1279 012114  152777  000010  170316           BISB    #LULOOP,@BSEL1  ;SET LULOOP
1280 012122  005037  002336                   CLR     SUBRPC          ;CLEAR SUBROUTINE CALL PC
1281 012126  000207                           RTS     PC              ;RETURN
1282
1283
1284
1285
1286
1287                              ;*****************************************************************************
1288                              ;* CHKABT - THIS SUBROUTINE READS AX0-16 AND CHECKS FOR RAB, REOM SET. IF
1289                              ;*      EITHER IS NOT SET, A RETURN IS MADE TO THE TEST, AT THE ADDRESS
1290                              ;*      CONTAINED IN RETADR.
1291                              ;*****************************************************************************
1292 012130  013746  002366           CHKABT: MOV     AXNUM,-(SP)     ;SAVE AX BYTE NO.
1293 012134  016637  000002  002336           MOV     2(SP),SUBRPC
1294 012142  162737  000004  002336           SUB     #4,SUBRPC       ;GET PC OF SUBROUTINE CALL
1295 012150  005037  002366                   CLR     AXNUM           ;SET AX0 ADDRESS
1296 012154  004737  003576                   JSR     PC,READAX       ;READ REG AX0
1297 012160  032737  000004  002356           BIT     #RABT,RAX16     ;CHK FOR RAB SET
```

```
1298 012166  001007                        BNE     6$              ;BR IF RAB SET
1299 012170  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1300                              ;REPORT RAB NOT SET
1301 012174                                ERRDF   40,EM40,ERR6
     012174  104455                                                TRAP    C$ERDF
     012176  000050                                                .WORD   40
     012200  014016                                                .WORD   EM40
     012202  017540                                                .WORD   ERR6
1302 012204  000412                        BR      8$
1303 012206  032737  000002  002356  6$:   BIT     #REOM,RAX16     ;CHK FOR REOM SET
1304 012214  001015                        BNE     9$              ;BR IF REOM SET
1305 012216  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1306                              ;REPORT REOM NOT SET
1307 012222                                ERRDF   31,EM31,ERR6
     012222  104455                                                TRAP    C$ERDF
     012224  000037                                                .WORD   31
     012226  013641                                                .WORD   EM31
     012230  017540                                                .WORD   ERR6
1308 01223   011637  002366          8$:   MOV     (SP),AXNUM      ;RESTORE AX BYTE NO.
1309 012236  013706  002332                MOV     PSTACK,SP       ;RESTORE STACK POINTER TO BASE LEVEL
1310 012242  013746  002346                MOV     RETADR,-(SP)    ;FIX ERROR RETURN PC
1311 012246  000402                        BR      16$
1312 012250  012637  002366          9$:   MOV     (SP)+,AXNUM     ;RESTORE AX BYTE NO.
1313 012254  000207                16$.    RTS     PC              ;RETURN
1314
1315
1316
1317
1318
```

```
                                .SBTTL  GLOBAL ERROR REPORT SECTION

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

012256  045  124  045  FMT1:   .ASCIZ  /%T%06%N/
012261  117  066  045
012264  116  000
012266  045  116  045  FMT2:   .ASCIZ  /%N%AFAILING REG: /
012271  101  106  101
012274  111  114  111
012277  116  107  040
012302  122  105  107
012305  072  040  000
012310  045  101  105  FMT3:   .ASCIZ  /%AEXPECTED: %03%S5%AACTUAL: %03%N/
012313  130  120  105
012316  103  124  105
012321  104  072  040
012324  045  117  063
012327  045  123  065
012332  045  101  101
012335  103  124  125
012340  101  114  072
012343  040  045  117
012346  063  045  116
012351  000
012352  045  116  045  FMT4:   .ASCIZ  /%N%T%N%T%N/
012355  124  045  116
012360  045  124  045
012363  116  000
012365  045  117  063  FMT5:   .ASCIZ  /%03%S5%03%S5%03%S5%03%N/
012370  045  123  065
012373  045  117  063
012376  045  123  065
012401  045  117  063
012404  045  123  065
012407  045  117  063
012412  045  116  000
012415  045  123  064  FMT6:   .ASCIZ  /%S4%03%S5%03%S5%03%S5%03%N/
012420  045  117  063
012423  045  123  065
012426  045  117  063
012431  045  123  065
012434  045  117  063
012437  045  123  065
012442  045  117  063
012445  045  116  000
012450  045  124  045  FMT7:   .ASCIZ  /%T%02%N/
012453  117  062  045
012456  116  000
012460  045  101  105  FMT8:   .ASCIZ  /%AEXTENDED REG AX%01%A-%T%N/
012463  130  124  105
012466  116  104  105
012471  104  040  122
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        012474  105     107     040
        012477  101     130     045
        012502  117     061     045
        012505  101     055     045
        012510  124     045     116
        012513  000
    17  012514  045     124     045  FMT9:    .ASCIZ  /%T%N/
        012517  116     000
    18  012521  045     101     120  FMT10:   .ASCIZ  /%APC OF SUBR CALL: %06%N/
        012524  103     040     117
        012527  106     040     123
        012532  125     102     122
        012535  040     103     101
        012540  114     114     072
        012543  040     045     117
        012546  066     045     116
        012551  000
    19  012552  045     101     122  FMT11:   .ASCIZ  /%AREG %02%A LOADED WITH: %03%N/
        012555  105     107     040
        012560  045     117     062
        012563  045     101     040
        012566  114     117     101
        012571  104     105     104
        012574  040     127     111
        012577  124     110     072
        012602  040     045     117
        012605  063     045     116
        012610  000
    20  012611  045     101     115  FMT12:   .ASCIZ  /%AM8203 SW PACK #1 (REG 11) = %03%N/
        012614  070     062     060
        012617  063     040     123
        012622  127     040     120
        012625  101     103     113
        012630  040     043     061
        012633  040     050     122
        012636  105     107     040
        012641  061     061     051
        012644  040     075     040
        012647  045     117     063
        012652  045     116     000
    21  012655  045     101     115  FMT13:   .ASCIZ  /%AM8203 SW PACK #2 (REG 15) = %03%N/
        012660  070     062     060
        012663  063     040     123
        012666  127     040     120
        012671  101     103     113
        012674  040     043     062
        012677  040     050     122
        012702  105     107     040
        012705  061     065     051
        012710  040     075     040
        012713  045     117     063
        012716  045     116     000
    22  012721  045     101     115  FMT14:   .ASCIZ  /%AM8203 SW PACK #3 (REG 16) = %03%N/
        012724  070     062     060
        012727  063     040     123
        012732  127     040     120
        012735  101     103     113
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        012740  040  043  063
        012743  040  050  122
        012746  105  107  040
        012751  061  066  051
        012754  040  075  040
        012757  045  117  063
        012762  045  116  000
    23  012765  045  101  115  FMT15:  .ASCIZ  /%AMODEM INTERFACE REG (Ax3-15) - %03%N/
        012770  117  104  105
        012773  115  040  111
        012776  116  124  105
        013001  122  106  101
        013004  103  105  040
        013007  122  105  107
        013012  040  050  101
        013015  130  063  055
        013020  061  065  051
        013023  040  075  040
        013026  045  117  063
        013031  045  116  000
    24  013034  045  116  045  FMT18:  .ASCIZ  /%N%AFOR DEVICE AT ADRS  %06%A ,%N/
        013037  101  106  117
        013042  122  040  104
        013045  105  126  111
        013050  103  105  040
        013053  101  124  040
        013056  101  104  122
        013061  123  040  040
        013064  045  117  066
        013067  045  101  040
        013072  054  045  116
        013075  000
    25  013076  045  116  045  FMT19:  .ASCIZ  /%N%ATEST %D2%A NOT RUN%N/
        013101  101  124  105
        013104  123  124  040
        013107  045  104  062
        013112  045  101  040
        013115  116  117  124
        013120  040  122  125
        013123  116  045  116
        013126  000
    26  013127  045  116  045  FMT25:  .ASCIZ  /%N%ABAUD RATE INCORRECT/
        013132  101  102  101
        013135  125  104  040
        013140  122  101  124
        013143  105  040  111
        013146  116  103  117
        013151  122  122  105
        013154  103  124  000
    27  013157  045  116  045  FMT26:  .ASCIZ  /%N%AMODEM INTERFACE NOT SELECTED/
        013162  101  115  117
        013165  104  105  115
        013170  040  111  116
        013173  124  105  122
        013176  106  101  103
        013201  105  040  116
        013204  117  124  040
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        013207  123  105  114
        013212  105  103  124
        013215  105  104  000
    28
    29
    30
    31  013220  122  105  107  EM2:    .ASCIZ  /REG NOT INITIALIZED BY MST CLR/
        013223  040  116  117
        013226  124  040  111
        013231  116  111  124
        013234  111  101  114
        013237  111  132  105
        013242  104  040  102
        013245  131  040  115
        013250  123  124  040
        013253  103  114  122
        013256  000
    32  013257  122  105  107  EM3:    .ASCIZ  /REG MISCOMPARE/
        013262  040  115  111
        013265  123  103  117
        013270  115  120  101
        013273  122  105  000
    33  013276  117  122  104  EM7:    .ASCIZ  /ORDY NOT SET/
        013301  131  040  116
        013304  117  124  040
        013307  123  105  124
        013312  000
    34  013313  117  122  104  EM8:    .ASCIZ  /ORDY NOT CLEARED/
        013316  131  040  116
        013321  117  124  040
        013324  103  114  105
        013327  101  122  105
        013332  104  000
    35  013334  117  103  117  EM9:    .ASCIZ  /OCOR NOT SET/
        013337  122  040  116
        013342  117  124  040
        013345  123  105  124
        013350  000
    36  013351  117  103  117  EM10:   .ASCIZ  /OCOR NOT CLEARED/
        013354  122  040  116
        013357  117  124  040
        013362  103  114  105
        013365  101  122  105
        013370  104  000
    37  013372  117  101  103  EM11:   .ASCIZ  /OACT NOT SET/
        013375  124  040  116
        013400  117  124  040
        013403  123  105  124
        013406  000
    38  013407  117  101  103  EM12:   .ASCIZ  /OACT NOT CLEARED/
        013412  124  040  116
        013415  117  124  040
        013420  103  114  105
        013423  101  122  105
        013426  104  000
    39  013430  111  122  104  EM17:   .ASCIZ  /IRDY NOT SET/
        013433  131  040  116
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        013436  117  124  040
        013441  123  105  124
        013444  000
    40  013445  111  122  104  EM18:   .ASCIZ  /IRDY NOT CLEARED/
        013450  131  040  116
        013453  117  124  040
        013456  103  114  105
        013461  101  122  105
        013464  104  000
    41  013466  111  103  111  EM19:   .ASCIZ  /ICIR NOT SET/
        013471  122  040  116
        013474  117  124  040
        013477  123  105  124
        013502  000
    42  013503  111  103  111  EM20:   .ASCIZ  /ICIR NOT CLEARED/
        013506  122  040  116
        013511  117  124  040
        013514  103  114  105
        013517  101  122  105
        013522  104  000
    43  013524  111  101  103  EM21:   .ASCIZ  /IACT NOT SET/
        013527  124  040  116
        013532  117  124  040
        013535  123  105  124
        013540  000
    44  013541  111  101  103  EM22:   .ASCIZ  /IACT NOT CLEARED/
        013544  124  040  116
        013547  117  124  040
        013552  103  114  105
        013555  101  122  105
        013560  104  000
    45  013562  122  123  117  EM28:   .ASCIZ  /RSOM NOT CLEARED/
        013565  115  040  116
        013570  117  124  040
        013573  103  114  105
        013576  101  122  105
        013601  104  000
    46  013603  122  123  117  EM29:   .ASCIZ  /RSOM NOT SET/
        013606  115  040  116
        013611  117  124  040
        013614  123  105  124
        013617  000
    47  013620  122  105  117  EM30:   .ASCIZ  /REOM NOT CLEARED/
        013623  115  040  116
        013626  117  124  040
        013631  103  114  105
        013634  101  122  105
        013637  104  000
    48  013641  122  105  117  EM31:   .ASCIZ  /REOM NOT SET/
        013644  115  040  116
        013647  117  124  040
        013652  123  105  124
        013655  000
    49  013656  122  103  126  EM34:   .ASCIZ  /RCV'D DATA MISCOMPARE/
        013661  047  104  040
        013664  104  101  124
        013667  101  040  115
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        013672  111  123  103
        013675  117  115  120
        013700  101  122  105
        013703  000
    50  013704  102  103  103  EM35:   .ASCIZ  /BCC NOT CLEARED/
        013707  040  116  117
        013712  124  040  103
        013715  114  105  101
        013720  122  105  104
        013723  000
    51  013724  102  103  103  EM36:   .ASCIZ  /BCC NOT SET/
        013727  040  116  117
        013732  124  040  123
        013735  105  124  000
    52  013740  105  102  114  EM37:   .ASCIZ  /EBLK NOT CLEARED/
        013743  113  040  116
        013746  117  124  040
        013751  103  114  105
        013754  101  122  105
        013757  104  000
    53  013761  105  102  114  EM38:   .ASCIZ  /EBLK NOT SET/
        013764  113  040  116
        013767  117  124  040
        013772  123  105  124
        013775  000
    54  013776  122  101  102  EM39:   .ASCIZ  /RAB NOT CLEARED/
        014001  040  116  117
        014004  124  040  103
        014007  114  105  101
        014012  122  105  104
        014015  000
    55  014016  122  101  102  FM40:   .ASCIZ  /RAB NOT SET/
        014021  040  116  117
        014024  124  040  123
        014027  105  124  000
    56  014032  117  126  122  EM41.   .ASCIZ  /OVRR NOT CLEARED/
        014035  122  040  116
        014040  117  124  040
        014043  103  114  105
        014046  101  122  105
        014051  104  000
    57  014053  117  126  122  EM42:   .ASCIZ  /OVRR NOT SET/
        014056  122  040  116
        014061  117  124  040
        014064  123  105  124
        014067  000
    58  014070  123  127  040  EM43:   .ASCIZ  /SW PACK #1 INCORRECT/
        014073  120  101  103
        014076  113  040  043
        014101  061  040  111
        014104  116  103  117
        014107  122  122  105
        014112  103  124  000
    59  014115  123  127  040  EM44:   .ASCIZ  /SW PACK #2 INCORRECT/
        014120  120  101  103
        014123  113  040  043
        014126  062  040  111
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                014131  116     103     117
                014134  122     122     105
                014137  103     124     000
     60         014142  123     127     040     EM45:   .ASCIZ  /SW PACK #3 INCORRECT/
                014145  120     101     103
                014150  113     040     043
                014153  063     040     111
                014156  116     103     117
                014161  122     122     105
                014164  103     124     000
     61         014167  122     103     126     EM46:   .ASCIZ  /RCV SILO NOT CLEARED BY IC/
                014172  040     123     111
                014175  114     117     040
                014200  116     117     124
                014203  040     103     114
                014206  105     101     122
                014211  105     104     040
                014214  102     131     040
                014217  111     103     000
     62         014222  101     123     123     EM47:   .ASCIZ  /ASSEMB BIT COUNT INCORRECT/
                014225  105     115     102
                014230  040     102     111
                014233  124     040     103
                014236  117     125     116
                014241  124     040     111
                014244  116     103     117
                014247  122     122     105
                014252  103     124     000
     63         014255  117     104     104     EM48:   .ASCIZ  /ODD VRC PARITY BIT NOT SET/
                014260  040     126     122
                014263  103     040     120
                014266  101     122     111
                014271  124     131     040
                014274  102     111     124
                014277  040     116     117
                014302  124     040     123
                014305  105     124     000
     64         014310  117     104     104     EM49:   .ASCIZ  /ODD VRC PARITY BIT NOT CLEARED/
                014313  040     126     122
                014316  103     040     120
                014321  101     122     111
                014324  124     131     040
                014327  102     111     124
                014332  040     116     117
                014335  124     040     103
                014340  114     105     101
                014343  122     105     104
                014346  000
     65         014347  105     126     105     EM50:   .ASCIZ  /EVEN VRC PARITY BIT NOT SET/
                014352  116     040     126
                014355  122     103     040
                014360  120     101     122
                014363  111     124     131
                014366  040     102     111
                014371  124     040     116
                014374  117     124     040
                014377  123     105     124
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                014402  000
     66         014403  105     126     105  EM51:   .ASCIZ  /EVEN VRC PARITY BIT NOT CLEARED/
                014406  116     040     126
                014411  122     103     040
                014414  120     101     122
                014417  111     124     131
                014422  040     102     111
                014425  124     040     116
                014430  117     124     040
                014433  103     114     105
                014436  101     122     105
                014441  104     000
     67         014443  124     105     123  EM52:   .ASCIZ  /TEST MODE NOT SET BY MAINT1/
                014446  124     040     115
                014451  117     104     105
                014454  040     116     117
                014457  124     040     123
                014462  105     124     040
                014465  102     131     040
                014470  115     101     111
                014473  116     124     061
                014476  000
     68         014477  124     105     123  EM53:   .ASCIZ  /TEST MODE NOT SET BY MAINT2/
                014502  124     040     115
                014505  117     104     105
                014510  040     116     117
                014513  124     040     123
                014516  105     124     040
                014521  102     131     040
                014524  115     101     111
                014527  116     124     062
                014532  000
     69         014533  124     130     040  EM54:   .ASCIZ  /TX UNDERRUN ERROR/
                014536  125     116     104
                014541  105     122     122
                014544  125     116     040
                014547  105     122     122
                014552  117     122     000
     70         014555  104     124     122  EM55:   .ASCIZ  /DTR NOT SET/
                014560  040     116     117
                014563  124     040     123
                014566  105     124     000
     71         014571  122     111     116  EM56:   .ASCIZ  /RING NOT SET/
                014574  107     040     116
                014577  117     124     040
                014602  123     105     124
                014605  000
     72         014606  115     117     104  EM57:   .ASCIZ  /MODR NOT SET/
                014611  122     040     116
                014614  117     124     040
                014617  123     105     124
                014622  000
     73         014623  110     104     130  EM58:   .ASCIZ  /HDX NOT SET/
                014626  040     116     117
                014631  124     040     123
                014634  105     124     000
     74         014637  123     124     102  EM59:   .ASCIZ  /STBY NOT SET/
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        014642  131  040  116
        014645  117  124  040
        014650  123  105  124
        014653  000
 75     014654  122  124  123  EM60:   .ASCIZ  /RTS NOT SET/
        014657  040  116  117
        014662  124  040  123
        014665  105  124  000
 76     014670  103  123  040  EM61:   .ASCIZ  /CS NOT SET/
        014673  116  117  124
        014676  040  123  105
        014701  124  000
 77     014703  103  101  122  EM62:   .ASCIZ  /CARR NOT SET/
        014706  122  040  116
        014711  117  124  040
        014714  123  105  124
        014717  000
 78     014720  123  111  107  EM63:   .ASCIZ  /SIGQ NOT SET/
        014723  121  040  116
        014726  117  124  040
        014731  123  105  124
        014734  000
 79     014735  123  111  107  EM64:   .ASCIZ  /SIGR NOT SET/
        014740  122  040  116
        014743  117  124  040
        014746  123  105  124
        014751  000
 80     014752  122  124  123  EM65:   .ASCIZ  /RTS NOT CLEARED/
        014755  040  116  117
        014760  124  040  103
        014763  114  105  101
        014766  122  105  104
        014771  000
 81     014772  103  101  122  EM66:   .ASCIZ  /CARR NOT CLEARED/
        014775  122  040  116
        015000  117  124  040
        015003  103  114  105
        015006  101  122  105
        015011  104  000
 82
 83
 84
 85     015013  111  116  102  DH1:    .ASCIZ  &INBUS/OUTBUS REG &
        015016  125  123  057
        015021  117  125  124
        015024  102  125  123
        015027  040  122  105
        015032  107  040  000
 86     015035  114  111  116  DH2:    .ASCIZ  /LINE UNIT INBUS REGS :/
        015040  105  040  125
        015043  116  111  124
        015046  040  111  116
        015051  102  125  123
        015054  040  122  105
        015057  107  123  040
        015062  072  000
 87     015064  122  105  107  DH3:    .ASCIZ  /REG10   REG11   REG12   REG13/
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        015067  061  060  040
        015072  040  040  122
        015075  105  107  061
        015100  061  040  040
        015103  040  122  105
        015106  107  061  062
        015111  040  040  040
        015114  122  105  107
        015117  061  063  000
    88  015122  040  040  040  DH4:    .ASCIZ  /    REG14   REG15   REG16   REG17/
        015125  040  122  105
        015130  107  061  064
        015133  040  040  040
        015136  122  105  107
        015141  061  065  040
        015144  040  040  122
        015147  105  107  061
        015152  066  040  040
        015155  040  122  105
        015160  107  061  067
        015163  000
    89  015164  061  065  000  DH5:    .ASCIZ  /15/
    90  015167  061  066  000  DH6:    .ASCIZ  /16/
    91  015172  114  111  116  DH7:    .ASCIZ  /LINE UNIT EXTENDED REGS :/
        015175  105  040  125
        015200  116  111  124
        015203  040  105  130
        015206  124  105  116
        015211  104  105  104
        015214  040  122  105
        015217  107  123  040
        015222  072  000
    92  015224  101  130  060  DH8:    .ASCIZ  /AX0-15  AX0-16  AX1-15  AX1-16/
        015227  055  061  065
        015232  040  040  101
        015235  130  060  055
        015240  061  066  040
        015243  040  101  130
        015246  061  055  061
        015251  065  040  040
        015254  101  130  061
        015257  055  061  066
        015262  000
    93  015263  040  040  040  DH9:    .ASCIZ  /    AX2-15  AX2-16  AX3-15  AX3-16/
        015266  040  101  130
        015271  062  055  061
        015274  065  040  040
        015277  101  130  062
        015302  055  061  066
        015305  040  040  101
        015310  130  063  055
        015313  061  065  040
        015316  040  101  130
        015321  063  055  061
        015324  066  000
    94
    95                        .EVEN
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   96
   97
   98
   99
  100
  101 015326                                    BGNMSG  ERR1
      015326                                                                  ERR1::
  102 015326                                    PRINTB  #FMT1,#ADDR S,MPCSR
      015326  013746  002436                                                          MOV     MPCSR,-(SP)
      015332  012746  036460                                                          MOV     #ADDRES,-(SP)
      015336  012746  012256                                                          MOV     #FMT1,-(SP)
      015342  012746  000003                                                          MOV     #3,-(SP)
      015346  010600                                                                  MOV     SP,R0
      015350  104414                                                                  TRAP    C$PNTB
      015352  062706  000010                                                          ADD     #10,SP
  103 015356                                    ENDMSG
      015356                                                                  L10002:
      015356  104423                                                                  TRAP    C$MSG
  104
  105
  106
  107 015360                                    BGNMSG  ERR2
      015360                                                                  ERR2::
  108 015360                                    PRINTB  #FMT1,#ADDRES,MPCSR
      015360  013746  002436                                                          MOV     MPCSR,-(SP)
      015364  012746  036460                                                          MOV     #ADDRES,-(SP)
      015370  012746  012256                                                          MOV     #FMT1,-(SP)
      015374  012746  000003                                                          MOV     #3,-(SP)
      015400  010600                                                                  MOV     SP,R0
      015402  104414                                                                  TRAP    C$PNTB
      015404  062706  000010                                                          ADD     #10,SP
  109 015410                                    PRINTB  #FMT2
      015410  012746  012266                                                          MOV     #FMT2,-(SP)
      015414  012746  000001                                                          MOV     #1,-(SP)
      015420  010600                                                                  MOV     SP,R0
      015422  104414                                                                  TRAP    C$PNTB
      015424  062706  000004                                                          ADD     #4,SP
  110 015430                                    PRINTB  #FMT7,#DH1,REGNUM
      015430  013746  002364                                                          MOV     REGNUM,-(SP)
      015434  012746  015013                                                          MOV     #DH1,-(SP)
      015440  012746  012450                                                          MOV     #FMT7,-(SP)
      015444  012746  000003                                                          MOV     #3,-(SP)
      015450  010600                                                                  MOV     SP,R0
      015452  104414                                                                  TRAP    C$PNTB
      015454  062706  000010                                                          ADD     #10,SP
  111 015460                                    PRINTB  #FMT3,GOODAT,BADDAT
      015460  013746  002372                                                          MOV     BADDAT,-(SP)
      015464  013746  002370                                                          MOV     GOODAT,-(SP)
      015470  012746  012310                                                          MOV     #FMT3,-(SP)
      015474  012746  000003                                                          MOV     #3,-(SP)
      015500  010600                                                                  MOV     SP,R0
      015502  104414                                                                  TRAP    C$PNTB
      015504  062706  000010                                                          ADD     #10,SP
  112 015510                                    PRINTX  #FMT4,#DH2,#DH3
      015510  012746  015064                                                          MOV     #DH3,-(SP)
      015514  012746  015035                                                          MOV     #DH2,-(SP)
      015520  012746  012352                                                          MOV     #FMT4,-(SP)
```

```
        015524  012746  000003                                          MOV     #3,-(SP)
        015530  010600                                                  MOV     SP,R0
        015532  104415                                                  TRAP    C$PNTX
        015534  062706  000010                                          ADD     #10,SP
113     015540                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        015540  013746  002274                                          MOV     LUR13,-(SP)
        015544  013746  002272                                          MOV     LUR12,-(SP)
        015550  013746  002270                                          MOV     LUR11,-(SP)
        015554  013746  002266                                          MOV     LUR10,-(SP)
        015560  012746  012365                                          MOV     #FMT5,-(SP)
        015564  012746  000005                                          MOV     #5,-(SP)
        015570  010600                                                  MOV     SP,R0
        015572  104415                                                  TRAP    C$PNTX
        015574  062706  000014                                          ADD     #14,SP
114     015600                          PRINTX  #FMT9,#DH4
        015600  012746  015122                                          MOV     #DH4,-(SP)
        015604  012746  012514                                          MOV     #FMT9,-(SP)
        015610  012746  000002                                          MOV     #2,-(SP)
        015614  010600                                                  MOV     SP,R0
        015616  104415                                                  TRAP    C$PNTX
        015620  062706  000006                                          ADD     #6,SP
115     015624                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        015624  013746  002304                                          MOV     LUR17,-(SP)
        015630  013746  002302                                          MOV     LUR16,-(SP)
        015634  013746  002300                                          MOV     LUR15,-(SP)
        015640  013746  002276                                          MOV     LUR14,-(SP)
        015644  012746  012415                                          MOV     #FMT6,-(SP)
        015650  012746  000005                                          MOV     #5,-(SP)
        015654  010600                                                  MOV     SP,R0
        015656  104415                                                  TRAP    C$PNTX
        015660  062706  000014                                          ADD     #14,SP
116     015664                          ENDMSG
        015664                                          L10003:
        015664  104423                                                  TRAP    C$MSG
117
118
119
120
121
122     015666                          BGNMSG  ERR3
        015666                                          ERR3::
123     015666                          PRINTB  #FMT1,#ADDRES,MPCSR
        015666  013746  002436                                          MOV     MPCSR,-(SP)
        015672  012746  036460                                          MOV     #ADDRES,-(SP)
        015676  012746  012256                                          MOV     #FMT1,-(SP)
        015702  012746  000003                                          MOV     #3,-(SP)
        015706  010600                                                  MOV     SP,R0
        015710  104414                                                  TRAP    C$PNTB
        015712  062706  000010                                          ADD     #10,SP
124     015716                          PRINTB  #FMT2
        015716  012746  012266                                          MOV     #FMT2,-(SP)
        015722  012746  000001                                          MOV     #1,-(SP)
        015726  010600                                                  MOV     SP,R0
        015730  104414                                                  TRAP    C$PNTB
        015732  062706  000004                                          ADD     #4,SP
125     015736                          PRINTB  #FMT8,TMP1,TMP0
        015736  013746  002516                                          MOV     TMP0,-(SP)
```

```
        015742  013746  002520                                  MOV     TMP1,-(SP)
        015746  012746  012460                                  MOV     #FMT8,-(SP)
        015752  012746  000003                                  MOV     #3,-(SP)
        015756  010600                                          MOV     SP,R0
        015760  104414                                          TRAP    C$PNTB
        015762  062706  000010                                  ADD     #10,SP
    126 015766                          PRINTB  #FMT3,GOODAT,BADDAT
        015766  013746  002372                                  MOV     BADDAT,-(SP)
        015772  013746  002370                                  MOV     GOODAT,-(SP)
        015776  012746  012310                                  MOV     #FMT3,-(SP)
        016002  012746  000003                                  MOV     #3,-(SP)
        016006  010600                                          MOV     SP,R0
        016010  104414                                          TRAP    C$PNTB
        016012  062706  000010                                  ADD     #10,SP
    127 016016                          PRINTX  #FMT4,#DH2,#DH3
        016016  012746  015064                                  MOV     #DH3,-(SP)
        016022  012746  015035                                  MOV     #DH2,-(SP)
        016026  012746  012352                                  MOV     #FMT4,-(SP)
        016032  012746  000003                                  MOV     #3,-(SP)
        016036  010600                                          MOV     SP,R0
        016040  104415                                          TRAP    C$PNTX
        016042  062706  000010                                  ADD     #10,SP
    128 016046                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        016046  013746  002274                                  MOV     LUR13,-(SP)
        016052  013746  002272                                  MOV     LUR12,-(SP)
        016056  013746  002270                                  MOV     LUR11,-(SP)
        016062  013746  002266                                  MOV     LUR10,-(SP)
        016066  012746  012365                                  MOV     #FMT5,-(SP)
        016072  012746  000005                                  MOV     #5,-(SP)
        016076  010600                                          MOV     SP,R0
        016100  104415                                          TRAP    C$PNTX
        016102  062706  000014                                  ADD     #14,SP
    129 016106                          PRINTX  #FMT9,#DH4
        016106  012746  015122                                  MOV     #DH4,-(SP)
        016112  012746  012514                                  MOV     #FMT9,-(SP)
        016116  012746  000002                                  MOV     #2,-(SP)
        016122  010600                                          MOV     SP,R0
        016124  104415                                          TRAP    C$PNTX
        016126  062706  000006                                  ADD     #6,SP
    130 016132                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        016132  013746  002304                                  MOV     LUR17,-(SP)
        016136  013746  002302                                  MOV     LUR16,-(SP)
        016142  013746  002300                                  MOV     LUR15,-(SP)
        016146  013746  002276                                  MOV     LUR14,-(SP)
        016152  012746  012415                                  MOV     #FMT6,-(SP)
        016156  012746  000005                                  MOV     #5,-(SP)
        016162  010600                                          MOV     SP,R0
        016164  104415                                          TRAP    C$PNTX
        016166  062706  000014                                  ADD     #14,SP
    131 016172                          PRINTX  #FMT4,#DH7,#DH8
        016172  012746  015224                                  MOV     #DH8,-(SP)
        016176  012746  015172                                  MOV     #DH7,-(SP)
        016202  012746  012352                                  MOV     #FMT4,-(SP)
        016206  012746  000003                                  MOV     #3,-(SP)
        016212  010600                                          MOV     SP,R0
        016214  104415                                          TRAP    C$PNTX
        016216  062706  000010                                  ADD     #10,SP
```

```
   132 016222                                   PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
       016222  013746  002314                                               MOV     AX1.16,-(SP)
       016226  013746  002312                                               MOV     AX1.15,-(SP)
       016232  013746  002310                                               MOV     AX0.16,-(SP)
       016236  013746  002306                                               MOV     AX0.15,-(SP)
       016242  012746  012365                                               MOV     #FMT5,-(SP)
       016246  012746  000005                                               MOV     #5,-(SP)
       016252  010600                                                       MOV     SP,R0
       016254  104415                                                       TRAP    C$PNTX
       016256  062706  000014                                               ADD     #14,SP
   133 016262                                   PRINTX  #FMT9,#DH9
       016262  012746  015263                                               MOV     #DH9,-(SP)
       016266  012746  012514                                               MOV     #FMT9,-(SP)
       016272  012746  000002                                               MOV     #2,-(SP)
       016276  010600                                                       MOV     SP,R0
       016300  104415                                                       TRAP    C$PNTX
       016302  062706  000006                                               ADD     #6,SP
   134 016306                                   PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
       016306  013746  002324                                               MOV     AX3.16,-(SP)
       016312  013746  002322                                               MOV     AX3.15,-(SP)
       016316  013746  002320                                               MOV     AX2.16,-(SP)
       016322  013746  002316                                               MOV     AX2.15,-(SP)
       016326  012746  012415                                               MOV     #FMT6,-(SP)
       016332  012746  000005                                               MOV     #5,-(SP)
       016336  010600                                                       MOV     SP,R0
       016340  104415                                                       TRAP    C$PNTX
       016342  062706  000014                                               ADD     #14,SP
   135 016346                                   ENDMSG
       016346                                                       L10004:
       016346  104423                                                       TRAP    C$MSG
   136
   137
   138
   139
   140
   141 016350                                   BGNMSG  ERR4
       016350                                                       ERR4::
   142 016350                                   PRINTB  #FMT10,SUBRPC
       016350  013746  002336                                               MOV     SUBRPC,-(SP)
       016354  012746  012521                                               MOV     #FMT10,-(SP)
       016360  012746  000002                                               MOV     #2,-(SP)
       016364  010600                                                       MOV     SP,R0
       016366  104414                                                       TRAP    C$PNTB
       016370  062706  000006                                               ADD     #6,SP
   143 016374                                   PRINTB  #FMT1,#ADDRES,MPCSR
       016374  013746  002436                                               MOV     MPCSR,-(SP)
       016400  012746  036460                                               MOV     #ADDRES,-(SP)
       016404  012746  012256                                               MOV     #FMT1,-(SP)
       016410  012746  000003                                               MOV     #3,-(SP)
       016414  010600                                                       MOV     SP,R0
       016416  104414                                                       TRAP    C$PNTB
       016420  062706  000010                                               ADD     #10,SP
   144 016424                                   PRINTB  #FMT2
       016424  012746  012266                                               MOV     #FMT2,-(SP)
       016430  012746  000001                                               MOV     #1,-(SP)
       016434  010600                                                       MOV     SP,R0
       016436  104414                                                       TRAP    C$PNTB
```

```
                016440  062706  000004                                  ADD     #4,SP
145 016444                              PRINTB  #FMT7,#DH1,REGNUM
                016444  013746  002364                                  MOV     REGNUM,-(SP)
                016450  012746  015013                                  MOV     #DH1,-(SP)
                016454  012746  012450                                  MOV     #FMT7,-(SP)
                016460  012746  000003                                  MOV     #3,-(SP)
                016464  010600                                          MOV     SP,R0
                016466  104414                                          TRAP    C$PNTB
                016470  062706  000010                                  ADD     #10,SP
146 016474                              PRINTX  #FMT4,#DH2,#DH3
                016474  012746  015064                                  MOV     #DH3,-(SP)
                016500  012746  015035                                  MOV     #DH2,-(SP)
                016504  012746  012352                                  MOV     #FMT4,-(SP)
                016510  012746  000003                                  MOV     #3,-(SP)
                016514  010600                                          MOV     SP,R0
                016516  104415                                          TRAP    C$PNTX
                016520  062706  000010                                  ADD     #10,SP
147 016524                              PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
                016524  013746  002274                                  MOV     LUR13,-(SP)
                016530  013746  002272                                  MOV     LUR12,-(SP)
                016534  013746  002270                                  MOV     LUR11,-(SP)
                016540  013746  002266                                  MOV     LUR10,-(SP)
                016544  012746  012365                                  MOV     #FMT5,-(SP)
                016550  012746  000005                                  MOV     #5,-(SP)
                016554  010600                                          MOV     SP,R0
                016556  104415                                          TRAP    C$PNTX
                016560  062706  000014                                  ADD     #14,SP
148 016564                              PRINTX  #FMT9,#DH4
                016564  012746  015122                                  MOV     #DH4,-(SP)
                016570  012746  012514                                  MOV     #FMT9,-(SP)
                016574  012746  000002                                  MOV     #2,-(SP)
                016600  010600                                          MOV     SP,R0
                016602  104415                                          TRAP    C$PNTX
                016604  062706  000006                                  ADD     #6,SP
149 016610                              PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
                016610  013746  002304                                  MOV     LUR17,-(SP)
                016614  013746  002302                                  MOV     LUR16,-(SP)
                016620  013746  002300                                  MOV     LUR15,-(SP)
                016624  013746  002276                                  MOV     LUR14,-(SP)
                016630  012746  012415                                  MOV     #FMT6,-(SP)
                016634  012746  000005                                  MOV     #5,-(SP)
                016640  010600                                          MOV     SP,R0
                016642  104415                                          TRAP    C$PNTX
                016644  062706  000014                                  ADD     #14,SP
150 016650                              PRINTX  #FMT4,#DH7,#DH8
                016650  012746  015224                                  MOV     #DH8,-(SP)
                016654  012746  015172                                  MOV     #DH7,-(SP)
                016660  012746  012352                                  MOV     #FMT4,-(SP)
                016664  012746  000003                                  MOV     #3,-(SP)
                016670  010600                                          MOV     SP,R0
                016672  104415                                          TRAP    C$PNTX
                016674  062706  000010                                  ADD     #10,SP
151 016700                              PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
                016700  013746  002314                                  MOV     AX1.16,-(SP)
                016704  013746  002312                                  MOV     AX1.15,-(SP)
                016710  013746  002310                                  MOV     AX0.16,-(SP)
                016714  013746  002306                                  MOV     AX0.15,-(SP)
```

```
GLOBAL ERROR REPORT SECTION

        016720  012746  012365                                          MOV     #FMT5,-(SP)
        016724  012746  000005                                          MOV     #5,-(SP)
        016730  010600                                                  MOV     SP,R0
        016732  104415                                                  TRAP    C$PNTX
        016734  062706  000014                                          ADD     #14,SP
    152 016740                          PRINTX  #FMT9,#DH9
        016740  012746  015263                                          MOV     #DH9,-(SP)
        016744  012746  012514                                          MOV     #FMT9,-(SP)
        016750  012746  000002                                          MOV     #2,-(SP)
        016754  010600                                                  MOV     SP,R0
        016756  104415                                                  TRAP    C$PNTX
        016760  062706  000006                                          ADD     #6,SP
    153 016764                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        016764  013746  002324                                          MOV     AX3.16,-(SP)
        016770  013746  002322                                          MOV     AX3.15,-(SP)
        016774  013746  002320                                          MOV     AX2.16,-(SP)
        017000  013746  002316                                          MOV     AX2.15,-(SP)
        017004  012746  012415                                          MOV     #FMT6,-(SP)
        017010  012746  000005                                          MOV     #5,-(SP)
        017014  010600                                                  MOV     SP,R0
        017016  104415                                                  TRAP    C$PNTX
        017020  062706  000014                                          ADD     #14,SP
    154 017024                          ENDMSG
        017024                                                  L10005:
        017024  104423                                                  TRAP    C$MSG
    155
    156
    157
    158
    159
    160 017026                          BGNMSG  ERR5
        017026                                                  ERR5::
    161 017026                          PRINTB  #FMT1,#ADDRES,MPCSR
        017026  013746  002436                                          MOV     MPCSR,-(SP)
        017032  012746  036460                                          MOV     #ADDRES,-(SP)
        017036  012746  012256                                          MOV     #FMT1,-(SP)
        017042  012746  000003                                          MOV     #3,-(SP)
        017046  010600                                                  MOV     SP,R0
        017050  104414                                                  TRAP    C$PNTB
        017052  062706  000010                                          ADD     #10,SP
    162 017056                          PRINTB  #FMT11,REGNUM,LOADAT
        017056  013746  002374                                          MOV     LOADAT,-(SP)
        017062  013746  002364                                          MOV     REGNUM,-(SP)
        017066  012746  012552                                          MOV     #FMT11,-(SP)
        017072  012746  000003                                          MOV     #3,-(SP)
        017076  010600                                                  MOV     SP,R0
        017100  104414                                                  TRAP    C$PNTB
        017102  062706  000010                                          ADD     #10,SP
    163 017106                          PRINTB  #FMT2
        017106  012746  012266                                          MOV     #FMT2,-(SP)
        017112  012746  000001                                          MOV     #1,-(SP)
        017116  010600                                                  MOV     SP,R0
        017120  104414                                                  TRAP    C$PNTB
        017122  062706  000004                                          ADD     #4,SP
    164 017126                          PRINTB  #FMT8,TMP1,TMP0
        017126  013746  002516                                          MOV     TMP0,-(SP)
        017132  013746  002520                                          MOV     TMP1,-(SP)
```

```
        017136  012746  012460                                          MOV     #FMT8,-(SP)
        017142  012746  000003                                          MOV     #3,-(SP)
        017146  010600                                                  MOV     SP,R0
        017150  104414                                                  TRAP    C$PNTB
        017152  062706  000010                                          ADD     #10,SP
    165 017156                          PRINTB  #FMT3,GOODAT,BADDAT
        017156  013746  002372                                          MOV     BADDAT,-(SP)
        017162  013746  002370                                          MOV     GOODAT,-(SP)
        017166  012746  012310                                          MOV     #FMT3,-(SP)
        017172  012746  000003                                          MOV     #3,-(SP)
        017176  010600                                                  MOV     SP,R0
        017200  104414                                                  TRAP    C$PNTB
        017202  062706  000010                                          ADD     #10,SP
    166 017206                          PRINTX  #FMT4,#DH2,#DH3
        017206  012746  015064                                          MOV     #DH3,-(SP)
        017212  012746  015035                                          MOV     #DH2,-(SP)
        017216  012746  012352                                          MOV     #FMT4,-(SP)
        017222  012746  000003                                          MOV     #3,-(SP)
        017226  010600                                                  MOV     SP,R0
        017230  104415                                                  TRAP    C$PNTX
        017232  062706  000010                                          ADD     #10,SP
    167 017236                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        017236  013746  002274                                          MOV     LUR13,-(SP)
        017242  013746  002272                                          MOV     LUR12,-(SP)
        017246  013746  002270                                          MOV     LUR11,-(SP)
        017252  013746  002266                                          MOV     LUR10,-(SP)
        017256  012746  012365                                          MOV     #FMT5,-(SP)
        017262  012746  000005                                          MOV     #5,-(SP)
        017266  010600                                                  MOV     SP,R0
        017270  104415                                                  TRAP    C$PNTX
        017272  062706  000014                                          ADD     #14,SP
    168 017276                          PRINTX  #FMT9,#DH4
        017276  012746  015122                                          MOV     #DH4,-(SP)
        017302  012746  012514                                          MOV     #FMT9,-(SP)
        017306  012746  000002                                          MOV     #2,-(SP)
        017312  010600                                                  MOV     SP,R0
        017314  104415                                                  TRAP    C$PNTX
        017316  062706  000006                                          ADD     #6,SP
    169 017322                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        017322  013746  002304                                          MOV     LUR17,-(SP)
        017326  013746  002302                                          MOV     LUR16,-(SP)
        017332  013746  002300                                          MOV     LUR15,-(SP)
        017336  013746  002276                                          MOV     LUR14,-(SP)
        017342  012746  012415                                          MOV     #FMT6,-(SP)
        017346  012746  000005                                          MOV     #5,-(SP)
        017352  010600                                                  MOV     SP,R0
        017354  104415                                                  TRAP    C$PNTX
        017356  062706  000014                                          ADD     #14,SP
    170 017362                          PRINTX  #FMT4,#DH7,#DH8
        017362  012746  015224                                          MOV     #DH8,-(SP)
        017366  012746  015172                                          MOV     #DH7,-(SP)
        017372  012746  012352                                          MOV     #FMT4,-(SP)
        017376  012746  000003                                          MOV     #3,-(SP)
        017402  010600                                                  MOV     SP,R0
        017404  104415                                                  TRAP    C$PNTX
        017406  062706  000010                                          ADD     #10,SP
    171 017412                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
```

```
        017412  013746  002314                                          MOV     AX1.16,-(SP)
        017416  013746  002312                                          MOV     AX1.15,-(SP)
        017422  013746  002310                                          MOV     AX0.16,-(SP)
        017426  013746  002306                                          MOV     AX0.15,-(SP)
        017432  012746  012365                                          MOV     #FMT5,-(SP)
        017436  012746  000005                                          MOV     #5,-(SP)
        017442  010600                                                  MOV     SP,R0
        017444  104415                                                  TRAP    C$PNTX
        017446  062706  000014                                          ADD     #14,SP
    172 017452                          PRINTX  #FMT9,#DH9
        017452  012746  015263                                          MOV     #DH9,-(SP)
        017456  012746  012514                                          MOV     #FMT9,-(SP)
        017462  012746  000002                                          MOV     #2,-(SP)
        017466  010600                                                  MOV     SP,R0
        017470  104415                                                  TRAP    C$PNTX
        017472  062706  000006                                          ADD     #6,SP
    173 017476                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        017476  013746  002324                                          MOV     AX3.16,-(SP)
        017502  013746  002322                                          MOV     AX3.15,-(SP)
        017506  013746  002320                                          MOV     AX2.16,-(SP)
        017512  013746  002316                                          MOV     AX2.15,-(SP)
        017516  012746  012415                                          MOV     #FMT6,-(SP)
        017522  012746  000005                                          MOV     #5,-(SP)
        017526  010600                                                  MOV     SP,R0
        017530  104415                                                  TRAP    C$PNTX
        017532  062706  000014                                          ADD     #14,SP
    174 017536                          ENDMSG
        017536                                              L10006:
        017536  104423                                                  TRAP    C$MSG
    175
    176
    177
    178
    179
    180 017540                          BGNMSG  ERR6
        017540                                              ERR6::
    181 017540                          PRINTB  #FMT10,SUBRPC
        017540  013746  002336                                          MOV     SUBRPC,-(SP)
        017544  012746  012521                                          MOV     #FMT10,-(SP)
        017550  012746  000002                                          MOV     #2,-(SP)
        017554  010600                                                  MOV     SP,R0
        017556  104414                                                  TRAP    C$PNTB
        017560  062706  000006                                          ADD     #6,SP
    182 017564                          PRINTB  #FMT1,#ADDRES,MPCSR
        017564  013746  002436                                          MOV     MPCSR,-(SP)
        017570  012746  036460                                          MOV     #ADDRES,-(SP)
        017574  012746  012256                                          MOV     #FMT1,-(SP)
        017600  012746  000003                                          MOV     #3,-(SP)
        017604  010600                                                  MOV     SP,R0
        017606  104414                                                  TRAP    C$PNTB
        017610  062706  000010                                          ADD     #10,SP
    183 017614                          PRINTB  #FMT2
        017614  012746  012266                                          MOV     #FMT2,-(SP)
        017620  012746  000001                                          MOV     #1,-(SP)
        017624  010600                                                  MOV     SP,R0
        017626  104414                                                  TRAP    C$PNTB
        017630  062706  000004                                          ADD     #4,SP
```

```
 184 017634                                 PRINTB  #FMT8,TMP1,TMP0
     017634  013746  002516                                        MOV     TMP0,-(SP)
     017640  013746  002520                                        MOV     TMP1,-(SP)
     017644  012746  012460                                        MOV     #FMT8,-(SP)
     017650  012746  000003                                        MOV     #3,-(SP)
     017654  010600                                               MOV     SP,R0
     017656  104414                                               TRAP    C$PNTB
     017660  062706  000010                                        ADD     #10,SP
 185 017664                                 PRINTX  #FMT4,#DH2,#DH3
     017664  012746  015064                                        MOV     #DH3,-(SP)
     017670  012746  015035                                        MOV     #DH2,-(SP)
     017674  012746  012352                                        MOV     #FMT4,-(SP)
     017700  012746  000003                                        MOV     #3,-(SP)
     017704  010600                                               MOV     SP,R0
     017706  104415                                               TRAP    C$PNTX
     017710  062706  000010                                        ADD     #10,SP
 186 017714                                 PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
     017714  013746  002274                                        MOV     LUR13,-(SP)
     017720  013746  002272                                        MOV     LUR12,-(SP)
     017724  013746  002270                                        MOV     LUR11,-(SP)
     017730  013746  002266                                        MOV     LUR10,-(SP)
     017734  012746  012365                                        MOV     #FMT5,-(SP)
     017740  012746  000005                                        MOV     #5,-(SP)
     017744  010600                                               MOV     SP,R0
     017746  104415                                               TRAP    C$PNTX
     017750  062706  000014                                        ADD     #14,SP
 187 017754                                 PRINTX  #FMT9,#DH4
     017754  012746  015122                                        MOV     #DH4,-(SP)
     017760  012746  012514                                        MOV     #FMT9,-(SP)
     017764  012746  000002                                        MOV     #2,-(SP)
     017770  010600                                               MOV     SP,R0
     017772  104415                                               TRAP    C$PNTX
     017774  062706  000006                                        ADD     #6,SP
 188 020000                                 PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
     020000  013746  002304                                        MOV     LUR17,-(SP)
     020004  013746  002302                                        MOV     LUR16,-(SP)
     020010  013746  002300                                        MOV     LUR15,-(SP)
     020014  013746  002276                                        MOV     LUR14,-(SP)
     020020  012746  012415                                        MOV     #FMT6,-(SP)
     020024  012746  000005                                        MOV     #5,-(SP)
     020030  010600                                               MOV     SP,R0
     020032  104415                                               TRAP    C$PNTX
     020034  062706  000014                                        ADD     #14,SP
 189 020040                                 PRINTX  #FMT4,#DH7,#DH8
     020040  012746  015224                                        MOV     #DH8,-(SP)
     020044  012746  015172                                        MOV     #DH7,-(SP)
     020050  012746  012352                                        MOV     #FMT4,-(SP)
     020054  012746  000003                                        MOV     #3,-(SP)
     020060  010600                                               MOV     SP,R0
     020062  104415                                               TRAP    C$PNTX
     020064  062706  000010                                        ADD     #10,SP
 190 020070                                 PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
     020070  013746  002314                                        MOV     AX1.16,-(SP)
     020074  013746  002312                                        MOV     AX1.15,-(SP)
     020100  013746  002310                                        MOV     AX0.16,-(SP)
     020104  013746  002306                                        MOV     AX0.15,-(SP)
     020110  012746  012365                                        MOV     #FMT5,-(SP)
```

```
        020114  012746  000005                                          MOV     #5,-(SP)
        020120  010600                                                  MOV     SP,R0
        020122  104415                                                  TRAP    C$PNTX
        020124  062706  000014                                          ADD     #14,SP
    191 020130                          PRINTX  #FMT9,#DH9
        020130  012746  015263                                          MOV     #DH9,-(SP)
        020134  012746  012514                                          MOV     #FMT9,-(SP)
        020140  012746  000002                                          MOV     #2,-(SP)
        020144  010600                                                  MOV     SP,R0
        020146  104415                                                  TRAP    C$PNTX
        020150  062706  000006                                          ADD     #6,SP
    192 020154                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
        020154  013746  002324                                          MOV     AX3.16,-(SP)
        020160  013746  002322                                          MOV     AX3.15,-(SP)
        020164  013746  002320                                          MOV     AX2.16,-(SP)
        020170  013746  002316                                          MOV     AX2.15,-(SP)
        020174  012746  012415                                          MOV     #FMT6,-(SP)
        020200  012746  000005                                          MOV     #5,-(SP)
        020204  010600                                                  MOV     SP,R0
        020206  104415                                                  TRAP    C$PNTX
        020210  062706  000014                                          ADD     #14,SP
    193 020214                          ENDMSG
        020214                                              L10007:
        020214  104423                                                  TRAP    C$MSG
    194
    195
    196
    197
    198
    199 020216                          BGNMSG  ERR7
        020216                                              ERR7::
    200 020216                          PRINTB  #FMT1,#ADDRES,MPCSR
        020216  013746  002436                                          MOV     MPCSR,-(SP)
        020222  012746  036460                                          MOV     #ADDRES,-(SP)
        020226  012746  012256                                          MOV     #FMT1,-(SP)
        020232  012746  000003                                          MOV     #3,-(SP)
        020236  010600                                                  MOV     SP,R0
        020240  104414                                                  TRAP    C$PNTB
        020242  062706  000010                                          ADD     #10,SP
    201 020246                          PRINTB  #FMT2
        020246  012746  012266                                          MOV     #FMT2,-(SP)
        020252  012746  000001                                          MOV     #1,-(SP)
        020256  010600                                                  MOV     SP,R0
        020260  104414                                                  TRAP    C$PNTB
        020262  062706  000004                                          ADD     #4,SP
    202 020266                          PRINTB  #FMT7,#DH1,REGNUM
        020266  013746  002364                                          MOV     REGNUM,-(SP)
        020272  012746  015013                                          MOV     #DH1,-(SP)
        020276  012746  012450                                          MOV     #FMT7,-(SP)
        020302  012746  000003                                          MOV     #3,-(SP)
        020306  010600                                                  MOV     SP,R0
        020310  104414                                                  TRAP    C$PNTB
        020312  062706  000010                                          ADD     #10,SP
    203 020316                          PRINTX  #FMT4,#DH2,#DH3
        020316  012746  015064                                          MOV     #DH3,-(SP)
        020322  012746  015035                                          MOV     #DH2,-(SP)
        020326  012746  012352                                          MOV     #FMT4,-(SP)
```

```
        020332  012746  000003                                          MOV     #3,-(SP)
        020336  010600                                                  MOV     SP,R0
        020340  104415                                                  TRAP    C$PNTX
        020342  062706  000010                                          ADD     #10,SP
    204 020346                      PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        020346  013746  002274                                          MOV     LUR13,-(SP)
        020352  013746  002272                                          MOV     LUR12,-(SP)
        020356  013746  002270                                          MOV     LUR11,-(SP)
        020362  013746  002266                                          MOV     LUR10,-(SP)
        020366  012746  012365                                          MOV     #FMT5,-(SP)
        020372  012746  000005                                          MOV     #5,-(SP)
        020376  010600                                                  MOV     SP,R0
        020400  104415                                                  TRAP    C$PNTX
        020402  062706  000014                                          ADD     #14,SP
    205 020406                      PRINTX  #FMT9,#DH4
        020406  012746  015122                                          MOV     #DH4,-(SP)
        020412  012746  012514                                          MOV     #FMT9,-(SP)
        020416  012746  000002                                          MOV     #2,-(SP)
        020422  010600                                                  MOV     SP,R0
        020424  104415                                                  TRAP    C$PNTX
        020426  062706  000006                                          ADD     #6,SP
    206 020432                      PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        020432  013746  002304                                          MOV     LUR17,-(SP)
        020436  013746  002302                                          MOV     LUR16,-(SP)
        020442  013746  002300                                          MOV     LUR15,-(SP)
        020446  013746  002276                                          MOV     LUR14,-(SP)
        020452  012746  012415                                          MOV     #FMT6,-(SP)
        020456  012746  000005                                          MOV     #5,-(SP)
        020462  010600                                                  MOV     SP,R0
        020464  104415                                                  TRAP    C$PNTX
        020466  062706  000014                                          ADD     #14,SP
    207 020472                      PRINTX  #FMT4,#DH7,#DH8
        020472  012746  015224                                          MOV     #DH8,-(SP)
        020476  012746  015172                                          MOV     #DH7,-(SP)
        020502  012746  012352                                          MOV     #FMT4,-(SP)
        020506  012746  000003                                          MOV     #3,-(SP)
        020512  010600                                                  MOV     SP,R0
        020514  104415                                                  TRAP    C$PNTX
        020516  062706  000010                                          ADD     #10,SP
    208 020522                      PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        020522  013746  002314                                          MOV     AX1.16,-(SP)
        020526  013746  002312                                          MOV     AX1.15,-(SP)
        020532  013746  002310                                          MOV     AX0.16,-(SP)
        020536  013746  002306                                          MOV     AX0.15,-(SP)
        020542  012746  012365                                          MOV     #FMT5,-(SP)
        020546  012746  000005                                          MOV     #5,-(SP)
        020552  010600                                                  MOV     SP,R0
        020554  104415                                                  TRAP    C$PNTX
        020556  062706  000014                                          ADD     #14,SP
    209 020562                      PRINTX  #FMT9,#DH9
        020562  012746  015263                                          MOV     #DH9,-(SP)
        020566  012746  012514                                          MOV     #FMT9,-(SP)
        020572  012746  000002                                          MOV     #2,-(SP)
        020576  010600                                                  MOV     SP,R0
        020600  104415                                                  TRAP    C$PNTX
        020602  062706  000006                                          ADD     #6,SP
    210 020606                      PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
```

```
        020606  013746  002324                                          MOV     AX3.16,-(SP)
        020612  013746  002322                                          MOV     AX3.15,-(SP)
        020616  013746  002320                                          MOV     AX2.16,-(SP)
        020622  013746  002316                                          MOV     AX2.15,-(SP)
        020626  012746  012415                                          MOV     #FMT6,-(SP)
        020632  012746  000005                                          MOV     #5,-(SP)
        020636  010600                                                  MOV     SP,R0
        020640  104415                                                  TRAP    C$PNTX
        020642  062706  000014                                          ADD     #14,SP
    211 020646                          ENDMSG
        020646                                              L10010:
        020646  104423                                                  TRAP    C$MSG
    212
    213
    214
    215
    216
    217 020650                          BGNMSG  ERR8
        020650                                              ERR8::
    218 020650                          PRINTB  #FMT10,SUBRPC
        020650  013746  002336                                          MOV     SUBRPC,-(SP)
        020654  012746  012521                                          MOV     #FMT10,-(SP)
        020660  012746  000002                                          MOV     #2,-(SP)
        020664  010600                                                  MOV     SP,R0
        020666  104414                                                  TRAP    C$PNTB
        020670  062706  000006                                          ADD     #6,SP
    219 020674                          PRINTB  #FMT1,#ADDRES,MPCSR
        020674  013746  002436                                          MOV     MPCSR,-(SP)
        020700  012746  036460                                          MOV     #ADDRES,-(SP)
        020704  012746  012256                                          MOV     #FMT1,-(SP)
        020710  012746  000003                                          MOV     #3,-(SP)
        020714  010600                                                  MOV     SP,R0
        020716  104414                                                  TRAP    C$PNTB
        020720  062706  000010                                          ADD     #10,SP
    220 020724                          PRINTB  #FMT2
        020724  012746  012266                                          MOV     #FMT2,-(SP)
        020730  012746  000001                                          MOV     #1,-(SP)
        020734  010600                                                  MOV     SP,R0
        020736  104414                                                  TRAP    C$PNTB
        020740  062706  000004                                          ADD     #4,SP
    221 020744                          PRINTB  #FMT7,#DH1,REGNUM
        020744  013746  002364                                          MOV     REGNUM,-(SP)
        020750  012746  015013                                          MOV     #DH1,-(SP)
        020754  012746  012450                                          MOV     #FMT7,-(SP)
        020760  012746  000003                                          MOV     #3,-(SP)
        020764  010600                                                  MOV     SP,R0
        020766  104414                                                  TRAP    C$PNTB
        020770  062706  000010                                          ADD     #10,SP
    222 020774                          PRINTB  #FMT3,GOODAT,BADDAT
        020774  013746  002372                                          MOV     BADDAT,-(SP)
        021000  013746  002370                                          MOV     GOODAT,-(SP)
        021004  012746  012310                                          MOV     #FMT3,-(SP)
        021010  012746  000003                                          MOV     #3,-(SP)
        021014  010600                                                  MOV     SP,R0
        021016  104414                                                  TRAP    C$PNTB
        021020  062706  000010                                          ADD     #10,SP
    223 021024                          PRINTX  #FMT4,#DH2,#DH3
```

```
        021024  012746  015064                                                  MOV     #DH3,-(SP)
        021030  012746  015035                                                  MOV     #DH2,-(SP)
        021034  012746  012352                                                  MOV     #FMT4,-(SP)
        021040  012746  000003                                                  MOV     #3,-(SP)
        021044  010600                                                          MOV     SP,R0
        021046  104415                                                          TRAP    C$PNTX
        021050  062706  000010                                                  ADD     #10,SP
    224 021054                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
        021054  013746  002274                                                  MOV     LUR13,-(SP)
        021060  013746  002272                                                  MOV     LUR12,-(SP)
        021064  013746  002270                                                  MOV     LUR11,-(SP)
        021070  013746  002266                                                  MOV     LUR10,-(SP)
        021074  012746  012365                                                  MOV     #FMT5,-(SP)
        021100  012746  000005                                                  MOV     #5,-(SP)
        021104  010600                                                          MOV     SP,R0
        021106  104415                                                          TRAP    C$PNTX
        021110  062706  000014                                                  ADD     #14,SP
    225 021114                          PRINTX  #FMT9,#DH4
        021114  012746  015122                                                  MOV     #DH4,-(SP)
        021120  012746  012514                                                  MOV     #FMT9,-(SP)
        021124  012746  000002                                                  MOV     #2,-(SP)
        021130  010600                                                          MOV     SP,R0
        021132  104415                                                          TRAP    C$PNTX
        021134  062706  000006                                                  ADD     #6,SP
    226 021140                          PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
        021140  013746  002304                                                  MOV     LUR17,-(SP)
        021144  013746  002302                                                  MOV     LUR16,-(SP)
        021150  013746  002300                                                  MOV     LUR15,-(SP)
        021154  013746  002276                                                  MOV     LUR14,-(SP)
        021160  012746  012415                                                  MOV     #FMT6,-(SP)
        021164  012746  000005                                                  MOV     #5,-(SP)
        021170  010600                                                          MOV     SP,R0
        021172  104415                                                          TRAP    C$PNTX
        021174  062706  000014                                                  ADD     #14,SP
    227 021200                          PRINTX  #FMT4,#DH7,#DH8
        021200  012746  015224                                                  MOV     #DH8,-(SP)
        021204  012746  015172                                                  MOV     #DH7,-(SP)
        021210  012746  012352                                                  MOV     #FMT4,-(SP)
        021214  012746  000003                                                  MOV     #3,-(SP)
        021220  010600                                                          MOV     SP,R0
        021222  104415                                                          TRAP    C$PNTX
        021224  062706  000010                                                  ADD     #10,SP
    228 021230                          PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
        021230  013746  002314                                                  MOV     AX1.16,-(SP)
        021234  013746  002312                                                  MOV     AX1.15,-(SP)
        021240  013746  002310                                                  MOV     AX0.16,-(SP)
        021244  013746  002306                                                  MOV     AX0.15,-(SP)
        021250  012746  012365                                                  MOV     #FMT5,-(SP)
        021254  012746  000005                                                  MOV     #5,-(SP)
        021260  010600                                                          MOV     SP,R0
        021262  104415                                                          TRAP    C$PNTX
        021264  062706  000014                                                  ADD     #14,SP
    229 021270                          PRINTX  #FMT9,#DH9
        021270  012746  015263                                                  MOV     #DH9,-(SP)
        021274  012746  012514                                                  MOV     #FMT9,-(SP)
        021300  012746  000002                                                  MOV     #2,-(SP)
        021304  010600                                                          MOV     SP,R0
```

```
                021306  104415                                                          TRAP    C$PNTX
                021310  062706  000006                                                  ADD     #6,SP
    230         021314                          PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
                021314  013746  002324                                                  MOV     AX3.16,-(SP)
                021320  013746  002322                                                  MOV     AX3.15,-(SP)
                021324  013746  002320                                                  MOV     AX2.16,-(SP)
                021330  013746  002316                                                  MOV     AX2.15,-(SP)
                021334  012746  012415                                                  MOV     #FMT6,-(SP)
                021340  012746  000005                                                  MOV     #5,-(SP)
                021344  010600                                                          MOV     SP,R0
                021346  104415                                                          TRAP    C$PNTX
                021350  062706  000014                                                  ADD     #14,SP
    231         021354                          ENDMSG
                021354                                                  L10011:
                021354  104423                                                          TRAP    C$MSG
    232
    233
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    236
    237         021356                          BGNMSG  ERR10
                021356                                                  ERR10::
    238         021356                          PRINTB  #FMT1,#ADDRES,MPCSR
                021356  013746  002436                                                  MOV     MPCSR,-(SP)
                021362  012746  036460                                                  MOV     #ADDRES,-(SP)
                021366  012746  012256                                                  MOV     #FMT1,-(SP)
                021372  012746  000003                                                  MOV     #3,-(SP)
                021376  010600                                                          MOV     SP,R0
                021400  104414                                                          TRAP    C$PNTB
                021402  062706  000010                                                  ADD     #10,SP
    239         021406                          PRINTB  #FMT2
                021406  012746  012266                                                  MOV     #FMT2,-(SP)
                021412  012746  000001                                                  MOV     #1,-(SP)
                021416  010600                                                          MOV     SP,R0
                021420  104414                                                          TRAP    C$PNTB
                021422  062706  000004                                                  ADD     #4,SP
    240         021426                          PRINTB  #FMT8,TMP1,TMP0
                021426  013746  002516                                                  MOV     TMP0,-(SP)
                021432  013746  002520                                                  MOV     TMP1,-(SP)
                021436  012746  012460                                                  MOV     #FMT8,-(SP)
                021442  012746  000003                                                  MOV     #3,-(SP)
                021446  010600                                                          MOV     SP,R0
                021450  104414                                                          TRAP    C$PNTB
                021452  062706  000010                                                  ADD     #10,SP
    241         021456                          PRINTX  #FMT4,#DH2,#DH3
                021456  012746  015064                                                  MOV     #DH3,-(SP)
                021462  012746  015035                                                  MOV     #DH2,-(SP)
                021466  012746  012352                                                  MOV     #FMT4,-(SP)
                021472  012746  000003                                                  MOV     #3,-(SP)
                021476  010600                                                          MOV     SP,R0
                021500  104415                                                          TRAP    C$PNTX
                021502  062706  000010                                                  ADD     #10,SP
    242         021506                          PRINTX  #FMT5,LUR10,LUR11,LUR12,LUR13
                021506  013746  002274                                                  MOV     LUR13,-(SP)
                021512  013746  002272                                                  MOV     LUR12,-(SP)
                021516  013746  002270                                                  MOV     LUR11,-(SP)
                021522  013746  002266                                                  MOV     LUR10,-(SP)
```

```
                021526  012746  012365                                          MOV     #FMT5,-(SP)
                021532  012746  000005                                          MOV     #5,-(SP)
                021536  010600                                                  MOV     SP,R0
                021540  104415                                                  TRAP    C$PNTX
                021542  062706  000014                                          ADD     #14,SP
    243         021546                  PRINTX  #FMT9,#DH4
                021546  012746  015122                                          MOV     #DH4,-(SP)
                021552  012746  012514                                          MOV     #FMT9,-(SP)
                021556  012746  000002                                          MOV     #2,-(SP)
                021562  010600                                                  MOV     SP,R0
                021564  104415                                                  TRAP    C$PNTX
                021566  062706  000006                                          ADD     #6,SP
    244         021572                  PRINTX  #FMT6,LUR14,LUR15,LUR16,LUR17
                021572  013746  002304                                          MOV     LUR17,-(SP)
                021576  013746  002302                                          MOV     LUR16,-(SP)
                021602  013746  002300                                          MOV     LUR15,-(SP)
                021606  013746  002276                                          MOV     LUR14,-(SP)
                021612  012746  012415                                          MOV     #FMT6,-(SP)
                021616  012746  000005                                          MOV     #5,-(SP)
                021622  010600                                                  MOV     SP,R0
                021624  104415                                                  TRAP    C$PNTX
                021626  062706  000014                                          ADD     #14,SP
    245         021632                  PRINTX  #FMT4,#DH7,#DH8
                021632  012746  015224                                          MOV     #DH8,-(SP)
                021636  012746  015172                                          MOV     #DH7,-(SP)
                021642  012746  012352                                          MOV     #FMT4,-(SP)
                021646  012746  000003                                          MOV     #3,-(SP)
                021652  010600                                                  MOV     SP,R0
                021654  104415                                                  TRAP    C$PNTX
                021656  062706  000010                                          ADD     #10,SP
    246         021662                  PRINTX  #FMT5,AX0.15,AX0.16,AX1.15,AX1.16
                021662  013746  002314                                          MOV     AX1.16,-(SP)
                021666  013746  002312                                          MOV     AX1.15,-(SP)
                021672  013746  002310                                          MOV     AX0.16,-(SP)
                021676  013746  002306                                          MOV     AX0.15,-(SP)
                021702  012746  012365                                          MOV     #FMT5,-(SP)
                021706  012746  000005                                          MOV     #5,-(SP)
                021712  010600                                                  MOV     SP,R0
                021714  104415                                                  TRAP    C$PNTX
                021716  062706  000014                                          ADD     #14,SP
    247         021722                  PRINTX  #FMT9,#DH9
                021722  012746  015263                                          MOV     #DH9,-(SP)
                021726  012746  012514                                          MOV     #FMT9,-(SP)
                021732  012746  000002                                          MOV     #2,-(SP)
                021736  010600                                                  MOV     SP,R0
                021740  104415                                                  TRAP    C$PNTX
                021742  062706  000006                                          ADD     #6,SP
    248         021746                  PRINTX  #FMT6,AX2.15,AX2.16,AX3.15,AX3.16
                021746  013746  002324                                          MOV     AX3.16,-(SP)
                021752  013746  002322                                          MOV     AX3.15,-(SP)
                021756  013746  002320                                          MOV     AX2.16,-(SP)
                021762  013746  002316                                          MOV     AX2.15,-(SP)
                021766  012746  012415                                          MOV     #FMT6,-(SP)
                021772  012746  000005                                          MOV     #5,-(SP)
                021776  010600                                                  MOV     SP,R0
                022000  104415                                                  TRAP    C$PNTX
                022002  062706  000014                                          ADD     #14,SP
```

```
    249 022006                              ENDMSG
        022006                                                  L10012:
        022006  10442?                                          TRAP    (SM)
    250
    251
    252
    253
    254
```

REPORT CODING SECTION

```
                        .SBTTL  REPORT CODING SECTION


                        ;//////////////////////////////////////////////////////////////
                        ;/ THE REPORT CODING SECTION CONTAINS THE
                        ;/ 'PRINTS'' CALLS THAT GENERATE STATISTICAL REPORTS.
                        ;//////////////////////////////////////////////////////////////

022010                          BGNRPT
022010                                                          L$RPT::
022010                          ENDRPT
022010                                                          L10013:
022010  104425                                                          TRAP    C$RPT


                        .EVEN
```

```
                        .SBTTL  LOAD DEVICE PROTECTION TABLE

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

 022012                         BGNPROT                                         L$PROT::
 022012
 022012  177777                .WORD   -1      ;DON'T CHK CSR ADRS
 022014  177777                .WORD   -1      ;DON'T CHK MASSBUS UNIT NO.
 022016  177777                .WORD   -1      ;DON'T CHK DRIVE NO.
 022020                         ENDPROT
```

```
                                .SBTTL  INITIALIZE SECTION

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

 022020                                 BGNINIT
 022020                                                                          L$INIT::

 022020  010637  002332                 MOV     SP,PSTACK       ;SAVE BASE-LEVEL STACK POINTER
 022024  005037  002336                 CLR     SUBRPC          ;CLEAR SUBR CALL PC
 022030  005037  002416                 CLR     DISILO          ;CLEAR CURRENT STATE OF DISSI
 022034  005037  002420                 CLR     CHPTYP          ;CLEAR USYRT CHIP TYPE INDICATOR
 022040  005037  002410                 CLR     ERROR1          ;CLEAR ERROR FLAGS
 022044  005037  002424                 CLR     SAVLEN          ;CLEAR CHAR LENGTH FROM SETUP
 022050  005737  002376                 TST     FRSTIM          ;SEE IF FIRST TIME THROUGH AFTER LOAD
 022054  001007                         BNE     6$              ;BR IF NOT
 022056  013737  000004  002404         MOV     @#4,SAVE4       ;SAVE ERROR TRAP VECTOR
 022064  013737  000006  002406         MOV     @#6,SAVE6
 022072  000406                         BR      9$
 022074  013737  002404  000004  6$:    MOV     SAVE4,@#4       ;RESTORE ERROR TRAP VECTOR
 022102  013737  002406  000006         MOV     SAVE6,@#6
 022110  012737  000001  002376  9$:    MOV     #1,FRSTIM       ;MARK FLAG FOR NEXT TIME THROUGH
                                ;SEE IF PROGRAM JUST STARTED, BR IF YES
 022116                                 READEF  #EF.START
 022116  012700  000040                                                 MOV     #EF.START,R0
 022122  104447                                                         TRAP    C$REFG
 022124                                 BCOMPLETE       STARST
 022124  103415                                                         BCS     STARST
                                ;SEE IF PROGRAM JUST RESTARTED, BR IF YES
 022126                                 READEF  #EF.RESTART
 022126  012700  000037                                                 MOV     #EF.RESTART,R0
 022132  104447                                                         TRAP    C$REFG
 022134                                 BCOMPLETE       STARST
 022134  103411                                                         BCS     STARST
                                ;SEE IF THIS IS A NEW PASS, BR IF YES
 022136                                 READEF  #EF.NEW
 022136  012700  000035                                                 MOV     #EF.NEW,R0
 022142  104447                                                         TRAP    C$REFG
 022144                                 BCOMPLETE       NEWST
 022144  103411                                                         BCS     NEWST
                                ;SEE IF PROGRAM WAS JUST CONTINUED
 022146                                 READEF  #EF.CONTINUE
 022146  012700  000036                                                 MOV     #EF.CONTINUE,R0
 022152  104447                                                         TRAP    C$REFG
 022154                                 BCOMPLETE       ENDIT
 022154  103556                                                         BCS     ENDIT
 022156  000416                         BR      GETPRM
 022160                         STARST:
 022160  005037  002402                 CLR     STARES          ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
                                ;CLEAR DEVICE MAP
 022164  005037  002426                 CLR     DEVMAP
 022170                         NEWST:
 022170  012737  177777  002330         MOV     #-1,LOGDEV      ;RESET LOGICAL DEVICE TO -1
 022176  005237  002400                 INC     FRSPAS          ;INCREMENT NO. OF PASSES AFTER LOAD
 022202  005237  002402                 INC     STARES          ;INCREMENT NO. OF PASSES SINCE STA OR RES
```

```
INITIALIZE SECTION

     45 022206  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 022214                           GETPRM:
     49 022214  005237  002330                   INC     LOGDEV          ;INCREMENT LOGICAL DEVICE NUMBER
     50 022220  023737  002330  002012          CMP     LOGDEV,L$UNIT   ;SEE IF MAXIMUM UNIT NO. EXCEEDED
     51 022226  002360                           BGE     NEWST           ;BR IF YES
     52 022230                                   GPHARD  LOGDEV,R1       ;GET P-TABLE POINTER INTO R1
        022230  013700  002330                                                       MOV     LOGDEV,R0
        022234  104442                                                              TRAP    C$GPHRD
        022236  010001                                                              MOV     R0,R1
     53 022240                                   BCOMPLETE       10$     ;BR IF DEVICE AVAILABLE
        022240  103403                                                              BCS     10$
     54 022242  006337  002430                   ASL     DEVPTR          ;SHIFT DEVICE MAP BIT POINTER
     55 022246  000762                           BR      GETPRM          ;SKIP THIS DEVICE
     56 022250  053737  002430  002426  10$:     BIS     DEVPTR,DEVMAP   ;SET BIT FOR THIS DEVICE IN DEVICE MAP
     57 022256  006337  002430                   ASL     DEVPTR          ;SHIFT DEVICE MAP BIT POINTER
     58 022262  062701  000002                   ADD     #2,R1           ;INCREMENT R1 PAST MICROPROCESSOR TYPE
     59 022266  011137  002436                   MOV     (R1),MPCSR      ;STORE POINTER TO MICROPROCESSOR CSR'S
     60 022272  011137  002440                   MOV     (R1),BSEL1
     61 022276  005237  002440                   INC     BSEL1           ;GET POINTER TO BSEL1 (MAINTENANCE REGISTER)
     62 022302  011137  002442                   MOV     (R1),SEL4
     63 022306  062737  000004  002442           ADD     #4,SEL4         ;GET POINTER TO SEL4
     64 022314  012137  002444                   MOV     (R1)+,SEL6
     65 022320  062737  000006  002444           ADD     #6,SEL6         ;STORE POINTER TO SEL6
     66 022326  011137  002446                   MOV     (R1),MPIVEC     ;GET MICROPROCESSOR INPUT INTRPT VECTOR
     67 022332  012137  002450                   MOV     (R1)+,MPOVEC
     68 022336  062737  000004  002450           ADD     #4,MPOVEC       ;GET MICROPROCESSOR OUTPUT INTRPT VECTOR
     69 022344  012137  002452                   MOV     (R1)+,MPRIOR    ;GET MICROPROCESSOR DEVICE PRIORITY
     70 022350  062701  000002                   ADD     #2,R1           ;INCREMENT R1 PAST LU TYPE
     71 022354  012137  002454                   MOV     (R1)+,LUSWI1    ;GET LU SWITCH PACK #1
     72 022360  012137  002456                   MOV     (R1)+,LUSWI2    ;GET LU SWITCH PACK #2
     73 022364  012137  002460                   MOV     (R1)+,LUSWI3    ;GET LU SWITCH PACK #3
     74 022370  012137  002462                   MOV     (R1)+,TSTCON    ;GET TEST CONNECTOR INDICATOR
     75 022374  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 022400  005737  002256                   TST     MIFLAG
     79 022404  001442                           BEQ     22$
     80                                  ;SEE IF MANUAL INTERVENTION ALLOWED BY SUPERVISOR
     81 022406                                   MANUAL
        022406  104450                                                              TRAP    C$MANI
     82                                  ;BR IF ALLOWED
     83 022410                                   BCOMPLETE       18$
        022410  103412                                                              BCS     18$
     84                                  ;PRINT MSG THAT OPERATOR INTERVENTION IS NOT ALLOWED
     85 022412                                   PRINTF  #FMT16
        022412  012746  022514                                                      MOV     #FMT16,-(SP)
        022416  012746  000001                                                      MOV     #1,-(SP)
        022422  010600                                                              MOV     SP,R0
        022424  104417                                                              TRAP    C$PNTF
        022426  062706  000004                                                      ADD     #4,SP
     86 022432                           16$:    BREAK                   ;HANG UNTIL ^C TYPED
        022432  104422                                                              TRAP    C$BRK
     87 022434  000776                           BR      16$
     88 022436                           18$:
     89                                  ;TYPE "INSTALL TEST CONNECTOR(S) ON UNIT AT ADRS XXXXXX"
```

```
INITIALIZE SECTION

     90 022436                                  PRINTF  #FMT17,MPCSR
        022436  013746  002436                                        MOV     MPCSR,-(SP)
        022442  012746  022636                                        MOV     #FMT17,-(SP)
        022446  012746  000002                                        MOV     #2,-(SP)
        022452  010600                                                MOV     SP,R0
        022454  104417                                                TRAP    C$PNTF
        022456  062706  000006                                        ADD     #6,SP
     91 022462  005037  002502                  CLR     REG2
     92 022466                          20$:
     93                                 ;ASK OPERATOR TO 'TYPE <Y> <CR> WHEN READY TO PROCEED''
     94 022466                                  GMANIL  TYPEY,REG2,1,NO
        022466  104443                                                TRAP    C$GMAN
        022470  000404                                                BR      10000$
        022472  002502                                                .WORD   REG2
        022474  000120                                                .WORD   T$CODE
        022476  022725                                                .WORD   TYPEY
        022500  000001                                                .WORD   1
        022502                                                      10000$:
     95 022502  023727  002502  000001            CMP     REG2,#1
     96 022510  001366                          BNE     20$
     97 022512                          22$:
     98 022512                          ENDIT:
     99 022512                                  ENDINIT
        022512                                                      L10015:
        022512  104411                                                TRAP    C$INIT
    100
    101 022514      045     116     045    FMT16:  .ASCII  /%N%AMANUAL INTERVENTION IS NOT ALLOWED.%N/
        022517      101     115     101
        022522      116     125     101
        022525      114     040     111
        022530      116     124     105
        022533      122     126     105
        022536      116     124     111
        022541      117     116     040
        022544      111     123     040
        022547      116     117     124
        022552      040     101     114
        022555      114     117     127
        022560      105     104     041
        022563      045     116
    102 022565      045     101     124            .ASCIZ  /%ATYPE CONTROL-C (^C) <CR> TO PROCEED:%N/
        022570      131     120     105
        022573      040     103     117
        022576      116     124     122
        022601      117     114     055
        022604      103     040     050
        022607      136     103     051
        022612      040     074     103
        022615      122     076     040
        022620      124     117     040
        022623      120     122     117
        022626      103     105     105
        022631      104     072     045
        022634      116     000
    103 022636      045     116     045    FMT17:  .ASCIZ  /%N%AINSTALL TEST CONNECTOR(S) ON UNIT AT ADRS :  %O6%N/
        022641      101     111     116
        022644      123     124     101
```

INITIALIZE SECTION

```
        022647      114      114      040
        022652      124      105      123
        022655      124      040      103
        022660      117      116      116
        022663      105      103      124
        022666      117      122      050
        022671      123      051      040
        022674      117      116      040
        022677      125      116      111
        022702      124      040      101
        022705      124      040      101
        022710      104      122      123
        022713      040      072      040
        022716      040      045      117
        022721      066      045      116
        022724      000
    104 022725      124      131      120  TYPEY:  .ASCIZ  /TYPE <Y><CR> WHEN READY TO PROCEED /
        022730      105      040      074
        022733      131      076      074
        022736      103      122      076
        022741      040      127      110
        022744      105      116      040
        022747      122      105      101
        022752      104      131      040
        022755      124      117      040
        022760      120      122      117
        022763      103      105      105
        022766      104      040      000
    105                                   .EVEN
    106
    107
    108
    109
    110
```

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

022772                                  BGNAUTO
022772                                                                                  L$AUTO::
                                ;ESTABLISH PRIORITY   7
022772                                  SETPRI  #PRI07
022772  012700  000340                                                                  MOV     #PRI07,R0
022776  104441                                                                          TRAP    C$SPRI
023000  012737  023022  000004          MOV     #6$,@#4         ;SET UP NON-EXISTENT MEMORY ERROR TRAP VECTOR
023006  012737  000340  000006          MOV     #PRI07,@#6
023014  005777  157416                  TST     @#PCSR          ;ADDRESS SEL0
023020  000405                          BR      9$              ;TAKE THIS BRANCH IF DEVICE RESPONDS
                                ;COME HERE IF DEVICE CSR IS NON-EXISTENT
023022  062706  000004          6$:     ADD     #4,SP           ;CLEAN UP THE STACK POINTER
023026                                  DODU    LOGDEV          ;DROP THIS UNIT FROM TESTING
023026  013700  002330                                                                  MOV     LOGDEV,R0
023032  104451                                                                          TRAP    C$DODU
023034  013737  002404  000004  9$.     MOV     SAVE4,@#4       ;RESTORE ERROR TRAP VECTOR
023042  013737  002406  000006          MOV     SAVE6,@#6
023050                                  ENDAUTO
023050                                                                                  L10016:
023050  104461                                                                          TRAP    C$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.
                                ;////////////////////////////////////////////////////////////////////////

023052                                  BGNCLN
023052                                                                  L$CLEAN::

                                ENDCLN
023052                                                                  L10017:
023052  104412                                                                  TRAP    C$CLEAN
```

```
                        .SBTTL  DROP UNIT SECTION

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

023054                          BGNDU
023054                                                                  L$DU::
                        ;ISSUE UNIBUS RESET TO CLEAN UP
023054                          BRESET
023054  104433                                                                  TRAP    C$RESET
                        ;PRINT 'UNIT XX DROPPED''
023056                          PRINTF  #FMT27,LOGDEV
023056  013746  002330                                                          MOV     LOGDEV,-(SP)
023062  012746  023104                                                          MOV     #FMT27,-(SP)
023066  012746  000002                                                          MOV     #2,-(SP)
023072  010600                                                                  MOV     SP,R0
023074  104417                                                                  TRAP    C$PNTF
023076  062706  000006                                                          ADD     #6,SP
023102                          ENDDU
023102                                                                  L10020:
023102  104453                                                                  TRAP    C$DU

023104     045     116     045  FMT27:  .ASCIZ  /%N%AUNIT %D2%A DROPPED%N/
023107     101     125     116
023112     111     124     040
023115     045     104     062
023120     045     101     040
023123     104     122     117
023126     120     120     105
023131     104     045     116
023134     000

                        .EVEN
```

ADD UNIT SECTION

```
                        .SBTTL  ADD UNIT SECTION

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

 9 023136                       BGNAU
   023136                                                       L$AU::
10 023136                       ENDAU
   023136                                                       L10021:
   023136  104452                                                       TRAP    ^$AU
```

```
                                .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
                                ;;******************************************************************************
023140                          BGNTST
023140                                                                          T1::
023140  012737  023262  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
023146  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023152  000000                          000
023154  000300                          CRC2.CRC1               ;BIT MODE, NO ERR DETECTION
023156  004737  010546                  JSR     PC,LDBYTS       ;LOAD PAT S INTO TX SILO
023162  002642                          PATS
023164  000020                          16.
023166  012737  001000  002412          MOV     #TXEOM,TXWORD
023174  004737  004646                  JSR     PC,LDTXSI       ;LOAD 2 EOM'S INTO TX SILO
023200  004737  004646                  JSR     PC,LDTXSI
023204  004737  004726                  JSR     PC,STPLU        ;CLK MORE THAN ENTIRE MSG
023210  000300                          192.
023212  012701  002642                  MOV     #PATS,R1        ;INIT PAT S POINTER
023216  112137  023226          6$:     MOVB    (R1)+,8$
023222  004737  007266                  JSR     PC,CKDATA       ;CHK A RCV'D CHAR
023226  000000                  8$:     .WORD   0
023230  000000                          0
023232  020127  002661                  CMP     R1,#PATS+15.    ;SEE IF 15 CHARS CHECKED YET
023236  103767                          BLO     6$              ;BR IF NOT YET
023240  111137  023256                  MOVB    (R1),12$
023244  052737  001000  023256          BIS     #RXEBL,12$      ;GET SET TO CHK EBLK   1
023252  004737  007266                  JSR     PC,CKDATA       ;CHK LAST CHAR AND EBLK   1
023256  000000                  12$:    .WORD   0
023260  000000                          0
023262  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
023266                          ENDTST
023266                                                                  L10022:
023266  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.
                                        ;;*********************************************************************
023270                                  BGNTST
023270                                                                                          T2::
023270  012737  023636  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                                        ;-----------------------------------------------------------------
                                        ; CAUSE OVRR, SET IC TO CLEAR IT
                                        ;-----------------------------------------------------------------
023276  004737  005212                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023302  000226                                SYNCH
023304  000311                                CRC2.CRC1!STRIP!DDCMP   ;DDCMP, NO ERR DET
023306  004737  010720                        JSR     PC,LODSIL       ;LOAD 64 001 CHARS INTO TX SILO
023312  000001                                001
023314  000100                                64.
023316  004737  006752                        JSR     PC,RCV1ST       ;CLOCK UNTIL FIRST DATA CHAR RCV'D
023322  000030                                24.
023324  004737  004726                        JSR     PC,STPLU        ;CLOCK UNTIL 59 MORE RCV'D
023330  000730                                472.
023332  004737  010720                        JSR     PC,LODSIL       ;LOAD 60 MORE INTO TX SILO
023336  000001                                001
023340  000074                                60.
023342  004737  004726                        JSR     PC,STPLU        ;CLK 8 MORE TIMES TO FORCE UNDERRUN
023346  000100                                64.
023350  012701  000100                        MOV     #64.,R1         ;READ AND CHK 64 CHARS FROM RCV SILO
023354  004737  007266          6$:           JSR     PC,CKDATA
023360  000001                                001
023362  000000                                0
023364  005301                                DEC     R1
023366  001372                                BNE     6$
023370  004737  007266                        JSR     PC,CKDATA       ;READ CHAR, CHK OVRR - 1
023374  004001                                4001
023376  000010                                8.
023400  004737  007266                        JSR     PC,CKDATA       ;READ CHAR, CHK OVRR STILL = 1
023404  004001                                4001
023406  000010                                8.
023410  012737  000012  002364                MOV     #12,REGNUM      ;SET REG NO. = 12
023416  012737  000200  002352                MOV     #IC,WRIBYT
023424  004737  003422                        JSR     PC,WRITLU       ;SET IC TO CLEAR RCVR
023430  004737  006672                        JSR     PC,RDRXSI       ;READ RCV SILO
023434  132737  000010  002415                BITB    #OVRR,RXWORD+1  ;CHK FOR OVRR CLEARED
023442  001407                                BEQ     8$              ;BR IF OVRR CLEARED
023444  004737  004200                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT OVRR NOT CLEARED
023450                                          ERRDF   41,EM41,ERR7
023450  104455                                                                  TRAP    C$ERDF
023452  000051                                                                  .WORD   41
023454  014032                                                                  .WORD   EM41
023456  020216                                                                  .WORD   ERR7
023460  000466                                BR      24$
```

TEST 2 - RCV OVERRUN ERROR SET AND CLEAR TEST

```
                                8$:
                                ;-------------------------------------------------------------------
                                ; CAUSE OVRR, SET MST CLR TO CLEAR IT
                                ;-------------------------------------------------------------------
023462  004737  005212                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023466  000226                        SYNCH
023470  000341                        CRC2!CRC1!STRIP.DDCMP   ;DDCMP, NO ERR DET
023472  004737  010720                JSR     PC,LODSIL       ;LOAD 64 001 CHARS INTO TX SILO
023476  000001                        001
023500  000100                        64.
023502  004737  006752                JSR     PC,RCV1ST       ;CLOCK UNTIL FIRST DATA CHAR RCV'D
023506  000030                        24.
023510  004737  004726                JSR     PC,STPLU        ;CLOCK UNTIL 59 MORE RCV'D
023514  000730                        472.
023516  004737  010720                JSR     PC,LODSIL       ;LOAD 60 MORE INTO TX SILO
023522  000001                        001
023524  000074                        60.
023526  004737  004726                JSR     PC,STPLU        ;CLK 8 MORE TIMES TO FORCE UNDERRUN
023532  000100                        64.
023534  012701  000100                MOV     #64.,R1         ;READ AND CHK 64 CHARS FROM RCV SILO
023540  004737  007266        9$:     JSR     PC,CKDATA
023544  000001                        001
023546  000000                        0
023550  005301                        DEC     R1
023552  001372                        BNE     9$
023554  004737  007266                JSR     PC,CKDATA       ;READ CHAR, CHK OVRR - 1
023560  004001                        4001
023562  000010                        8.
023564  004737  007266                JSR     PC,CKDATA       ;READ CHAR, CHK OVRR STILL - 1
023570  004001                        4001
023572  000010                        8.
023574  012737  000012  002364        MOV     #12,REGNUM      ;SET REG NO. = 12
023602  004737  003276                JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
023606  004737  006672                JSR     PC,RDRXSI       ;READ RCV SILO
023612  132737  000010  002415        BITB    #OVRR,RXWORD+1  ;CHK FOR OVRR CLEARED
023620  001406                        BEQ     24$             ;BR IF OVRR CLEARED
023622  004737  004200                JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT OVRR NOT CLEARED
                                ERRDF   41,EM41,ERR7
023626
023626  104455                                                                  TRAP    C$ERDF
023630  000051                                                                  .WORD   41
023632  014032                                                                  .WORD   EM41
023634  020216                                                                  .WORD   ERR7
023636  004737  003276        24$:    JSR     PC,MSTCLR       ;ISSUE CLEAN UP MST CLR
023642                          ENDTST
023642                                                                  L10023:
023642  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.
                                        ;*
                                        ;;*****************************************************************
023644                                  BGNTST
023644                                                                          T3::
023644  012737  024174  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                                        ;---------------------------------------------------------------
                                        ; CAUSE ABORT, START NEW MSG TO CLEAR IT
                                        ;---------------------------------------------------------------
023652  004737  005212                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023656  000000                                000
023660  000000                                000                     ;BIT MODE, CRC
023662  004737  010470                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
023666  002732                                MSG3
023670  000014                                12.
023672  004737  006752                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
023676  000060                                48.
023700  004737  007266                        JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
023704  000001                                001
023706  000010                                8.
023710  004737  007266                        JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
023714  003001                                RXABT.RXEBL.001
023716  000000                                0
023720  004737  006232                        JSR     PC,IACTIV       ;CHK FOR IACT = 0
023724  000000                                0
023726  004737  006752                        JSR     PC,RCV1ST       ;CLK AND RCV NEW MSG
023732  000060                                48.
023734  004737  007266                        JSR     PC,CKDATA       ;CHK CHAR = 003
023740  000003                                003
023742  000000                                0
                                        ;---------------------------------------------------------------
                                        ; CAUSE ABORT, SET IC TO CLEAR IT
                                        ;---------------------------------------------------------------
023744  004737  005212                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
023750  000000                                000
023752  000000                                000                     ;BIT MODE, CRC
023754  004737  010470                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
023760  002732                                MSG3
023762  000014                                12.
023764  004737  006752                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
023770  000060                                48.
023772  004737  007266                        JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
023776  000001                                001
024000  000010                                8.
024002  004737  007266                        JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
```

TEST 3 - ABORT SEQUENCE TEST

```
214 024006  003001                          RXABT.RXEBL!001
215 024010  000000                          0
216 024012  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. - 12
217 024020  012737  000200  002352          MOV     #IC,WRIBYT
218 024026  004737  003422                  JSR     PC,WRITLU       ;SET IC TO CLEAR RCVR
219 024032  004737  006672                  JSR     PC,RDRXSI       ;READ RCV SILO
220 024036  132737  000004  002415          BITB    #RAB,RXWORD+1   ;CHK FOR RAB CLEARED
221 024044  001407                          BEQ     8$              ;BR IF RAB CLEARED
222 024046  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
223                             ;REPORT RAB NOT CLEARED
224 024052                                  ERRDF   39,EM39,ERR7
    024052  104455                                                  TRAP    C$ERDF
    024054  000047                                                  .WORD   39
    024056  013776                                                  .WORD   EM39
    024060  020216                                                  .WORD   ERR7
225 024062  000444                          BR      24$
226 024064                              8$:
227                                     ;-------------------------------------------------------------------
228                                     ;CAUSE ABORT, ISSUE MASTER CLEAR TO CLEAR IT
229                                     ;-------------------------------------------------------------------
230 024064  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
231 024070  000000                          000
232 024072  000000                          000                     ;BIT MODE, CRC
233 024074  004737  010470                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
234 024100  002732                          MSG3
235 024102  000014                          12.
236 024104  004737  006752                  JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
237 024110  000060                          48.
238 024112  004737  007266                  JSR     PC,CKDATA       ;CHK CHR = 001, CLK ABORT CHAR
239 024116  000001                          001
240 024120  000010                          8.
241 024122  004737  007266                  JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
242 024126  003001                          RXABT!RXEBL.001
243 024130  000000                          0
244 024132  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. - 12
245 024140  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
246 024144  004737  006672                  JSR     PC,RDRXSI       ;READ RCV SILO
247 024150  132737  000004  002415          BITB    #RAB,RXWORD+1   ;CLK FOR RAB CLEARED
248 024156  001406                          BEQ     24$             ;BR IF RAB CLEARED
249 024160  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
250                             ;REPORT RAB NOT CLEARED
251 024164                                  ERRDF   39,EM39,ERR7
    024164  104455                                                  TRAP    C$ERDF
    024166  000047                                                  .WORD   39
    024170  013776                                                  .WORD   EM39
    024172  020216                                                  .WORD   ERR7
252 024174  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MST CLR TO CLEAN UP
253 024200                          ENDTST
    024200                                                      L10024:
    024200  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.
                                        ;;*****************************************************************************
024202                                  BGNTST
024202                                                                                          T4.:
024202  012737  024256  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
024210  004737  005212                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
024214  000000                                000
024216  000040                                IDLE                    ;BIT MODE, NO ERROR DET
024220  004737  010470                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
024224  002732                                MSG3
024226  000005                                5
024230  004737  006752                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
024234  000060                                48.
024236  004737  007266                        JSR     PC,CKDATA       ;CHK CHR   001, CLK FLAG CHAR
024242  000001                                001
024244  000010                                8.
024246  004737  007266                        JSR     PC,CKDATA       ;CHK RAB   0, EBLK   1
024252  001001                                RXEBL:001
024254  000000                                0
024256  004737  003276          24$:          JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
024262                                  ENDTST
024262                                                                                  L10025:
024262  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.
                                        ;;*****************************************************************************
024264                                  BGNTST
024264                                                                                          T5::
024264  012737  024346  002346                MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
024272  004737  005212                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
024276  000000                                000
024300  000000                                000
024302  012737  000100  002416                MOV     #TXEN,DISILO    ;SET TX ENB TO KEEP RTS HIGH
024310  004737  010720                        JSR     PC,LODSIL       ;LOAD 4 001 CHARS INTO TX SILO
024314  000001                                001
024316  000004                                4
024320  004737  006752                        JSR     PC,RCV1ST       ;CLK AND RCV FIRST CHAR
024324  000060                                48.
024326  004737  007266                        JSR     PC,CKDATA       ;CHK DATA = 001, CLOCK ABORT CHAR
024332  000001                                001
024334  000011                                9.
024336  004737  007266                        JSR     PC,CKDATA       ;CHK FOR RAB, EBLK, AND 001 CHAR
```

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

    314 024342  003001                          RXABT.RXEBL!001
    315 024344  000000                          0
    316 024346  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    317 024352                          ENDTST
        024352                                                          L10026:
        024352  104401                                                          TRAP    C$EIST
    318
    319
    320
    321
    322
    323                                 ;;*************************************************************************
    324                                 .SBTTL      TEST 6 - RECEIVER DISABLE TEST
    325                                 ;*
    326                                 ;* TRANSMIT AND RECEIVE ARE ENABLED IN BIT MODE, AND 2 FLAGS
    327                                 ;* ARE SENT, FOLLOWED BY 5 252 DATA CHARS. AFTER  HE SECOND DATA CHAR HAS BEGUN
    328                                 ;* TO BE RECEIVED, IC IS SET.
    329                                 ;* THEN, THE PROGRAM CHECKS THAT A USYRT RCV FLAG IS NOT GENERATED, AND
    330                                 ;* THE RECFIVER DATA PATH STOPS OPERATING IN THE MIDDLE OF THE CHAR.
    331                                 ;;*************************************************************************
    332 024354                          BGNTST
        024354                                                                  T6::
    333 024354  012737  024542  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
    334 024362  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    335 024366  000000                          000
    336 024370  000000                          000                     ;BIT MODE, CRC
    337 024372  004737  010720                  JSR     PC,LODSIL       ;LOAD 5 252 CHARS
    338 024376  000252                          252
    339 024400  000005                          5
    340 024402  004737  006752                  JSR     PC,RCV1ST       ;CLK AND RCV FIRST DATA CHAR
    341 024406  000060                          48.
    342 024410  004737  004726                  JSR     PC,STPLU        ;CLK TO MIDDLE OF 2ND CHAR
    343 024414  000004                          4
    344 024416  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. = 12
    345 024424  012737  000200  002352          MOV     #IC,WRIBYT
    346 024432  004737  003422                  JSR     PC,WRITLU       ;SET IC IN REG 12
    347 024436  004737  006232                  JSR     PC,IACTIV       ;CHK IACT = 0
    348 024442  000000                          0
    349 024444  004737  005746                  JSR     PC,ISIRDY       ;CHK ICIR = 1, IRDY   0
    350 024450  000001                          1
    351 024452  005037  002370                  CLR     GOODAT          ;SET EXPECTED DATA = 0
    352 024456  005037  002372                  CLR     BADDAT
    353 024462  004737  006672                  JSR     PC,RDRXSI       ;READ RCV SILO
    354 024466  105737  002414                  TSTB    RXWORD          ;SEE IF SILO BITS 0-7 = 000
    355 024472  001404                          BEQ     9$              ;BR IF YES
    356 024474  012737  000010  002364          MOV     #10,REGNUM      ;SET REG NO. - 10
    357 024502  000406                          BR      12$
    358 024504  105737  002415          9$:     TSTB    RXWORD+1        ;SEE IF SILO BITS 8-11 = 000
    359 024510  001414                          BEQ     24$             ;BR IF YES
    360 024512  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO. = 12
    361 024520  113737  002414  002372  12$:    MOVB    RXWORD,BADDAT   ;GET ACTUAL DATA
    362 024526  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    363                                 ;REPORT RCV SILO NOT CLEARED BY IC
    364 024532                          ERRDF   46,EM46,ERR2
        024532  104455                                                          TRAP    C$ERDF
        024534  000056                                                          .WORD   46
        024536  014167                                                          .WORD   EM46
```

```
TEST 6 - RECEIVER DISABLE TEST

     024540  015360                                                                  .WORD   ERR2
 365 024542  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
 366 024546                          ENDTST
     024546                                                                  L10027:
     024546  104401                                                          TRAP    C$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 024550                          BGNTST
     024550                                                                  T7::
 385 024550  012737  025306  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
 386 024556  004737  005212          JSR     PC,INITRN       ;FIND OUT WHICH USYRT CHIP
 387 024562  000000                  0
 388 024564  000000                  0
 389 024566  012701  000100          MOV     #TXLEN1,R1      ;SET INITIAL TX LENGTH TO 2 BITS
 390 024572  004737  003276  6$:     JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 391 024576  004737  010276          JSR     PC,SETUP        ;PROGRAM THE USYRT
 392 024602  000000                  000
 393 024604  000300                  CRC2.CRC1
 394 024606  000000                  000
 395 024610  000000                  000
 396 024612  012737  000014  002364  MOV     #14,REGNUM      ;SET REG NO. - 14
 397 024620  012737  000140  002352  MOV     #TXEN!DISSI,WRIBYT
 398 024626  004737  003422          JSR     PC,WRITLU       ;SET TXEN AND DISSI IN REG 14
 399 024632  012737  000140  002416  MOV     #TXEN!DISSI,DISILO      ;SET DISABLE SILO FLAG
 400 024640  012737  000012  002364  MOV     #12,REGNUM      ;SET LU REG NO. = 12
 401 024646  112737  000040  002352  MOVB    #LULP,WRIBYT
 402 024654  004737  003422          JSR     PC,WRITLU       ;SET LULP IN REG 12
 403 024660  012737  000002  002366  MOV     #2,AXNUM        ;SET AX BYTE NO. - 2
 404 024666  105037  002360          CLRB    WAX15
 405 024672  112737  000001  002362  MOVB    #TSOM,WAX16
 406 024700  004737  003764          JSR     PC,WRITAX       ;LOAD SOM CHAR
 407 024704  005004                  CLR     R4              ;INIT COUNTER
 408 024706  012737  000011  002364  MOV     #11,REGNUM      ;SET REG NO. = 11
 409 024714  004737  004726  7$:     JSR     PC,STPLU        ;CLOCK LU FOR A CYCLE
 410 024720  000001                  1
 411 024722  004737  003344          JSR     PC,READLU       ;READ REG 11
 412 024726  132737  000100  002350  BITB    #OACT,REDBYT    ;SEE IF OACT SET YET
 413 024734  001014                  BNE     10$             ;BR IF OACT SET
 414 024736  005204                  INC     R4              ;INCR COUNTER
 415 024740  020427  000004          CMP     R4,#4           ;SEE IF COUNT TOO BIG
 416 024744  002763                  BLT     7$              ;BR IF NOT
 417 024746  004737  004200          JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
```

TEST 7 - ASSEMBLED BIT COUNT TEST

```
                                        ;REPORT OACT NOT SET
024752                                          ERRDF   11,EM11,ERR7
024752  104455                                                                  TRAP    C$ERDF
024754  000013                                                                  .WORD   11
024756  013372                                                                  .WORD   EM11
024760  020216                                                                  .WORD   ERR7
024762  000137  025306                         JMP     24$
024766  004737  003764          10$:           JSR     PC,WRITAX       ;LOAD ANOTHER SOM CHAR
024772  004737  004726                         JSR     PC,STPLU        ;CLK FIRST FLAG
024776  000010                                 8.
025000  105037  002362                         CLRB    WAX16
025004  004737  003764                         JSR     PC,WRITAX       ;LOAD FIRST 000 CHAR
025010  004737  004726                         JSR     PC,STPLU        ;CLK SECOND FLAG
025014  000010                                 8.
025016  004737  003764                         JSR     PC,WRITAX       ;LOAD SECOND 000 CHAR
025022  004737  004726                         JSR     PC,STPLU        ;CLK FIRST 000 CHAR
025026  000010                                 8.
025030  012737  000006  002366                 MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX 3
025036  010137  002362                         MOV     R1,WAX16        ;GET TX CHAR LENGTH
025042  004737  003764                         JSR     PC,WRITAX       ;SET TX CHAR LENGTH
025046  012737  000002  002366                 MOV     #2,AXNUM        ;SET AX BYTE NO. - 2
025054  105037  002362                         CLRB    WAX16
025060  005737  002420                         TST     CHPTYP          ;SEE IF SIG USYRT
025064  001403                                 BEQ     5$              ;BR IF YES
025066  112737  000002  002362                 MOVB    #TEOM,WAX16     ;SET TEOM WITH LAST DATA CHAR
025074  004737  003764          5$:            JSR     PC,WRITAX       ;LOAD 3RD 000 CHAR
025100  004737  004726                         JSR     PC,STPLU        ;CLK 2ND 000 CHAR
025104  000010                                 8.
025106  005737  002420                         TST     CHPTYP          ;SEE IF SIG USYRT
025112  001005                                 BNE     16$             ;BR IF NOT
025114  112737  000002  002362                 MOVB    #TEOM,WAX16
025122  004737  003764                         JSR     PC,WRITAX       ;LOAD AN EOM CHAR
025126  012737  000001  002366  16$:           MOV     #1,AXNUM        ;SET AX BYTE NO.   1
025134  005003                                 CLR     R3
025136  004737  003576          12$:           JSR     PC,READAX       ;READ AX0
025142  132737  000002  002356                 BITB    #REOM,RAX16     ;CHK FOR REOM = 1
025150  001016                                 BNE     14$             ;BR IF YES
025152  004737  004726                         JSR     PC,STPLU        ;CLOCK LU FOR A CYCLE
025156  000001                                 1
025160  005203                                 INC     R3              ;INCR COUNT
025162  020327  000023                         CMP     R3,#19.         ;SEE IF COUNT TOO BIG
025166  002763                                 BLT     12$             ;BR IF NOT
025170  004737  004200                         JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                                        ;REPORT REOM NOT SET
025174                                          ERRDF   31,EM31,ERR10
025174  104455                                                                  TRAP    C$ERDF
025176  000037                                                                  .WORD   31
025200  013641                                                                  .WORD   EM31
025202  021356                                                                  .WORD   ERR10
025204  000440                                 BR      24$
025206  013702  002356          14$.           MOV     RAX16,R2        ;GET AX0-16 CONTENTS
025212  042702  000217                         BIC     #217,R2         ;MASK OFF ALL BUT ASSEMB BIT COUNT
025216  006102                                 ROL     R2
025220  120201                                 CMPB    R2,R1           ;CHK FOR CORRECT ASSEMB BIT COUNT
025222  001421                                 BEQ     9$              ;BR IF MATCH
025224  010137  002370                         MOV     R1,GOODAT       ;SET EXPECTED DATA
025230  006237  002370                         ASR     GOODAT
```

```
TEST 7 - ASSEMBLED BIT COUNT TEST

    467 025234  152737  000002  002370          BISB    #REQM,GOODAT
    468 025242  013737  002356  002372          MOV     RAX16,BADDAT    ;SET ACTUAL DATA
    469 025250  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    470                             ;REPORT ASSEMB BIT COUNT INCORRECT
    471 025254                      ERRDF   47,EM47,ERR3
        025254  104455                                                          TRAP    C$ERDF
        025256  000057                                                          .WORD   47
        025260  014222                                                          .WORD   EM47
        025262  015666                                                          .WORD   ERR3
    472 025264  000410                  BR      24$
    473 025266  005701              9$: TST     R1              ;SEE IF ALL DONE YET
    474 025270  001406                  BEQ     24$             ;BR IF YES
    475 025272  062701  000040          ADD     #TXLEN0,R1      ;INCR TX LENGTH
    476 025276  042701  000400          BIC     #400,R1         ;MASK OFF OVERFLOW IF 8 BITS
    477 025302  000137  024572          JMP     6$              ;PROCEED
    478 025306  005037  002416      24$: CLR    DISILO
    479 025312  004737  003276          JSR     PC,MSTCLR       ;ISSUE MASTER CLR TO CLEAN UP
    480 025316                      ENDTST
        025316                                                              L10030:
        025316  104401                                                          TRAP    C$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                             ;*   PATTERN T = 000,125,252,176,177
    505                             ;;**********************************************************************
    506 025320                      BGNTST
        025320                                                                  T8::
    507                             ;-----------------------------------------------------------------
    508                             ; SEND MSG WITH INVALID SEC STA ADRS
    509                             ;-----------------------------------------------------------------
    510 025320                          BGNSUB
        025320                                                                  T8.1:
        025320  104402                                                              TRAP    C$BSUB
    511 025322  012737  025420  002346      MOV     #3$,RETADR      ;SET SUBTEST EXIT ADRS FOR ERRORS
    512 025330  004737  005212              JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
    513 025334  000000                      000                     ;SEC ADRS = 000
    514 025336  000020                      SECA                    ;BIT MODE, CRC, SEC ADRS MODE
```

TEST 8 - SECONDARY STATION ADDRESS BIT TEST

```
 515 025340  004737  010720                JSR     PC,LODSIL       ;LOAD 252 INTO TX SILO
 516 025344  000252                        252
 517 025346  000001                        1
 518 025350  004737  010720                JSR     PC,LODSIL       ;LOAD 000 DATA INTO TX SILO
 519 025354  000000                        000
 520 025356  000001                        1
 521 025360  004737  010720                JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
 522 025364  001000                        TXEOM
 523 025366  000002                        2
 524 025370  004737  004726                JSR     PC,STPLU        ;TRANSMIT THE MSG
 525 025374  000060                        48.
 526 025376  004737  006232                JSR     PC,IACTIV       ;CHK IACT = 0
 527 025402  000000                        0
 528 025404  004737  004726                JSR     PC,STPLU        ;CLOCK 8 MORE CYCLES
 529 025410  000010                        8.
 530 025412  004737  006232                JSR     PC,IACTIV       ;CHK IACT = 0
 531 025416  000000                        0
 532 025420                          3$:
 533 025420                              ENDSUB
     025420                                                                  L10032:
     025420  104403                                                                TRAP    C$ESUB
 534                                 ;-----------------------------------------------------------------
 535                                 ; SEND MSG'S WITH VALID SEC ADRS'S FROM PAT T
 536                                 ;-----------------------------------------------------------------
 537 025422  012701  002662                MOV     #PATT,R1        ;INIT DATA PATTERN POINTER
 538 025426                          A11:
 539 025426                              BGNSUB
     025426                                                                  T8.2:
     025426  104402                                                                TRAP    C$BSUB
 540 025430  012737  025540  002346        MOV     #24$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
 541 025436  111137  025456                MOVB    (R1),5$         ;SET SEC ADRS
 542 025442  111137  025466                MOVB    (R1),6$         ;SET FIRST DATA CHAR
 543 025446  111137  025524                MOVB    (R1),9$         ;SET EXPECTED DATA CHAR
 544 025452  004737  005212                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
 545 025456  000000                  5$:   .WORD   0
 546 025460  000020                        SECA                    ;BIT MODE, CRC, SEC ADRS MODE
 547 025462  004737  010720                JSR     PC,LODSIL       ;LOAD 1ST DATA CHAR INTO TX SILO
 548 025466  000000                  6$:   .WORD   0
 549 025470  000001                        1
 550 025472  004737  010720                JSR     PC,LODSIL       ;LOAD A 000 CHAR INTO TX SILO
 551 025476  000000                        000
 552 025500  000001                        1
 553 025502  004737  010720                JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
 554 025506  001000                        TXEOM
 555 025510  000002                        2
 556 025512  004737  006752                JSR     PC,RCV1ST       ;CLOCK AND RCV FIRST DATA CHAR
 557 025516  000060                        48.
 558 025520  004737  007266                JSR     PC,CKDATA       ;CHK FOR CORRECT RCV'D SEC STA ADRS
 559 025524  000000                  9$:   .WORD   0
 560 025526  000011                        9.
 561 025530  004737  007266                JSR     PC,CKDATA       ;READ AND CHK 000 CHAR, EBLK=1, BCC 0
 562 025534  101000                        CRCCHK!RXEBL!000
 563 025536  000000                        0
 564 025540                          24$:
 565 025540                              ENDSUB
     025540                                                                  L10033:
     025540  104403                                                                TRAP    C$ESUB
```

TEST 8 - SECONDARY STATION ADDRESS BIT TEST

```
                                        INC     R1              ;INCR PATTERN POINTER
                                        CMP     R1,#ENDPAT      ;SEE IF ALL DONE YET
                                        BLO     A11             ;BR IF NO
                                        JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
                                ENDTST
                                                                                L10031:
                                                                                        TRAP    C$ETST


                                ;;*******************************************************************
                                .SBTTL      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.
                                ;;*******************************************************************
                                BGNTST
                                                                                T9::
                                ;-----------------------------------------------------------
                                ; SET SEC ADR = 000, SEND ADR = 377, WITH RDALL = 0
                                ;-----------------------------------------------------------
                                        BGNSUB
                                                                                T9.1:
                                                                                        TRAP    C$BSUB
                                        MOV     #3$,RETADR      ;SET SUBTEST EXIT ADRS FOR ERRORS
                                        JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
                                        000                     ;SEC ADRS = 000
                                        SECA                    ;BIT MODE, CRC, SEC ADRS MODE
                                        JSR     PC,LODSIL       ;LOAD 377 INTO TX SILO
                                        377
                                        1
                                        JSR     PC,LODSIL       ;LOAD 125 DATA INTO TX SILO
                                        125
                                        1
                                        JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
                                        TXEOM
                                        2
                                        JSR     PC,STPLU        ;TRANSMIT THE MSG
                                        48.
                                        JSR     PC,IACTIV       ;CHK IACT = 0
                                        0
                                        JSR     PC,STPLU        ;CLOCK 8 MORE CYCLES
                                        8.
                                        JSR     PC,IACTIV       ;CHK IACT = 0
                                        0
                                3$:
                                        ENDSUB
                                                                                L10035:
```

TEST 9 - RDALL (ALL PARTIES ADDRESS) BIT TEST

```
                025660  104403                                                                  TRAP    C$ESUB
                617
                618                             ;-----------------------------------------------------------------
                619                             ; SET SEC ADR = 000, SEND ADR = 377, WITH RDALL = 1
                620                             ;-----------------------------------------------------------------
                621                                     BGNSUB
                622                                                                             T9.2:
                623                                                                             TRAP    C$BSUB
                624 025662  012737  025760  002346         MOV     #24$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
                625 025670  004737  005212                 JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
                626 025674  000000                         000                     ;SEC ADRS = 000
                627 025676  000024                         SECA!RDALL              ;BIT MODE, CRC, SEC ADRS MODE, RDALL
                628 025700  004737  010720                 JSR     PC,LODSIL       ;LOAD 1ST DATA CHAR INTO TX SILO
                629 025704  000377                         377
                630 025706  000001                         1
                631 025710  004737  010720                 JSR     PC,LODSIL       ;LOAD A 125 CHAR INTO TX SILO
                632 025714  000125                         125
                633 025716  000001                         1
                634 025720  004737  010720                 JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
                635 025724  001000                         TXEOM
                636 025726  000002                         2
                637 025730  004737  006752                 JSR     PC,RCV1ST       ;CLOCK AND RCV FIRST DATA CHAR
                638 025734  000060                         48.
                639 025736  004737  007266                 JSR     PC,CKDATA       ;CHK FOR 377 CHAR RCV'D
                640 025742  000377                         377
                641 025744  000010                         8.
                642 025746  004737  007266                 JSR     PC,CKDATA       ;READ AND CHK 125 CHAR, EBLK-1, BCC=0
                643 025752  101125                         CRCCHK!RXEBL.125
                644 025754  000000                         0
                645                             24$:
                646 025756                              ENDSUB
                647                                                                             L10036:
                648 025756  104403                                                                TRAP    C$FSUB
                649                             ENDTST
                650                                                                             L10034:
                651 025760  104401                                                                TRAP    C$ETST
                652
                653
                654
                655
                656
                657                             ;;*****************************************************************************
                658                             .SBTTL      TEST 10 - INSERT ERROR (IERR) BIT TEST - CHAR MODE, NO CRC
                659                             ;*
                660                             ;* THE LINE UNIT IS PLACED IN DDCMP MODE WITH NO ERROR DETECTION, AND 2
                661                             ;* SYNCHS, A 000 CHAR, A 377 CHAR, AND 2 SYNCHS ARE LOADED INTO THE
                662                             ;* TRANSMITTER SILO. THEN, THE LU IS CLOCKED UNTIL THE 2ND BIT OF THE 000
                663                             ;* CHAR IS ABOUT TO BE SENT AND THE IERR BIT IS SET FOR A CLOCK TIME AND
                664                             ;* THEN CLEARED. IN THE SAME WAY, IERR IS SET PRIOR TO THE SENDING OF THE 4TH
                665                             ;* AND 5TH BITS OF THE 000 CHAR. IT IS ALSO SET FOR THE SENDING OF THE FIRST
                666                             ;* 4 BITS OF THE 377 CHAR. THE PROGRAM READS THE FIRST RCV'D CHAR FROM AX0
                667                             ;* AND CHECKS IT TO BE 032, AND READS THE 2ND CHAR AND CHECKS IT TO BE 377.
                668                             ;* THEN, A MASTER CLEAR IS DONE TO IDLE THE DEVICE.
                669                             ;;*****************************************************************************
                670 025762                      BGNTST
                671                                                                             T10::
                672 025762  012737  026110  002346         MOV     #15$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
                673 025770  004737  005212                 JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO USYRT
```

```
026776  000226                          SYNCH
027000  000011                          STRIP!DDCMP
027002  004737  010470                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
027006  002722                          MSG2+4
027010  000004                          4
027012  004737  004726                  JSR     PC,STPLU        ;CLOCK LU UNTIL 2ND BIT OF 000 CHAR
027016  100021                          CHPCHK!17.
027020  004737  007164                  JSR     PC,STPERR       ;SET IERR 1 CYCLE
027024  000011                          STRIP!DDCMP
027026  000001                          1
027030  004737  004726                  JSR     PC,STPLU        ;CLOCK LU UNTIL 4TH BIT OF 000 CHAR
027034  000001                          1
027036  004737  007164                  JSR     PC,STPERR       ;SET IERR FOR 2 CYCLES
027042  000011                          STRIP!DDCMP
027044  000002                          2
027046  004737  004726                  JSR     PC,STPLU        ;CLOCK LU UNTIL 1ST BIT OF 377 CHAR
027052  000003                          3
027054  004737  007164                  JSR     PC,STPERR       ;SET IERR FOR 4 CYCLES
027060  000011                          STRIP!DDCMP
027062  000004                          4
027064  004737  006752                  JSR     PC,RCV1ST       ;CLOCK AND RCV 1ST CHAR
027070  000014                          12.
027072  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE 1ST CHAR TO 032
027076  000032                          032
027100  000010                          8.
027102  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE 2ND CHAR TO 377
027106  000377                          377                     ;377 CHAR
027110  000000                          0
027112  004737  003276          15$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
027116                          ENDTST
027116                                                                  L10037:
027116  104401                                                          TRAP    C$ETST
```

```
;*****************************************************************************
.SBTTL      TEST 11 - SWITCH PACK PRINTOUT AND TEST
;*
;* - READ AND PRINT SWITCH PACK #1 :
;* 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). THE
;* SWITCHES ARE IN BITS 1,2,3,5.
;*
;* - READ AND PRINT SWITCH PACK #2 :
;* 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). THE
;* SWITCHES ARE IN BITS 0-7.
;*
;* - READ AND PRINT SWITCH PACK #3 :
;* 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). THE
;* SWITCHES ARE IN BITS 0-7.
```

```
                        ;;*************************************************************************
026120                  BGNTST
026120                                                                  T11::
                        ;-------------------------------------------------------------------------
                        ; READ AND PRINT SWITCH PACK #1, IF DESIRED
                        ;-------------------------------------------------------------------------
                                BGNSUB
026120                                                                  T11.1:
026120  104402                                                                  TRAP    C$BSUB
026122  004737  003276          JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
026126  012737  000011  002364  MOV     #11,REGNUM      ;SET LU REG NO. = 11
026134  004737  003344          JSR     PC,READLU       ;READ LU REG 11
026140  142737  000321  002350  BICB    #321,REDBYT     ;MASK OFF NON-SWITCH BITS
026146  023727  002400  000001  CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
026154  001403                  BEQ     3$              ;BR IF YES
026156  005737  002260          TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
026162  001424                  BEQ     4$              ;BR IF NOT
026164                  3$:
                        ;PRINT DEVICE ADDRESS
026164                          PRINTF  #FMT18,MPCSR
026164  013746  002436                                                  MOV     MPCSR,-(SP)
026170  012746  013034                                                  MOV     #FMT18,-(SP)
026174  012746  000002                                                  MOV     #2,-(SP)
026200  010600                                                          MOV     SP,R0
026202  104417                                                          TRAP    C$PNTF
026204  062706  000006                                                  ADD     #6,SP
                        ;PRINT SWITCH PACK #1
026210                          PRINTF  #FMT12,REDBYT
026210  013746  002350                                                  MOV     REDBYT,-(SP)
026214  012746  012611                                                  MOV     #FMT12,-(SP)
026220  012746  000002                                                  MOV     #2,-(SP)
026224  010600                                                          MOV     SP,R0
026226  104417                                                          TRAP    C$PNTF
026230  062706  000006                                                  ADD     #6,SP
026234  005737  002262          4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
026240  001420                  BEQ     6$              ;BR IF NOT
026242  123737  002350  002454  CMPB    REDBYT,LUSWI1   ;COMPARE SWITCHES TO EXPECTED
026250  001414                  BEQ     6$              ;BR IF MATCH
026252  013737  002454  002370  MOV     LUSWI1,GOODAT   ;SET EXPECTED DATA
026260  013737  002350  002372  MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
026266  004737  004200          JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT SWITCH PACK #1 INCORRECT
026272                          ERRDF   43,EM43,ERR2
026272  104455                                                          TRAP    C$ERDF
026274  000053                                                          .WORD   43
026276  014070                                                          .WORD   EM43
026300  015360                                                          .WORD   ERR2
026302                  6$:
026302                          ENDSUB
026302                                                          L10041:
026302  104403                                                          TRAP    C$ESUB
                        ;-------------------------------------------------------------------------
                        ; READ AND PRINT SWITCH PACK #2, IF DESIRED
                        ;-------------------------------------------------------------------------
026304                          BGNSUB
026304                                                                  T11.2:
026304  104402                                                          TRAP    C$BSUB
```

```
TEST 11 - SWITCH PACK PRINTOUT AND TEST

 755 026306  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 756 026312  012737  000015  002364          MOV     #15,REGNUM      ;SET LU REG NO. - 15
 757 026320  004737  003344                  JSR     PC,READLU       ;READ LU REG 15
 758 026324  023727  002400  000001          CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
 759 026332  001403                          BEQ     3$              ;BR IF YES
 760 026334  005737  002260                  TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
 761 026340  001412                          BEQ     4$              ;BR IF NOT
 762 026342                          3$:
 763 026342                          PRINTF  #FMT3,REDBYT
     026342  013746  002350                                                  MOV     REDBYT,-(SP)
     026346  012746  012655                                                  MOV     #FMT13,-(SP)
     026352  012746  000002                                                  MOV     #2,-(SP)
     026356  010600                                                          MOV     SP,R0
     026360  104417                                                          TRAP    C$PNTF
     026362  062706  000006                                                  ADD     #6,SP
 764 026366  005737  002262          4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
 765 026372  001420                          BEQ     6$              ;BR IF NOT
 766 026374  123737  002350  002456          CMPB    REDBYT,LJSWI2   ;COMPARE SWITCHES TO EXPECTED
 767 026402  001414                          BEQ     6$              ;BR IF MATCH
 768 026404  013737  002456  002370          MOV     LUSWI2,GOODAT   ;SET EXPECTED DATA
 769 026412  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
 770 026420  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 771                         ;REPORT SWITCH PACK #2 INCORRECT
 772 026424                          ERRDF   44,EM44,ERR2
     026424  104455                                                          TRAP    C$ERDF
     026426  000054                                                          .WORD   44
     026430  014115                                                          .WORD   EM44
     026432  015360                                                          .WORD   ERR2
 773 026434                          6$:
 774 026434                          ENDSUB
     026434                                                      L10042:
     026434  104403                                                          TRAP    C$ESUB
 775                         ;-----------------------------------------------------------------------
 776                         ; READ AND PRINT SWITCH PACK #3, IF DESIRED
 777                         ;-----------------------------------------------------------------------
 778 026436                          BGNSUB
     026436                                                      T11.3:
     026436  104402                                                          TRAP    C$BSUB
 779 026440  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 780 026444  012737  000016  002364          MOV     #16,REGNUM      ;SET LU REG NO.   16
 781 026452  004737  003344                  JSR     PC,READLU       ;READ LU REG 16
 782 026456  023727  002400  000001          CMP     FRSPAS,#1       ;SEE IF IN FIRST PASS AFTER LOAD
 783 026464  001403                          BEQ     3$              ;BR IF YES
 784 026466  005737  002260                  TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
 785 026472  001412                          BEQ     4$              ;BR IF NOT
 786 026474                          3$:
 787 026474                          PRINTF  #FMT14,REDBYT
     026474  013746  002350                                                  MOV     REDBYT,-(SP)
     026500  012746  012721                                                  MOV     #FMT14,-(SP)
     026504  012746  000002                                                  MOV     #2,-(SP)
     026510  010600                                                          MOV     SP,R0
     026512  104417                                                          TRAP    C$PNTF
     026514  062706  000006                                                  ADD     #6,SP
 788 026520  005737  002262          4$:     TST     SWIFLG          ;SEE IF TEST IS ALLOWED
 789 026524  001420                          BEQ     6$              ;BR IF NOT
 790 026526  123737  002350  002460          CMPB    REDBYT,LUSWI3   ;COMPARE SWITCHES TO EXPECTED
 791 026534  001414                          BEQ     6$              ;BR IF MATCH
```

```
TEST 11 - SWITCH PACK PRINTOUT AND TEST

    792 026536  013737  002460  002370          MOV     LUSWI3,GOODAT   ;SET EXPECTED DATA
    793 026544  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
    794 026552  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
    795                             ;REPORT SWITCH PACK #3 INCORRECT
    796 026556                              ERRDF   45,EM45,ERR2
        026556  104455                                                  TRAP    C$ERDF
        026560  000055                                                  .WORD   45
        026562  014142                                                  .WORD   EM45
        026564  015360                                                  .WORD   ERR2
    797 026566                              6$:
    798 026566                              ENDSUB
        026566                                                      L10043:
        026566  104403                                                  TRAP    C$ESUB
    799 026570                              ENDTST
        026570                                                      L10040:
        026570  104401                                                  TRAP    C$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 026572                      BGNTST
        026572                                                          T12::
    813 026572  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
    814 026576  142777  000010  153634          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
    815 026604  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3-15
    816 026612  004737  003576                  JSR     PC,READAX       ;READ AX3-15,AX3-16
    817 026616  023727  002400  000001          CMP     FRSPAS,#1       ;SEE IF FIRST PASS AFTER LOAD
    818 026624  001403                          BEQ     3$              ;BR IF NOT
    819 026626  005737  002260                  TST     PRNFLG          ;SEE IF PRINTOUT IS ALLOWED ON ALL PASSES
    820 026632  001424                          BEQ     4$              ;BR IF NOT
    821 026634                      3$:
    822                             ;PRINT DEVICE ADDRESS
    823 026634                              PRINTF  #FMT18,MPCSR
        026634  013746  002436                                          MOV     MPCSR,-(SP)
        026640  012746  013034                                          MOV     #FMT18,-(SP)
        026644  012746  000002                                          MOV     #2,-(SP)
        026650  010600                                                  MOV     SP,R0
        026652  104417                                                  TRAP    C$PNTF
        026654  062706  000006                                          ADD     #6,SP
    824                             ;PRINT AX3-15
    825 026660                              PRINTF  #FMT15,RAX15
        026660  013746  002354                                          MOV     RAX15,-(SP)
        026664  012746  012765                                          MOV     #FMT15,-(SP)
        026670  012746  000002                                          MOV     #2,-(SP)
        026674  010600                                                  MOV     SP,R0
        026676  104417                                                  TRAP    C$PNTF
        026700  062706  000006                                          ADD     #6,SP
    826 026704                      4$:
    827 026704                      ENDTST
```

```
                                                                                L10044:
026704
026704  104401                                                                          TRAP    C$ETST
828
829
830
831
832
833                             ;;*************************************************************************
834                             .SBTTL      TEST 13 - CRC GENERATION TEST
835                             ;*
836                             ;* - CRC-16, CHAR MODE:
837                             ;* THE FOLLOWING MESSAGE IS SENT IN DDCMP MODE WITH CRC-16 SELECTED -
838                             ;* 2 SYNCHS, 000, 125, 252, 377, 000, AND 2 SYNCHS, USING LULOOP AND STEPLU
839                             ;* TO CLOCK THE DATA.    AT THE END OF THE MESSAGE THE
840                             ;* PROGRAM CHECKS FOR BCC = 1 (IN REG 12) INDICATING NO ERROR.
841                             ;*
842                             ;* - CRC-CCITT - 1'S PRESET:
843                             ;* THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-1'S SELECTED. AT
844                             ;* THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
845                             ;*
846                             ;* - CRC-CCITT - 0'S PRESET:
847                             ;* THE ABOVE SUBTEST IS PERFORMED IN BIT MODE WITH CRC-CCITT-0'S SELECTED. AT
848                             ;* THE END OF THE MESSAGE THE PROGRAM CHECKS FOR BCC = 0, INDICATING NO ERROR.
849                             ;;*************************************************************************
850 026706                     BGNTST
026706                                                                              T13::
851                             ;-------------------------------------------------------------------------
852                             ; CRC 16, CHAR MODE
853                             ;-------------------------------------------------------------------------
854 026706  012737  027236  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
855 026714  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
856 026720  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
857 026724  000226                          SYNCH
858 026726  000011                          STRIP.DDCMP
859 026730  000000                          000
860 026732  000000                          000
861 026734  004737  010470                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
862 026740  002670                          MSG1
863 026742  000011                          9.
864 026744  004737  004726                  JSR     PC,STPLU        ;CLOCK THE MSG
865 026750  000136                          94.
866 026752  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
867 026756  000000                          000
868 026760  000000                          0
869 026762  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
870 026766  000125                          125
871 026770  000000                          0
872 026772  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
873 026776  000252                          252
874 027000  000000                          0
875 027002  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
876 027006  000377                          377
877 027010  000000                          0
878 027012  004737  007266                  JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 1
879 027016  100400                          CRCCHK.400
880 027020  000000                          0
881
```

```
                                        ;-------------------------------------------------------------
                                        ; CRC-CCITT-1'S PRESET, BIT MODE
                                        ;-------------------------------------------------------------
027022  004737  003276                        JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
027026  004737  010276                        JSR     PC,SETUP        ;PROGRAM THE USYRT
027032  000000                                000
027034  000000                                000
027036  000000                                000
027040  000000                                000
027042  004737  010470                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
027046  002670                                MSG1
027050  000011                                9.
027052  004737  004726                        JSR     PC,STPLU        ;CLOCK THE MSG
027056  000146                                102.
027060  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
027064  000000                                000
027066  000000                                0
027070  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
027074  000125                                125
027076  000000                                0
027100  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
027104  000252                                252
027106  000000                                0
027110  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
027114  000377                                377
027116  000000                                0
027120  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC - 0
027124  101000                                CRCCHK.1000
027126  000000                                0


                                        ;-------------------------------------------------------------
                                        ; CRC-CCITT-0'S PRESET, BIT MODE
                                        ;-------------------------------------------------------------
027130  004737  003276                        JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
027134  004737  010276                        JSR     PC,SETUP        ;PROGRAM THE USYRT
027140  000000                                000
027142  000100                                CRC1
027144  000000                                000
027146  000000                                000
027150  004737  010470                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
027154  002670                                MSG1
027156  000011                                9.
027160  004737  004726                        JSR     PC,STPLU        ;CLOCK THE MSG
027164  000146                                102.
027166  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000
027172  000000                                000
027174  000000                                0
027176  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
027202  000125                                125
027204  000000                                0
027206  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
027212  000252                                252
027214  000000                                0
027216  004737  007266                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
027222  000377                                377
027224  000000                                0
```

```
                                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC - 0
                                        CRCCHK.1000
                                        0

                                24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
                                ENDTST
                                                                                L10045:
                                                                                        TRAP    C$ETST




                                ;;*****************************************************************************
                                .SBTTL      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.
                                ;;*****************************************************************************
                                BGNTST
                                                                                T14::
                                ;-----------------------------------------
                                ; CRC 16, CHAR MODE
                                ;-----------------------------------------
                                        MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
                                        JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
                                        SYNCH
                                        STRIP.DDCMP
                                        JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST SYNCH
                                        000
                                        CHPCHK.8.
                                        JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
                                        MSG1+6
                                        6
                                        JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
                                        8.
                                        JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
                                        STRIP!DDCMP
                                        1
                                        JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
                                        82.
                                        JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
                                        001
                                        0
```

```
 993 027336  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
 994 027342  000125                        125
 995 027344  000000                        0
 996 027346  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
 997 027352  000252                        252
 998 027354  000000                        0
 999 027356  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
1000 027362  000377                        377
1001 027364  000000                        0
1002 027366  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 0
1003 027372  100000                        CRCCHK!000
1004 027374  000000                        0
1005
1006                                ;-----------------------------------------
1007                                ; CRC-CCITT-1'S PRESET, BIT MODE
1008                                ;-----------------------------------------
1009 027376  004737  005212                JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
1010 027402  000000                        000
1011 027404  000000                        000
1012 027406  004737  005574                JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST FLAG
1013 027412  000000                        000
1014 027414  100010                        CHPCHK.8.
1015 027416  004737  010470                JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
1016 027422  002676                        MSG1+6
1017 027424  000006                        6
1018 027426  004737  004726                JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
1019 027432  000010                        8.
1020 027434  004737  007164                JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
1021 027440  000000                        000
1022 027442  000001                        1
1023 027444  004737  004726                JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
1024 027450  000122                        82.
1025 027452  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
1026 027456  000001                        001
1027 027460  000000                        0
1028 027462  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
1029 027466  000125                        125
1030 027470  000000                        0
1031 027472  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
1032 027476  000252                        252
1033 027500  000000                        0
1034 027502  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
1035 027506  000377                        377
1036 027510  000000                        0
1037 027512  004737  007266                JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC = 1
1038 027516  101400                        CRCCHK.1400
1039 027520  000000                        0
1040
1041                                ;-----------------------------------------
1042                                ; CRC-CCITT-0'S PRESET, BIT MODE
1043                                ;-----------------------------------------
1044 027522  004737  005212                JSR     PC,INITRN       ;LOAD 2 SOM'S, CLOCK THEM INTO THE USYRT
1045 027526  000000                        000
1046 027530  000100                        CRC1
1047 027532  004737  005574                JSR     PC,TXCHAR       ;LOAD 000 CHAR, TX 1ST FLAG
1048 027536  000000                        000
1049 027540  100010                        CHPCHK.8.
```

TEST 14 - CRC ERROR DETECTION TEST

```
1050 027542  004737  010470          JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
1051 027546  002676                  MSG1+6
1052 027550  000006                  6
1053 027552  004737  004726          JSR     PC,STPLU        ;CLOCK LINE UNIT UNTIL 1ST BIT OF 000 CHAR
1054 027556  000010                  8.
1055 027560  004737  007164          JSR     PC,STPERR       ;MAKE 1ST BIT = 1 INSTEAD OF 0
1056 027564  000100                  CRC1
1057 027566  000001                  1
1058 027570  004737  004726          JSR     PC,STPLU        ;CLOCK REST OF MESSAGE
1059 027574  000122                  82.
1060 027576  004737  007266          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 001 (INTENDED ERROR)
1061 027602  000001                  001
1062 027604  000000                  0
1063 027606  004737  007266          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 125
1064 027612  000125                  125
1065 027614  000000                  0
1066 027616  004737  007266          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 252
1067 027622  000252                  252
1068 027624  000000                  0
1069 027626  004737  007266          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 377
1070 027632  000377                  377
1071 027634  000000                  0
1072 027636  004737  007266          JSR     PC,CKDATA       ;READ AND COMPARE CHAR TO 000, CHK BCC - 1
1073 027642  101400                  CRCCHK!1400
1074 027644  000000                  0
1075
1076 027646  004737  003276  24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1077 027652                  ENDTST
     027652                                                          L10046:
     027652  104401                                                  TRAP    C$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 027654                  BGNTST
     027654                                                          T15::
1103                          ;-------------------------------------------------------------
```

TEST 15 - VRC PARITY GENERATION TEST

```
1104                                    ; TEST ODD VRC GENERATION
1105                                    ;-----------------------------------------------------------
1106 027654  012737  000006  002366      MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1107 027662  012737  000017  002364      MOV     #17,REGNUM      ;SET REG NO. = 17
1108 027670                             BGNSUB
     027670                                                                          T15.1:
     027670  104402                                                                  TRAP    C$BSUB
1109 027672  012737  030074  002346      MOV     #8$,RETADR      ;SET SUBTEST EXIT ADDRESS FOR ERRORS
1110 027700  004737  005212              JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1111 027704  000026                     026
1112 027706  000111                     CRC1!STRIP!DDCMP        ;CHAR MODE, ODD VRC
1113 027710  004737  010546              JSR     PC,LDBYTS       ;LOAD DATA INTO TX SILO
1114 027714  002613                     PATQ
1115 027716  000010                     8.
1116 027720  004737  010720              JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1117 027724  001000                     TXEOM
1118 027726  000002                     2
1119 027730  005037  002360              CLR     WAX15
1120 027734  012737  000347  002362      MOV     #TXLEN2!TXLEN1.TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1121 027742  004737  003764              JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1122 027746  004737  004726              JSR     PC,STPLU        ;CLOCK FIRST SYNCH
1123 027752  000010                     8.
1124 027754  004737  004726              JSR     PC,STPLU        ;CLOCK 2ND SYNCH
1125 027760  000010                     8.
1126 027762  005001                     CLR     R1              ;INIT CHAR COUNT
1127 027764  004737  004726      2$:     JSR     PC,STPLU        ;CLOCK A CHAR
1128 027770  000010                     8.
1129 027772  004737  003344              JSR     PC,READLU       ;READ REG 17
1130 027776  005201                     INC     R1              ;INCR CHAR COUNT
1131 030000  020127  000004              CMP     R1,#4           ;SEE IF 4 CHARS CLKD YET
1132 030004  003014                     BGT     4$              ;BR IF YES
1133 030006  132737  000040  002350      BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS SET
1134 030014  001024                     BNE     6$              ;BR IF YES
1135 030016  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1136                             ;REPORT ODD VRC PARITY BIT NOT SET
1137 030022                             ERRDF   48,EM48,ERR7
     030022  104455                                                                  TRAP    C$ERDF
     030024  000060                                                                  .WORD   48
     030026  014255                                                                  .WORD   EM48
     030030  020216                                                                  .WORD   ERR7
1138 030032                             ESCAPE  SUB
     030032  104410                                                                  TRAP    C$ESCAPE
     030034  000040                                                                  .WORD   L10050-.
1139 030036  132737  000040  002350  4$:     BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS CLEARED
1140 030044  001410                     BEQ     6$              ;BR IF YES
1141 030046  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1142                             ;REPORT ODD VRC PARITY BIT NOT CLEARED
1143 030052                             ERRDF   49,EM49,ERR7
     030052  104455                                                                  TRAP    C$ERDF
     030054  000061                                                                  .WORD   49
     030056  014310                                                                  .WORD   EM49
     030060  020216                                                                  .WORD   ERR7
1144 030062                             ESCAPE  SUB
     030062  104410                                                                  TRAP    C$ESCAPE
     030064  000010                                                                  .WORD   L10050-.
1145 030066  020127  000010      6$:     CMP     R1,#8.          ;SEE IF ALL CHARS TESTED YET
1146 030072  002734                     BLT     2$              ;BR IF NOT
```

TEST 15 - VRC PARITY GENERATION TEST

```
1147 030074                          8$:
1148 030074                                  ENDSUB
     030074                                                                  L10050:
     030074  104403                                                                  TRAP    C$ESUB
1149                                 ;-------------------------------------------------------------
1150                                 ; TEST EVEN VRC GENERATION
1151                                 ;-------------------------------------------------------------
1152 030076  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1153 030104  012737  000017  002364          MOV     #17,REGNUM      ;SET REG NO. = 17
1154 030112                                  BGNSUB
     030112                                                                  T15.2:
     030112  104402                                                                  TRAP    C$BSUB
1155 030114  012737  030316  002346          MOV     #18$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
1156 030122  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1157 030126  000026                          026
1158 030130  000211                          CRC2!STRIP.DDCMP        ;CHAR MODE, EVEN VRC
1159 030132  004737  010546                  JSR     PC,LDBYTS       ;LOAD DATA INTO TX SILO
1160 030136  002613                          PATQ
1161 030140  000010                          8.
1162 030142  004737  010720                  JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1163 030146  001000                          TXEOM
1164 030150  000002                          2
1165 030152  005037  002360                  CLR     WAX15
1166 030156  012737  000347  002362          MOV     #TXLEN2.TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1167 030164  004737  003764                  JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS   7
1168 030170  004737  004726                  JSR     PC,STPLU        ;CLOCK FIRST SYNCH
1169 030174  000010                          8.
1170 030176  004737  004726                  JSR     PC,STPLU        ;CLOCK 2ND SYNCH
1171 030202  000010                          8.
1172 030204  005001                          CLR     R1              ;INIT CHAR COUNT
1173 030206  004737  004726          12$:    JSR     PC,STPLU        ;CLOCK A CHAR
1174 030212  000010                          8.
1175 030214  004737  003344                  JSR     PC,READLU       ;READ REG 17
1176 030220  005201                          INC     R1              ;INCR CHAR COUNT
1177 030222  020127  000004                  CMP     R1,#4           ;SEE IF 4 CHARS CLKD YET
1178 030226  003014                          BGT     14$             ;BR IF YES
1179 030230  132737  000040  002350          BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS CLEARED
1180 030236  001424                          BEQ     16$             ;BR IF YES
1181 030240  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1182                                 ;REPORT EVEN VRC PARITY BIT NOT CLEARED
1183 030244                                  ERRDF   51,EM51,ERR7
     030244  104455                                                          TRAP    C$ERDF
     030246  000063                                                          .WORD   51
     030250  014403                                                          .WORD   EM51
     030252  020216                                                          .WORD   ERR7
1184 030254                                  ESCAPE  SUB
     030254  104410                                                          TRAP    C$ESCAPE
     030256  000040                                                          .WORD   L10051-.
1185 030260  132737  000040  002350  14$:    BITB    #TXDATA,REDBYT  ;SEE IF PARITY BIT IS SET
1186 030266  001010                          BNE     16$             ;BR IF YES
1187 030270  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1188                                 ;REPORT EVEN VRC PARITY BIT NOT SET
1189 030274                                  ERRDF   50,EM50,ERR7
     030274  104455                                                          TRAP    C$ERDF
     030276  000062                                                          .WORD   50
     030300  014347                                                          .WORD   EM50
     030302  020216                                                          .WORD   ERR7
```

```
1190 030304                                    ESCAPE  SUB
     030304  104410                                                                    TRAP    C$ESCAPE
     030306  000010                                                                    .WORD   L10051-.
1191 030310  020127  000010          16$:      CMP     R1,#8.          ;SEE IF ALL CHARS TESTED YET
1192 030314  002734                            BLT     12$             ;BR IF NOT
1193 030316                         18$:
1194 030316                                    ENDSUB
     030316                                                                  L10051:
     030316  104403                                                                    TRAP    C$ESUB
1195 030320  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1196 030324                         ENDTST
     030324                                                                  L10047:
     030324  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 030326                         BGNTST
     030326                                                                  T16::
1225                                ;-------------------------------------------------------------
1226                                ; TEST ODD VRC ERROR DETECTION
1227                                ;-------------------------------------------------------------
1228 030326  012737  000006  002366          MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1229 030334  012737  000012  002364          MOV     #12,REGNUM      ;SET REG NO.
1230 030342                                  BGNSUB
     030342                                                                  T16.1:
     030342  104402                                                                    TRAP    C$BSUB
1231 030344  012737  030562  002346          MOV     #10$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
1232 030352  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1233 030356  000026                          026
1234 030360  000111                          CRC1!STRIP!DDCMP        ;CHAR MODE, ODD VRC
1235 030362  004737  010720                  JSR     PC,LODSIL       ;LOAD A THIRD SOM INTO TX SILO
1236 030366  000400                          TXSOM
1237 030370  000001                          1
```

TEST 16 - VRC ERROR DETECTION TEST

```
1238 030372  004737  010546                JSR     PC,LDBYTS       ;LOAD DATA INTO TX BUFFER
1239 030376  002623                        PATR
1240 030400  000017                        15.
1241 030402  004737  010720                JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1242 030406  001000                        TXEOM
1243 030410  000002                        2
1244 030412  005037  002360                CLR     WAX15
1245 030416  012737  000347  002362        MOV     #TXLEN2!TXLEN1!TXLEN0!RXLEN2.RXLEN1!RXLEN0,WAX16
1246 030424  013737  002362  002424        MOV     WAX16,SAVLEN    ;STORE LENGTH 7
1247 030432  004737  003764                JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1248 030436  004737  004726                JSR     PC,STPLU        ;CLOCK 1ST 8 CHARS, WITH NO ERRORS
1249 030442  000130                        88.
1250 030444  012701  000007                MOV     #7,R1           ;INIT COUNTER FOR LAST 7 CHARS
1251 030450  004737  007164        3$:     JSR     PC,STPERR       ;ASSERT IERR BIT FOR 1 TIME
1252 030454  000111                        CRC1!STRIP.DDCMP
1253 030456  000001                        1
1254 030460  004737  004726                JSR     PC,STPLU        ;CLOCK REST OF CHAR
1255 030464  000007                        7
1256 030466  005301                        DEC     R1              ;DECR COUNTER
1257 030470  001367                        BNE     3$              ;BR IF NOT DONE TRANSMITTING YET
1258 030472  004737  004726                JSR     PC,STPLU        ;CLOCK 2 TERMINATING SYNCHS
1259 030476  000020                        16.
1260 030500  012701  000010                MOV     #8.,R1          ;INIT COUNTER FOR ERROR-FREE CHARS
1261 030504  012703  002623                MOV     #PATR,R3        ;INIT DATA PATTERN POINTER
1262 030510  112337  030520        5$:     MOVB    (R3)+,6$        ;GET AN EXPECTED DATA CHAR
1263 030514  004737  007266                JSR     PC,CKDATA       ;GO CHECK CHAR, CHK BCC-0
1264 030520  100000                6$:     BCCCHK!000
1265 030522  000000                        0
1266 030524  005301                        DEC     R1              ;DECR COUNTER
1267 030526  001370                        BNE     5$              ;BR IF NOT DONE YET
1268 030530  012701  000007                MOV     #7,R1           ;INIT COUNTER FOR ERROR CHARS
1269 030534  112337  030552        8$:     MOVB    (R3)+,9$        ;GET EXPECTED DATA CHAR
1270 030540  052737  000001  030552        BIS     #BIT0,9$        ;EXPECT ERROR BIT 0 SET
1271 030546  004737  007266                JSR     PC,CKDATA       ;CHECK DATA, CHK BCC-1
1272 030552  100400                9$:     BCCCHK!RXBCC!000
1273 030554  000000                        0
1274 030556  005301                        DEC     R1              ;DECR COUNTER
1275 030560  001365                        BNE     8$              ;BR IF NOT DONE YET
1276 030562                        10$:
1277 030562                                ENDSUB
     030562                                                        L10053:
     030562  104403                                                TRAP    C$ESUB
1278                                ;-------------------------------------------------------------
1279                                ; TEST EVEN VRC ERROR DETECTION
1280                                ;-------------------------------------------------------------
1281 030564  012737  000006  002366        MOV     #6,AXNUM        ;SET AX BYTE NO. FOR AX3
1282 030572  012737  000012  002364        MOV     #12,REGNUM      ;SET REG NO.
1283 030600                                BGNSUB
     030600                                                        T16.2:
     030600  104402                                                TRAP    C$BSUB
1284 030602  012737  031020  002346        MOV     #30$,RETADR     ;SET SUBTEST EXIT ADRS FOR ERRORS
1285 030610  004737  005212                JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
1286 030614  000026                        026
1287 030616  000211                        CRC2!STRIP!DDCMP        ;CHAR MODE, EVEN VRC
1288 030620  004737  010720                JSR     PC,LODSIL       ;LOAD A THIRD SOM INTO TX SILO
1289 030624  000400                        TXSOM
1290 030626  000001                        1
```

TEST 16 - VRC ERROR DETECTION TEST

```
1291 030630  004737  010546                    JSR     PC,LDBYTS       ;LOAD DATA INTO TX BUFFER
1292 030634  002623                            PATR
1293 030636  000017                            15.
1294 030640  004737  010720                    JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
1295 030644  001000                            TXEOM
1296 030646  000002                            2
1297 030650  005037  002360                    CLR     WAX15
1298 030654  012737  000347  002362            MOV     #TXLEN2!TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0,WAX16
1299 030662  013737  002362  002424            MOV     WAX16,SAVLEN    ;STORE LENGTH 7
1300 030670  004737  003764                    JSR     PC,WRITAX       ;SET TX AND RCV LENGTHS = 7
1301 030674  004737  004726                    JSR     PC,STPLU        ;CLOCK 1ST 8 CHARS, WITH NO ERRORS
1302 030700  000130                            88.
1303 030702  012701  000007                    MOV     #7,R1           ;INIT COUNTER FOR LAST 7 CHARS
1304 030706  004737  007164          23$:      JSR     PC,STPERR       ;ASSERT IERR BIT FOR 1 TIME
1305 030712  000211                            CRC2!STRIP!DDCMP
1306 030714  000001                            1
1307 030716  004737  004726                    JSR     PC,STPLU        ;CLOCK REST OF CHAR
1308 030722  000007                            7
1309 030724  005301                            DEC     R1              ;DECR COUNTER
1310 030726  001367                            BNE     23$             ;BR IF NOT DONE TRANSMITTING YE*
1311 030730  004737  004726                    JSR     PC,STPLU        ;CLOCK 2 TERMINATING SYNCHS
1312 030734  000020                            16.
1313 030736  012701  000010                    MOV     #8.,R1          ;INIT COUNTER FOR ERROR-FREE CHARS
1314 030742  012703  002623                    MOV     #PATR,R3        ;INIT DATA PATTERN POINTER
1315 030746  112337  030756          25$:      MOVB    (R3)+,26$       ;GET EXPECTED DATA CHAR
1316 030752  004737  007266                    JSR     PC,CKDATA       ;CHK DATA, CHECK BCC=0
1317 030756  100000                26$:      BCCCHK!000
1318 030760  000000                            0
1319 030762  005301                            DEC     R1              ;DECR COUNTER
1320 030764  001370                            BNE     25$             ;BR IF NOT DONE YET
1321 030766  012701  000007                    MOV     #7,R1           ;INIT COUNTER FOR ERROR CHARS
1322 030772  112337  031010          28$:      MOVB    (R3)+,29$       ;GET EXPECTED DATA CHAR
1323 030776  052737  000001  031010            BIS     #BIT0,29$       ;SET EXPECTED ERROR BIT 0
1324 031004  004737  007266                    JSR     PC,CKDATA       ;CHK DATA, CHK BCC=1
1325 031010  100400                29$.      BCCCHK!RXBCC.000
1326 031012  000000                            0
1327 031014  005301                            DEC     R1              ;DECR COUNTER
1328 031016  001365                            BNE     28$             ;BR IF NOT DONE YET
1329 031020                         30$:
1330 031020                                     ENDSUB
     031020                                                                     L10054:
     031020  104403                                                                     TRAP    C$ESUB
1331 031022  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1332 031026                         ENDTST
     031026                                                                     L10052:
     031026  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.
                        ;;*************************************************************************************
031030                  BGNTST
031030                                                                          T17::
031030  012737  000021  002434          MOV     #17.,TSTNUM     ;SET TEST NO.
031036  012737  031310  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
031044  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
031050  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
031054  000010                          INTGRL                  ;   SEE IF TEST SHOULD BE RUN
031056  012737  000323  031074          MOV     #1422.XYZ.V35 OP.TEST,6$ ;SET UP TO SELECT INTEGRAL MODEM
031064  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
031070  000226                          SYNCH
031072  000011                          STRIP!DDCMP
031074  000000                  6$:     .WORD   0
031076  000000                          000
031100  004737  010630                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
031104  142777  000010  151326          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
031112  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
031120  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
031124  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
031130  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
031134  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
031142  001011                          BNE     12$             ;BR IF YES
031144  005202                          INC     R2              ;INCREMENT TIMER
031146  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
031150  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT IRDY NOT SET
031154                          ERRDF   17,EM17,ERR7
031154  104455                                                                  TRAP    C$ERDF
031156  000021                                                                  .WORD   17
031160  013430                                                                  .WORD   EM17
031162  020216                                                                  .WORD   ERR7
031164  000451                          BR      24$             ;ESCAPE TO END OF TEST
031166  012337  031176          12$:    MOV     (R3)+,16$
031172  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
031176  000000                  16$:    0
031200  000000                          0
031202  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
031206  103746                          BLO     9$              ;BR IF NOT YET
031210  004737  004620                  JSR     PC,WAIT50       ;STALL FOR 50 MICRO-SEC
031214  004737  005024                  JSR     PC,OACTIV       ;CHECK OACT = 0
031220  000000                          0
031222  004737  006232                  JSR     PC,IACTIV       ;CHECK IACT STILL = 1
031226  000001                          1
031230  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. - 13
031236  004737  003344                  JSR     PC,READLU       ;READ REG 13
031242  042737  000232  002350          BIC     #RING!HDX.MODR!STBY,REDBYT      ;CLR UNUSED BITS
031250  023727  002350  000000          CMP     REDBYT,#0       ;CHECK REG 13 FOR 000 (MODEM SIGNALS SHOULD BE CLEARED)
031256  001414                          BEQ     24$             ;BR IF CLEARED
031260  012737  000000  002370          MOV     #0,GOODAT       ;SET EXPECTED DATA = 0
031266  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
031274  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
                        ;REPORT REG MISCOMPARE
031300                          ERRDF   3,EM3,ERR3
031300  104455                                                                  TRAP    C$ERDF
```

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

```
                031302  000003                                                          .WORD   3
                031304  013257                                                          .WORD   EM3
                031306  015666                                                          .WORD   ERR3
1395            031310                          24$:
1396            031310                          ENDTST
                031310                                                          L10055:
                031310  104401                                                          TRAP    C$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            031312                          BGNTST
                031312                                                          T18::
1414            031312  012737  000022  002434          MOV     #18.,TSTNUM     ;SET TEST NO.
1415            031320  012737  031562  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
1416            031326  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1417            031332  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
1418            031336  000020                          V35                     ;   SEE IF TEST SHOULD BE RUN
1419            031340  012737  000313  031356          MOV     #1422!XYZ.INTGRL!OP!TEST,6$ ;SET UP TO SELECT V35
1420            031346  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
1421            031352  000226                          SYNCH
1422            031354  000011                          STRIP!DDCMP
1423            031356  000000                  6$:     .WORD   0
1424            031360  000000                          000
1425            031362  142777  000010  151050          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1426            031370  012737  000013  002364          MOV     #13,REGNUM      ;SET LU REG NO. - 13
1427            031376  004737  003344                  JSR     PC,READLU       ;READ REG 13
1428            031402  132737  000001  002350          BITB    #CARR,REDBYT    ;CHECK FOR CARRIER FALSELY SET
1429            031410  001415                          BEQ     8$              ;BR IF NOT SET
1430            031412  012737  000000  002370          MOV     #000,GOODAT     ;SET EXPECTED DATA
1431            031420  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
1432            031426  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1433                                            ;REPORT CARRIER NOT CLEARED
1434            031432                          ERRDF   66,EM66,ERR7
                031432  104455                                                          TRAP    C$ERDF
                031434  000102                                                          .WORD   66
                031436  014772                                                          .WORD   EM66
                031440  020216                                                          .WORD   ERR7
1435            031442  000447                          BR      24$
1436            031444  152777  000010  150766  8$:     BISB    #LULOOP,@BSEL1  ;SET LULOOP AGAIN
1437            031452  004737  010630                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
1438            031456  142777  000010  150754          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
1439            031464  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
1440            031472  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
1441            031476  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

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

```
1442 031502  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
1443 031506  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
1444 031514  001011                          BNE     12$             ;BR IF YES
1445 031516  005202                          INC     R2              ;INCREMENT TIMER
1446 031520  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
1447 031522  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1448                                 ;REPORT IRDY NOT SET
1449 031526                                  ERRDF   17,EM17,ERR7
     031526  104455                                                          TRAP    C$ERDF
     031530  000021                                                          .WORD   17
     031532  013430                                                          .WORD   EM17
     031534  020216                                                          .WORD   ERR7
1450 031536  000411                          BR      24$             ;ESCAPE TO END OF TEST
1451 031540  012337  031550          12$:    MOV     (R3)+,16$
1452 031544  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
1453 031550  000000                  16$:    0
1454 031552  000000                          0
1455 031554  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
1456 031560  103746                          BLO     9$              ;BR IF NOT YET
1457 031562                          24$:
1458 031562                          ENDTST
     031562                                                                 L10056:
     031562  104401                                                          TRAP    C$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 031564                          BGNTST
     031564                                                                 T19::
1476 031564  012737  000023  002434          MOV     #19.,TSTNUM     ;SET TEST NO.
1477 031572  012737  031744  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
1478 031600  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1479 031604  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
1480 031610  000100                          XYZ                     ;   SEE IF TEST SHOULD BE RUN
1481 031612  012737  000233  031630          MOV     #I422.V35.INTGRL.OP!TEST,6$ ;SET UP TO SELECT XYZ
1482 031620  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
1483 031624  000226                          SYNCH
1484 031626  000011                          STRIP.DDCMP
1485 031630  000000                  6$:     .WORD   0
1486 031632  000000                          000
1487 031634  004737  010630                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
1488 031640  142777  000010  150572          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
1489 031646  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
1490 031654  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
1491 031660  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
TEST 19 - RS 232C AND RS 423 MODEM INTERFACE TEST - CHAR MODE.

 1492 031664  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
 1493 031670  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1494 031676  001011                          BNE     12$             ;BR IF YES
 1495 031700  005202                          INC     R2              ;INCREMENT TIMER
 1496 031702  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1497 031704  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1498                              ;REPORT IRDY NOT SET
 1499 031710                                  ERRDF   17,EM17,ERR7
      031710  104455                                                          TRAP    C$ERDF
      031712  000021                                                          .WORD   17
      031714  013430                                                          .WORD   EM17
      031716  020216                                                          .WORD   ERR7
 1500 031720  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1501 031722  012337  031732          12$:    MOV     (R3)+,16$
 1502 031726  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1503 031732  000000                  16$:    0
 1504 031734  000000                          0
 1505 031736  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
 1506 031742  103746                          BLO     9$              ;BR IF NOT YET
 1507 031744                              24$:
 1508 031744                              ENDTST
      031744                                                                L10057:
      031744  104401                                                          TRAP    C$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 031746                      BGNTST
      031746                                                                T20::
 1526 031746  012737  000024  002434          MOV     #20.,TSTNUM     ;SET TEST NO.
 1527 031754  012737  032126  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 1528 031762  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1529 031766  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK -
 1530 031772  000200                          I42$                    ;   SEE IF TEST SHOULD BE RUN
 1531 031774  012737  000133  032012          MOV     #XYZ.V35!INTGRL!LOOP!TEST,6$ ;SET UP TO SELECT 422
 1532 032002  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 1533 032006  000226                          SYNCH
 1534 032010  000011                          STRIP.DDCMP
 1535 032012  000000                  6$:     .WORD   0
 1536 032014  000000                          000
 1537 032016  004737  010630                  JSR     PC,LDMSG1       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
 1538 032022  142777  000010  150410          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
 1539 032030  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
 1540 032036  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
 1541 032042  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
 1542 032046  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
 1543 032052  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1544 032060  001011                          BNE     12$             ;BR IF YES
 1545 032062  005202                          INC     R2              ;INCREMENT TIMER
 1546 032064  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1547 032066  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1548                              ;REPORT IRDY NOT SET
 1549 032072                                  ERRDF   17,EM17,ERR7
      032072  104455                                                          TRAP    (SERDF
      032074  000021                                                          .WORD   17
      032076  013430                                                          .WORD   EM17
      032100  020216                                                          .WORD   ERR7
 1550 032102  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1551 032104  012337  032114      12$:        MOV     (R3)+,16$
 1552 032110  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1553 032114  000000              16$:        0
 1554 032116  000000                          0
 1555 032120  020327  003000                  CMP     R3,#RCVBUF+14.  ;SEE IF ALL CHARS CHECKED YET
 1556 032124  103746                          BLO     9$              ;BR IF NOT YET
 1557 032126                      24$:
 1558 032126                      ENDTST
      032126                                                          L10060:
      032126  104401                                                          TRAP    $ETST
 1559
 1560
 1561
 1562
 1563
 1564                             ;*****************************************************************************
 1565                             .SBTTL      TEST 21 - HALF-DUPLEX BIT (HALF DUPX) TEST
 1566                             ;*
 1567                             ;* THIS TEST VERIFIES THAT SETTING HALF-DUPLEX BIT IN REG 13 DOES NOT INHIBIT
 1568                             ;* LOADING OF THE USYRT TRANSMITTER FROM THE TRANSMITTER SILO.
 1569                             ;* A MASTER CLEAR IS ISSUED, DDCMP MODE IS ENTERED, AND THE HALF DUPX
 1570                             ;* BIT IN REG 13 IS SET. A MESSAGE IS LOADED INTO THE TX SILO
 1571                             ;* CONSISTING OF 2 SYNCHS, 000,125,252,377,000, AND 2 MORE SYNCHS.
 1572                             ;* THE LINE UNIT IS THEN CLOCKED EXTENSIVELY, AND THE TX SILO IS CHECKED TO
 1573                             ;* BE UNLOADED (ALL CHARS SHOULD HAVE BEEN REMOVED) AND THE RECEIVER
 1574                             ;* IS MONITORED TO INSURE THAT NO RCV FLAGS ARE GENERATED.
 1575                             ;*****************************************************************************
 1576 032130                      BGNTST
      032130                                                              T21::
 1577 032130  012737  032220  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
 1578 032136  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
 1579 032144  004737  005212                  JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
 1580 032150  000226                          SYNCH
 1581 032152  000011                          STRIP.DDCMP
 1582 032154  112737  000020  002352          MOVB    #HDX,WRIBYT
 1583 032162  004737  003422                  JSR     PC,WRITLU       ;SET HDX BIT IN REG 13
 1584 032166  004737  010470                  JSR     PC,LODMSG       ;LOAD MSG INTO TX SILO
 1585 032172  002674                          MSG1+4
 1586 032174  000007                          7
 1587 032176  004737  004726                  JSR     PC,STPLU        ;CLK MORE THAN ENTIRE MSG
 1588 032202  000136                          94.
 1589 032204  004737  004334                  JSR     PC,OSIRDY       ;CHK ORDY = 1, OCOR = 0
 1590 032210  000001                          1
 1591 032212  004737  005746                  JSR     PC,ISIRDY       ;CHK ICIR = 1, IRDY = 0
```

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

```
                                        1
032216  000001
032220  004737  003276          24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
032224                          ENDTST
032224                                                                  L10061:
032224  104401                                                                  TRAP    C$ETST

                        ;;**************************************************************************
                        .SBTTL      TEST 22 - HALF-DUPLEX RCV DISABLED TEST WITH SILOS DISABLED
                        ;*
                        ;* THIS TEST SENDS A MESSAGE IN HDX, CHAR MODE, WITH NO EPROR 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.
                        ;;**************************************************************************
032226                  BGNTST
032226                                                                  T22::
032226  012737  032424  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
032234  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
032240  004737  010276                  JSR     PC,SETUP        ;PROGRAM USYRT FOR CHAR MODE, NO CRC
032244  000226                          SYNCH
032246  000301                          CRC2!CRC1.DDCMP
032250  000000                          000
032252  000000                          000
032254  012737  000013  002364          MOV     #13,REGNUM      ;SET LU REG NO. = 13
032262  112737  000020  002352          MOVB    #HDX,WRIBYT     ;SET HDX BIT IN REG 13
032270  004737  003422                  JSR     PC,WRITLU
032274  012737  000014  002364          MOV     #14,REGNUM      ;SET LU REG NO. = 14
032302  112737  000140  002352          MOVB    #TXEN!DISSI,WRIBYT ;DISABLE SILOS
032310  004737  003422                  JSR     PC,WRITLU
032314  012737  000140  002416          MOV     #TXEN!DISSI,DISILO
032322  012737  000002  002366          MOV     #2,AXNUM        ;SET AX BYTE NO FOR AX1
032330  112737  000000  002360          MOVB    #000,WAX15      ;SET TSOM IN USYRT
032336  112737  000001  002362          MOVB    #TSOM,WAX16
032344  004737  003764                  JSR     PC,WRITAX
032350  004737  004726                  JSR     PC,STPLU        ;CLOCK FIRST SYNCH OUT
032354  000013                          11.
032356  112737  000000  002360          MOVB    #000,WAX15      ;LOAD FIRST 000 DATA CHAR INTO USYRT
032364  112737  000000  002362          MOVB    #000,WAX16
032372  004737  003764                  JSR     PC,WRITAX
032376  004737  004726                  JSR     PC,STPLU        ;CLOCK SECOND SYNCH
032402  000010                          8.
032404  004737  003764                  JSR     PC,WRITAX       ;LOAD SECOND 000 CHAR
032410  004737  004726                  JSR     PC,STPLU        ;CLOCK FIRST 000 CHAR OUT
032414  000013                          11.
032416  004737  006232                  JSR     PC,IACTIV       ;CHK FOR IACT = 0 (RECEIVER NOT ACTIVE)
032422  000000                          0
032424  005037  002416          24$:    CLR     DISILO          ;CLEAR DISABLE SILO FLAG
032430  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
032434                          ENDTST
032434                                                                  L10062:
032434  104401                                                                  TRAP    C$ETST

                        ;;**************************************************************************
```

TEST 22 - HALF-DUPLEX RCV DISABLED TEST WITH SILOS DISABLED

```
                                ;;*****************************************************************************
                                .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.
                                ;;*****************************************************************************
1673 032436                     BGNTST
     032436                                                                          T23::
1674 032436  012737  000027  002434        MOV     #23.,TSTNUM     ;SET TEST NO.
1675 032444  012737  033736  002346        MOV     #A12,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
1676 032452  004737  010770                JSR     PC,CKLPBK       ;SEE IF H3254,5 INSTALLED - SKIP TEST IF NOT
1677 032456  100000                        TCCHEK
1678
1679                            ;-----------------------------------------------------------------------------
1680                            ; DO MASTER CLEAR, CHK REGS 13,17 FOR INITIALIZED STATES
1681                            ;-----------------------------------------------------------------------------
1682 032460                             BGNSUB
     032460                                                                          T23.1:
     032460  104402                                                                  TRAP    C$BSUB
1683 032462  004737  003276                JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1684 032466  012737  000013  002364        MOV     #13,REGNUM      ;SET REG NO. = 13
1685 032474  004737  003344                JSR     PC,READLU       ;READ REG 13
1686 032500  023727  002350  000210        CMP     REDBYT,#RING!MODR       ;CHECK REG 13 FOR INIT'D STATE
1687 032506  001416                        BEQ     6$              ;BR IF REG 13 INIT'D
1688 032510  012737  000210  002370        MOV     #RING!MODR,GOODAT       ;SET EXPECTED DATA
1689 032516  013737  002350  002372        MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
1690 032524  004737  004200        3$:     JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1691                            ;REPORT REG MISCOMPARE
1692 032530                             ERRDF   3,EM3,ERR2
     032530  104455                                                                  TRAP    C$ERDF
     032532  000003                                                                  .WORD   3
     032534  013257                                                                  .WORD   EM3
     032536  015360                                                                  .WORD   ERR2
1693 032540                             ESCAPE  SUB
```

```
                032540  104410                                                          TRAP    C$ESCAPE
                032542  000170                                                          .WORD   L10064-.
1694            032544  142777  000010  147666  6$:     BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1695            032552  004737  003344          6$:     JSR     PC,READLU       ;READ REG 13
1696            032556  023727  002350  000000          CMP     REDBYT,#0       ;CHECK FOR INITIALIZED STATE
1697            032564  001416                          BEQ     8$              ;BR IF OK
1698            032566  012737  000000  002370          MOV     #0,GOODAT       ;GET EXPECTED DATA
1699            032574  013737  002350  002372          MOV     REDBYT,BADDAT   ;GET ACTUAL DATA
1700            032602  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1701                                            ;REPORT REG NOT INITIALIZED BY MASTER CLEAR
1702            032606                                  ERRDF   2,EM2,ERR2
                032606  104455                                                          TRAP    C$ERDF
                032610  000002                                                          .WORD   2
                032612  013220                                                          .WORD   EM2
                032614  015360                                                          .WORD   ERR2
1703            032616                          ESCAPE  SUB
                032616  104410                                                          TRAP    C$ESCAPE
                032620  000112                                                          .WORD   L10064-.
1704            032622  005037  002352          8$:     CLR     WRIBYT          ;SET DATA   0 TO BE WRITTEN
1705            032626  004737  003422                  JSR     PC,WRITLU       ;LOAD 0'S INTO REG 13
1706            032632  004737  003344                  JSR     PC,READLU       ;READ REG 13
1707            032636  023727  002350  000000          CMP     REDBYT,#000     ;CHECK FOR REG 13 CLEARED
1708            032644  001407                          BEQ     9$              ;BR IF CLEARED
1709            032646  012737  000000  002370          MOV     #000,GOODAT     ;SET EXPECTED DATA
1710            032654  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
1711            032662  000720                          BR      3$              ;GO PRINT ERROR
1712            032664  012737  000017  002364  9$:     MOV     #17,REGNUM      ;SET REG NO. = 17
1713            032672  004737  003344                  JSR     PC,READLU       ;READ REG 17
1714            032676  042737  000002  002350          BIC     #MCLK,REDBYT    ;IGNORE MCLK BIT
1715            032704  123727  002350  000051          CMPB    REDBYT,#TXDATA!ICIR!DDCMP ;CHK REG 17 FOR INIT'D STATE
1716            032712  001407                          BEQ     10$             ;BR IF REG 17 INITIALIZED
1717            032714  012737  000051  002370          MOV     #TXDATA!ICIR.DDCMP,GOODAT ;SET EXPECTED DATA
1718            032722  013737  002350  002372          MOV     REDBYT,BADDAT   ;SET ACTUAL DATA
1719            032730  000675                          BR      3$              ;GO REPORT ERROR
1720            032732                          10$:
1721            032732                                  ENDSUB
                032732                                                                  L10064:
                032732  104403                                                                  TRAP    C$ESUB
1722
1723                                            ;-------------------------------------------------------------------
1724                                            ; SET RUN IN BSEL1, CHECK FOR RING SET IN REG 13
1725                                            ;-------------------------------------------------------------------
1726            032734                                  BGNSUB
                032734                                                                  T23.2:
                032734  104402                                                                  TRAP    C$BSUB
1727            032736  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1728            032742  105077  147472                  CLRB    @BSEL1          ;CLEAR LULOOP
1729            032746  112777  000200  147464          MOVB    #RUN,@BSEL1     ;SET RUN BIT IN BSEL1
1730            032754  112777  000010  147456          MOVB    #LULOOP,@BSEL1  ;CLEAR RUN, SET LULOOP
1731            032762  012737  000013  002364          MOV     #13,REGNUM      ;SET REG NO. = 13
1732            032770  004737  003344                  JSR     PC,READLU       ;READ REG 13
1733            032774  132737  000200  002350          BITB    #RING,REDBYT    ;SEE IF RING = 1
1734            033002  001010                          BNE     9$              ;BR IF RING - 1
1735            033004  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1736                                            ;REPORT RING NOT SET
1737            033010                                  ERRDF   56,EM56,ERR7
                033010  104455                                                          TRAP    C$ERDF
```

```
TEST 23 - INTERACTION OF MODEM CONTROL BITS

        033012  000070                                                          .WORD   56
        033014  014571                                                          .WORD   EM56
        033016  020216                                                          .WORD   ERR7
  1738  033020                          ESCAPE  SUB
        033020  104410                                                          TRAP    C$ESCAPE
        033022  000002                                                          .WORD   L10065-.
  1739  033024                  9$:
  1740  033024                          ENDSUB
        033024                                                          L10065:
        033024  104403                                                          TRAP    C$ESUB
  1741
  1742                          ;-------------------------------------------------------------------------
  1743                          ; SET POLL IN REG 13, CHK FOR SIGQ SET IN REG 17
  1744                          ;-------------------------------------------------------------------------
  1745  033026                          BGNSUB
        033026                                                          T23.3:
        033026  104402                                                          TRAP    C$BSUB
  1746  033030  004737  003276         JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
  1747  033034  112737  000200  002352 MOVB    #POLL,WRIBYT
  1748  033042  012737  000013  002364 MOV     #13,REGNUM      ;SET REG NO. - 13
  1749  033050  004737  003422         JSR     PC,WRITLU       ;SET POLL IN REG 13
  1750  033054  012737  000017  002364 MOV     #17,REGNUM      ;SET REG NO. = 17
  1751  033062  004737  003344         JSR     PC,READLU       ;READ REG 17
  1752  033066  132737  000100  002350 BITB    #SIGQ,REDBYT    ;SEE IF SIGQ = 1
  1753  033074  001006                 BNE     6$              ;BR IF SIGQ = 1
  1754  033076  004737  004200         JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
  1755                  ;REPORT SIGQ NOT SET
  1756  033102                          ERRDF   63,EM63,ERR7
        033102  104455                                                          TRAP    C$ERDF
        033104  000077                                                          .WORD   63
        033106  014720                                                          .WORD   EM63
        033110  020216                                                          .WORD   ERR7
  1757  033112                  6$:
  1758  033112                          ENDSUB
        033112                                                          L10066:
        033112  104403                                                          TRAP    C$ESUB
  1759
  1760                          ;-------------------------------------------------------------------------
  1761                          ; SET BPOLL IN REG 12, TO LIGHT LED ONLY
  1762                          ;-------------------------------------------------------------------------
  1763  033114                          BGNSUB
        033114                                                          T23.4:
        033114  104402                                                          TRAP    C$BSUB
  1764  033116  004737  003276         JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
  1765  033122  012737  000012  002364 MOV     #12,REGNUM      ;SET LU REG NO. = 12
  1766  033130  112737  000100  002352 MOVB    #BPOLL,WRIBYT   ;SET BPOLL IN LU REG 12
  1767  033136  004737  003422         JSR     PC,WRITLU
  1768  033142                          ENDSUB
        033142                                                          L10067:
        033142  104403                                                          TRAP    C$ESUB
  1769
  1770                          ;-------------------------------------------------------------------------
  1771                          ; SET DTR IN REG 13, CHECK FOR DTR AND MODR SET IN REG 13
  1772                          ;-------------------------------------------------------------------------
  1773  033144                          BGNSUB
        033144                                                          T23.5:
        033144  104402                                                          TRAP    C$BSUB
```

TEST 23 - INTERACTION OF MODEM CONTROL BITS

```
1774 033146  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1775 033152  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1776 033160  112737  000104  002352            MOVB    #DTR.MAINT2,WRIBYT
1777 033166  004737  003422                    JSR     PC,WRITLU       ;SET DTR IN REG 13
1778                                                                   ;  (ALSO SET MAINT2 FOR MANUFACT. TEST CONN.)
1779 033172  142777  000010  147240            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1780 033200  004737  003344                    JSR     PC,READLU       ;READ REG 13
1781 033204  132737  000100  002350            BITB    #DTR,REDBYT     ;SEE IF DTR = 1
1782 033212  001010                            BNE     6$              ;BR IF DTR = 1
1783 033214  004737  004200                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1784                                  ;REPORT DTR NOT SET
1785 033220                                    ERRDF   55,EM55,ERR7
     033220  104455                                                                TRAP    C$ERDF
     033222  000067                                                                .WORD   55
     033224  014555                                                                .WORD   EM55
     033226  020216                                                                .WORD   ERR7
1786 033230                                    ESCAPE  SUB
     033230  104410                                                                TRAP    C$ESCAPE
     033232  000026                                                                .WORD   L10070-.
1787 033234  132737  000010  002350  6$:       BITB    #MODR,REDBYT    ;SEE IF MODR = 1
1788 033242  001006                            BNE     12$             ;BR IF MODR = 1
1789 033244  004737  004200                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1790                                  ;REPORT MODR NOT SET
1791 033250                                    ERRDF   57,EM57,ERR7
     033250  104455                                                                TRAP    C$ERDF
     033252  000071                                                                .WORD   57
     033254  014606                                                                .WORD   EM57
     033256  020216                                                                .WORD   ERR7
1792 033260                            12$:
1793 033260                                    ENDSUB
     033260                                                            L10070:
     033260  104403                                                                TRAP    C$ESUB
1794
1795                                  ;-----------------------------------------------------------------
1796                                  ; SET SELFR IN REG 13, CHK FOR SIGR SET IN REG 17
1797                                  ;-----------------------------------------------------------------
1798 033262                                    BGNSUB
     033262                                                            T23.6:
     033262  104402                                                                TRAP    C$BSUB
1799 033264  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1800 033270  112737  000040  002352            MOVB    #SELFR,WRIBYT
1801 033276  012737  000013  002364            MOV     #13,REGNUM      ;SET REG NO. = 13
1802 033304  004737  003422                    JSR     PC,WRITLU       ;SET SELFR IN REG 13
1803 033310  012737  000017  002364            MOV     #17,REGNUM      ;SET REG NO. = 17
1804 033316  004737  003344                    JSR     PC,READLU       ;READ REG 17
1805 033322  132737  000200  002350            BITB    #SIGR,REDBYT    ;SEE IF SIGR = 1
1806 033330  001006                            BNE     6$              ;BR IF SIGR = 1
1807 033332  004737  004200                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1808                                  ;REPORT SIGR NOT SET
1809 033336                                    ERRDF   64,EM64,ERR7
     033336  104455                                                                TRAP    C$ERDF
     033340  000100                                                                .WORD   64
     033342  014735                                                                .WORD   EM64
     033344  020216                                                                .WORD   ERR7
1810 033346                            6$:
1811 033346                                    ENDSUB
     033346                                                            L10071:
```

TEST 23 - INTERACTION OF MODEM CONTROL BITS

```
      033346  104403                                                                  TRAP    C$ESUB
1812
1813                              ;-------------------------------------------------------------------------
1814                              ; SET HDX IN REG 13, CHK FOR HDX SET IN REG 13
1815                              ;-------------------------------------------------------------------------
1816 033350                              BGNSUB
      033350                                                                  T23.7:
      033350  104402                                                                  TRAP    C$BSUB
1817 033352  004737  003276              JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1818 033356  112737  000020  002352      MOVB    #HDX,WRIBYT
1819 033364  012737  000013  002364      MOV     #13,REGNUM      ;SET REG NO. - 13
1820 033372  004737  003422              JSR     PC,WRITLU       ;SET HDX IN REG 13
1821 033376  004737  003344              JSR     PC,READLU       ;READ REG 13
1822 033402  132737  000020  002350      BITB    #HDX,REDBYT     ;SEE IF HDX = 1
1823 033410  001006                      BNE     6$              ;BR IF HDX - 1
1824 033412  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1825                              ;REPORT HDX NOT SET
1826 033416                              ERRDF   58,EM58,ERR7
      033416  104455                                                                  TRAP    C$ERDF
      033420  000072                                                                  .WORD   58
      033422  014623                                                                  .WORD   EM58
      033424  020216                                                                  .WORD   ERR7
1827 033426                       6$:
1828 033426                              ENDSUB
      033426                                                                  L10072:
      033426  104403                                                                  TRAP    C$ESUB
1829
1830                              ;-------------------------------------------------------------------------
1831                              ; SET MAINT1 IN REG 13, CHK FOR TEST MODE SET IN REG 17
1832                              ;-------------------------------------------------------------------------
1833 033430                              BGNSUB
      033430                                                                  T23.8:
      033430  104402                                                                  TRAP    C$BSUB
1834 033432  004737  003276              JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1835 033436  112737  000010  002352      MOVB    #MAINT1,WRIBYT
1836 033444  012737  000013  002364      MOV     #13,REGNUM      ;SET REG NO. = 13
1837 033452  004737  003422              JSR     PC,WRITLU       ;SET MAINT1 IN REG 13
1838 033456  012737  000017  002364      MOV     #17,REGNUM      ;SET REG NO.   17
1839 033464  142777  000010  146746      BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP
1840 033472  004737  003344              JSR     PC,READLU       ;READ REG 17
1841 033476  132737  000004  002350      BITB    #TESTMD,REDBYT  ;SEE IF TESTMD = 1
1842 033504  001006                      BNE     6$              ;BR IF TESTMD = 1
1843 033506  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1844                              ;REPORT TEST MODE NOT SET BY MAINT1
1845 033512                              ERRDF   52,EM52,ERR7
      033512  104455                                                                  TRAP    C$ERDF
      033514  000064                                                                  .WORD   52
      033516  014443                                                                  .WORD   EM52
      033520  020216                                                                  .WORD   ERR7
1846 033522                       6$:
1847 033522                              ENDSUB
      033522                                                                  L10073:
      033522  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 033524                            BGNSUB
      033524                                                                T23.9:
      033524  104402                                                                TRAP    C$BSUB
 1853 033526  004737  003276            JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1854 033532  112737  000002  002352    MOVB    #SELSBY,WRIBYT
 1855 033540  012737  000013  002364    MOV     #13,REGNUM      ;SET REG NO. = 13
 1856 033546  004737  003422            JSR     PC,WRITLU       ;SET SELSBY IN REG 13
 1857 033552  004737  003344            JSR     PC,READLU       ;READ REG 13
 1858 033556  132737  000002  002350    BITB    #STBY,REDBYT    ;SEE IF STBY = 1
 1859 033564  001006                    BNE     6$              ;BR IF STBY = 1
 1860 033566  004737  004200            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1861                           ;REPORT STBY NOT SET
 1862 033572                            ERRDF   59,EM59,ERR7
      033572  104455                                                                TRAP    C$ERDF
      033574  000073                                                                .WORD   59
      033576  014637                                                                .WORD   EM59
      033600  020216                                                                .WORD   ERR7
 1863 033602                    6$:
 1864 033602                            ENDSUB
      033602                                                                L10074:
      033602  104403                                                                TRAP    C$ESUB
 1865                           ;-------------------------------------------------------------------------
 1866                           ; DO MASTER CLEAR, LOAD 2 TSOM'S INTO TX SILO, CLOCK TRANSMITTER UNTIL ACTIVE,
 1867                           ;    CHECK FOR RTS, CS, CARR SET IN REG 13
 1868                           ;-------------------------------------------------------------------------
 1869 033604                            BGNSUB
      033604                                                                T23.10:
      033604  104402                                                                TRAP    C$BSUB
 1870 033606  004737  005212            JSR     PC,INITRN       ;MST CLR, LOAD SOM'S, CLK TRANSMITTER
 1871 033612  000000                    000
 1872 033614  000000                    000
 1873 033616  012737  000013  002364    MOV     #13,REGNUM      ;SET REG NO. = 13
 1874 033624  004737  003344            JSR     PC,READLU       ;READ REG 13
 1875 033630  132737  000040  002350    BITB    #RTS,REDBYT     ;SEE IF RTS   1
 1876 033636  001010                    BNE     6$              ;BR IF RTS = 1
 1877 033640  004737  004200            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1878                           ;REPORT RTS NOT SET
 1879 033644                            ERRDF   60,EM60,ERR7
      033644  104455                                                                TRAP    C$ERDF
      033646  000074                                                                .WORD   60
      033650  014654                                                                .WORD   EM60
      033652  020216                                                                .WORD   ERR7
 1880 033654                            ESCAPE  SUB
      033654  104410                                                                TRAP    C$ESCAPE
      033656  000056                                                                .WORD   L10075-.
 1881 033660  132737  000004  002350    6$:     BITB    #CS,REDBYT      ;SEE IF CS = 1
 1882 033666  001010                    BNE     9$              ;BR IF CS = 1
 1883 033670  004737  004200            JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1884                           ;REPORT CS NOT SET
 1885 033674                            ERRDF   61,EM61,ERR7
      033674  104455                                                                TRAP    C$ERDF
      033676  000075                                                                .WORD   61
      033700  014670                                                                .WORD   EM61
      033702  020216                                                                .WORD   ERR7
 1886 033704                            ESCAPE  SUB
      033704  104410                                                                TRAP    C$ESCAPE
      033706  000026                                                                .WORD   L10075-.
```

TEST 23 - INTERACTION OF MODEM CONTROL BITS

```
1887 033710  132737  000001  002350  9$:     BITB    #CARR,REDBYT    ;SEE IF CARR = 1
1888 033716  001006                          BNE     12$             ;BR IF CARR = 1
1889 033720  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
1890                                ;REPORT CARR NOT SET
1891 033724                                   ERRDF   62,EM62,ERR7
     033724  104455                                                                TRAP    C$ERDF
     033726  000076                                                                .WORD   62
     033730  014703                                                                .WORD   EM62
     033732  020216                                                                .WORD   ERR7
1892 033734                                12$:
1893 033734                                   ENDSUB
     033734                                                                 L10075:
     033734  104403                                                                TRAP    C$ESUB
1894
1895 033736                                A12:
1896 033736  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
1897 033742                                ENDTST
     033742                                                                 L10063:
     033742  104401                                                                TRAP    C$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 033744                        BGNTST
     033744                                                                 T24::
1918 033744  012737  000030  002434          MOV     #24.,TSTNUM     ;SET TEST NO.
1919 033752  012737  034132  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
1920 033760  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
1921 033764  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
1922 033770  000000                          0
1923 033772  013737  002422  034010          MOV     MODINT,6$       ;SET MODEM SELECTION
1924 034000  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
1925 034004  000000                          000
1926 034006  000300                          CRC2.CRC1               ;BIT MODE, NO ERR DET
1927 034010  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
1928 034012  000000                          000
1929 034014  004737  010156                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
1930 034020  012737  001177  003100          MOV     #RXEBL!177,RCVBUF+78. ; SET LAST DATA CHAR IN BUFFER
1931 034026  142777  000010  146404          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
1932 034034  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
1933 034042  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
1934 034046  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
```

```
TEST 24 - DATA TEST - BIT MODE, NO ERR DET

 1935 034052  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
 1936 034056  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1937 034064  001011                          BNE     12$             ;BR IF YES
 1938 034066  005202                          INC     R2              ;INCREMENT TIMER
 1939 034070  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1940 034072  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1941                                 ;REPORT IRDY NOT SET
 1942 034076                                  ERRDF   17,EM17,ERR7
      034076  104455                                                              TRAP    C$ERDF
      034100  000021                                                              .WORD   17
      034102  013430                                                              .WORD   EM17
      034104  020216                                                              .WORD   ERR7
 1943 034106  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1944 034110  012337  034120          12$:    MOV     (R3)+,16$
 1945 034114  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 1946 034120  000000                  16$:    0
 1947 034122  000000                          0
 1948 034124  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
 1949 034130  103746                          BLO     9$              ;BR IF NOT YET
 1950 034132                          24$:
 1951 034132                          ENDTST
      034132                                                                  L10076:
      034132  104401                                                              TRAP    C$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 034134                          BGNTST
      034134                                                                  T25::
 1972 034134  012737  000031  002434          MOV     #25.,TSTNUM     ;SET TEST NO.
 1973 034142  012737  034322  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 1974 034150  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 1975 034154  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
 1976 034160  000000                          0
 1977 034162  013737  002422  034200          MOV     MODINT,6$       ;SET MODEM SELECTION
 1978 034170  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 1979 034174  000226                          SYNCH
 1980 034176  000311                          CRC2.CRC1!STRIP!DDCMP   ;CHAR MODE, NO ERR DET
 1981 034200  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
 1982 034202  000000                          000
 1983 034204  004737  010156                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
 1984 034210  012737  000177  003100          MOV     #177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
```

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

 1985 034216  142777  000010  146214          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
  986 034224  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
 1987 034232  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
 1988 034236  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
 1989 034242  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
 1990 034246  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
 1991 034254  001011                          BNE     12$             ;BR IF YES
 1992 034256  005202                          INC     R2              ;INCREMENT TIMER
 1993 034260  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
 1994 034262  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
 1995                              ;REPORT IRDY NOT SET
 1996 034266                                  ERRDF   17,EM17,ERR7
      034266  104455                                                          TRAP    C$ERDF
      034270  000021                                                          .WORD   17
      034272  013430                                                          .WORD   EM17
      034274  020216                                                          .WORD   ERR7
 1997 034276  000411                          BR      24$             ;ESCAPE TO END OF TEST
 1998 034300  012337  034310          12$:    MOV     (R3)+,16$
 1999 034304  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
 2000 034310  000000          16$:    0
 2001 034312  000000                  0
 2002 034314  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
 2003 034320  103746                          BLO     9$              ;BR IF NOT YET
 2004 034322                      24$:
 2005 034322                      ENDTST
      034322                                                      L10077:
      034322  104401                                                          TRAP    C$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 034324                      BGNTST
      034324                                                              T26::
 2026 034324  012737  000032  002434          MOV     #26.,TSTNUM     ;SET TEST NO.
 2027 034332  012737  034512  002346          MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
 2028 034340  004737  003276                  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
 2029 034344  004737  010770                  JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
 2030 034350  000000                          0
 2031 034352  013737  002422  034370          MOV     MODINT,6$       ;SET MODEM SELECTION
 2032 034360  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
 2033 034364  000000                          000
 2034 034366  000000                          000                     ;BIT MODE CRC-CCITT-1
```

```
TEST 26 - DATA TEST - BIT MODE, CRC-CCITT-1

2035 034370 000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2036 034372 000000                          000
2037 034374 004737 010156                   JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2038 034400 012737 101177 003100            MOV     #CRCCHK!RXEBL.177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
2039 034406 142777 000010 146024            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2040 034414 012737 000012 002364            MOV     #12,REGNUM      ;SET LU REG NO. = 12
2041 034422 012703 002762                   MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2042 034426 013702 002264           9$:     MOV     TCOUNT,R2               ;INIT TIMER
2043 034432 004737 003344           10$:    JSR     PC,READLU       ;READ REG 12
2044 034436 132737 000020 002350            BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2045 034444 001011                          BNE     12$             ;BR IF YES
2046 034446 005202                          INC     R2              ;INCREMENT TIMER
2047 034450 001370                          BNE     10$             ;BR IF NO TIME-OUT YET
2048 034452 004737 004200                   JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2049                                ;REPORT IRDY NOT SET
2050 034456                                 ERRDF   17,EM17,ERR7
     034456 104455                                                                  TRAP    C$FRDF
     034460 000021                                                                  .WORD   17
     034462 013430                                                                  .WORD   EM17
     034464 020216                                                                  .WORD   ERR7
2051 034466 000411                          BR      24$             ;ESCAPE TO END OF TEST
2052 034470 012337 034500           12$:    MOV     (R3)+,16$
2053 034474 004737 007266                   JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2054 034500 000000                  16$:    0
2055 034502 000000                          0
2056 034504 020327 003102                   CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2057 034510 103746                          BLO     9$              ;BR IF NOT YET
2058 034512                         24$:
2059 034512                                 ENDTST
     034512                                                                 L10100:
     034512 104401                                                                  TRAP    C$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 034514                         BGNTST
     034514                                                                 T27::
2080 034514 012737 000033 002434            MOV     #27.,TSTNUM     ;SET TEST NO.
2081 034522 012737 034702 002346            MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2082 034530 004737 003276                   JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2083 034534 004737 010770                   JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2084 034540 000000                          0
```

TEST 27 - DATA TEST - BIT MODE, CRC-CCITT-0

```
2085 034542  013737  002422  034560          MOV     MODINT,6$       ;SET MODEM SELECTION
2086 034550  004737  010276                  JSR     PC,SETUP        ;PROGRAM THE USYRT
2087 034554  000000                          000
2088 034556  000100                          CRC1                    ;BIT MODE, CRC-CCITT-0
2089 034560  000000                  6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2090 034562  000000                          000
2091 034564  004737  010156                  JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2092 034570  012737  101177  003100          MOV     #CRCCHK.RXEBL.177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
2093 034576  142777  000010  145634          BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2094 034604  012737  000012  002364          MOV     #12,REGNUM      ;SET LU REG NO. = 12
2095 034612  012703  002762                  MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2096 034616  013702  002264          9$:     MOV     TCOUNT,R2               ;INIT TIMER
2097 034622  004737  003344          10$:    JSR     PC,READLU       ;READ REG 12
2098 034626  132737  000020  002350          BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2099 034634  001011                          BNE     12$             ;BR IF YES
2100 034636  005202                          INC     R2              ;INCREMENT TIMER
2101 034640  001370                          BNE     10$             ;BR IF NO TIME-OUT YET
2102 034642  004737  004200                  JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2103                              ;REPORT IRDY NOT SET
2104 034646                                   ERRDF   17,EM17,ERR7
     034646  104455                                                          TRAP    C$ERDF
     034650  000021                                                          .WORD   17
     034652  013430                                                          .WORD   EM17
     034654  020216                                                          .WORD   ERR7
2105 034656  000411                          BR      24$             ;ESCAPE TO END OF TEST
2106 034660  012337  034670          12$:    MOV     (R3)+,16$
2107 034664  004737  007266                  JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2108 034670  000000                  16$:    0
2109 034672  000000                          0
2110 034674  020327  003102                  CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2111 034700  103746                          BLO     9$              ;BR IF NOT YET
2112 034702                           24$:
2113 034702                           ENDTST
     034702                                                     L10101:
     034702  104401                                                          TRAP    C$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 034704                           BGNTST
     034704                                                             T28::
2134 034704  012737  000034  002434          MOV     #28.,TSTNUM     ;SET TEST NO.
```

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

2135 034712 012737 035072 002346        MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2136 034720 004737 003276               JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2137 034724 004737 010770               JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2138 034730 000000                      0
2139 034732 013737 002422 034750        MOV     MODINT,6$       ;SET MODEM SELECTION
2140 034740 004737 010276               JSR     PC,SETUP        ;PROGRAM THE USYRT
2141 034744 000226                      SYNCH
2142 034746 000011                      STRIP!DDCMP
2143 034750 000000              6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2144 034752 000000                      000
2145 034754 004737 010156               JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2146 034760 012737 100577 003100        MOV     #CRCCHK!RXBCC,177,RCVBUF+78. ;SET LAST DATA CHAR IN BUFFER
2147 034766 142777 000010 145444        BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2148 034774 012737 000012 002364        MOV     #12,REGNUM      ;SET LU REG NO. = 12
2149 035002 012703 002762               MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2150 035006 013702 002264               MOV     TCOUNT,R2               ;INIT TIMER
2151 035012 004737 003344       10$:    JSR     PC,READLU       ;READ REG 12
2152 035016 132737 000020 002350        BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2153 035024 001011                      BNE     12$             ;BR IF YES
2154 035026 005202                      INC     R2              ;INCREMENT TIMER
2155 035030 001370                      BNE     10$             ;BR IF NO TIME-OUT YET
2156 035032 004737 004200               JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2157                            ;REPORT IRDY NOT SET
2158 035036                             ERRDF   17,EM17,ERR7
     035036 104455                                                          TRAP    C$ERDF
     035040 000021                                                          .WORD   17
     035042 013430                                                          .WORD   EM17
     035044 020216                                                          .WORD   ERR7
2159 035046 000411                      BR      24$             ;ESCAPE TO END OF TEST
2160 035050 012337 035060       12$:    MOV     (R3)+,16$
2161 035054 004737 007266               JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2162 035060 000000              16$:    0
2163 035062 000000                      0
2164 035064 020327 003102               CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2165 035070 103746                      BLO     9$              ;BR IF NOT YET
2166 035072                     24$:
2167 035072                     ENDTST
     035072                                                                 L10102:
     035072 104401                                                          TRAP    C$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 035074                             BGNTST
     035074                                                                                  T29::
2188 035074  012737  000035  002434              MOV     #29.,TSTNUM     ;SET TEST NO.
2189 035102  012737  035256  002346              MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2190 035110  004737  003276                      JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2191 035114  004737  010770                      JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2192 035120  000000                              0
2193 035122  013737  002422  035140              MOV     MODINT,6$       ;SET MODEM SELECTION
2194 035130  004737  010276                      JSR     PC,SETUP        ;PROGRAM THE USYRT
2195 035134  000026                              026
2196 035136  000111                              CRC1!STRIP!DDCMP
2197 035140  000000                      6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2198 035142  000347                              TXLEN2!TXLEN1!TXLEN0.RXLEN2!RXLEN1!RXLEN0
2199 035144  004737  010156                      JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2200 035150  142777  000010  145262              BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2201 035156  012737  000012  002364              MOV     #12,REGNUM      ;SET LU REG NO. = 12
2202 035164  012703  002762                      MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2203 035170  013702  002264              9$:     MOV     TCOUNT,R2               ;INIT TIMER
2204 035174  004737  003344              10$:    JSR     PC,READLU       ;READ REG 12
2205 035200  132737  000020  002350              BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2206 035206  001011                              BNE     12$             ;BR IF YES
2207 035210  005202                              INC     R2              ;INCREMENT TIMER
2208 035212  001370                              BNE     10$             ;BR IF NO TIME-OUT YET
2209 035214  004737  004200                      JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2210                                    ;REPORT IRDY NOT SET
2211 035220                                     ERRDF   17,EM17,ERR7
     035220  104455                                                                 TRAP    C$ERDF
     035222  000021                                                                 .WORD   17
     035224  013430                                                                 .WORD   EM17
     035226  020216                                                                 .WORD   ERR7
2212 035230  000412                              BR      24$             ;ESCAPE TO END OF TEST
2213 035232  112337  035244              12$:    MOVB    (R3)+,16$       ;GET AN EXPECTED DATA BYTE
2214 035236  005203                              INC     R3              ;INCREMENT POINTER
2215 035240  004737  007266                      JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2216 035244  100000                      16$:    BCCCHK
2217 035246  000000                              0
2218 035250  020327  003102                      CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2219 035254  103745                              BLO     9$              ;BR IF NOT YET
2220 035256                             24$:
2221 035256                             ENDTST
     035256                                                                     L10103:
     035256  104401                                                                 TRAP    C$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 035260                            BGNTST
     035260                                                                                          T30::
2242 035260  012737  000036  002434            MOV     #30.,ISTNUM     ;SET TEST NO.
2243 035266  012737  035442  002346            MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
2244 035274  004737  003276                    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR
2245 035300  004737  010770                    JSR     PC,CKLPBK       ;CHECK LOOPBACK, GET MODEM SELECTION
2246 035304  000000                            0
2247 035306  013737  002422  035324            MOV     MODINT,6$       ;SET MODEM SELECTION
2248 035314  004737  010276                    JSR     PC,SETUP        ;PROGRAM THE USYRT
2249 035320  000026                            026
2250 035322  000211                            CRC2!STRIP!DDCMP
2251 035324  000000                    6$:     .WORD   0               ;MODEM SELECTION GOES HERE
2252 035326  000347                            TXLEN2.TXLEN1!TXLEN0!RXLEN2!RXLEN1!RXLEN0
2253 035330  004737  010156                    JSR     PC,LODATA       ;LOAD MSG INTO TX SILO AND RCV'D DATA BUF
2254 035334  142777  000010  145076            BICB    #LULOOP,@BSEL1  ;CLEAR LULOOP, CLOCK MSG
2255 035342  012737  000012  002364            MOV     #12,REGNUM      ;SET LU REG NO. = 12
2256 035350  012703  002762                    MOV     #RCVBUF,R3      ;GET POINTER TO RCV MSG BUF
2257 035354  012702  002264            9$:     MOV     #COUNT,R2               ;INIT TIMER
2258 035360  004737  003344            10$:    JSR     PC,READLU       ;READ REG 12
2259 035364  132737  000020  002350            BITB    #IRDY,REDBYT    ;SEE IF IRDY IS SET YET
2260 035372  001011                            BNE     12$             ;BR IF YES
2261 035374  005202                            INC     R2              ;INCREMENT TIMER
2262 035376  001370                            BNE     10$             ;BR IF NO TIME-OUT YET
2263 035400  004737  004200                    JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2264                                    ;REPORT IRDY NOT SET
2265 035404                                     ERRDF   17,EM17,ERR7
     035404  104455                                                                  TRAP    C$ERDF
     035406  000021                                                                  .WORD   17
     035410  013430                                                                  .WORD   EM17
     035412  020216                                                                  .WORD   ERR7
2266 035414  000412                            BR      24$             ;ESCAPE TO END OF TEST
2267 035416  112337  035430            12$:    MOVB    (R3)+,16$       ;GET AN EXPECTED DATA CHAR
2268 035422  005203                            INC     R3              ;INCREMENT POINTER
2269 035424  004737  007266                    JSR     PC,CKDATA       ;COMPARE RCV'D DATA CHAR TO EXPECTED
2270 035430  100000                    16$:    BCCCHK
2271 035432  000000                            0
2272 035434  020327  003102                    CMP     R3,#RCVBUF+80.  ;SEE IF ALL CHARS CHECKED YET
2273 035440  103745                            BLO     9$              ;BR IF NOT YET
2274 035442                            24$:
2275 035442                            ENDTST
     035442                                                                      L10104:
     035442  104401                                                                  TRAP    C$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
```

TEST 31 - CONTIGUOUS ONES IN SEC. STA. ADRS. MODE, BIT MODE

```
                                ;* 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.
                                ;;*************************************************************************
035444                          BGNTST
035444                                                                          T31::
035444  012737  035550  002346         MOV     #24$,RETADR     ;SET TEST EXIT ADDRESS FOR ERRORS
035452  004737  005212                 JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
035456  000377                         377
035460  000320                         CRC2:CRC1.SECA          ;BIT MODE, NO ERROR DET, SEC ADR MODE
035462  004737  010720                 JSR     PC,LODSIL       ;LOAD 5 377-CHARS INTO TX SILO
035466  000377                         377
035470  000005                         5
035472  004737  010720                 JSR     PC,LODSIL       ;LOAD 2 EOM'S INTO TX SILO
035476  001000                         TXEOM
035500  000002                         2
035502  004737  004726                 JSR     PC,STPLU        ;CLOCK MORE THAN ENTIRE MSG
035506  000240                         160.
035510  004737  007266                 JSR     PC,CKDATA       ;RCV SEC ADRS - 377
035514  000377                         377
035516  000000                         0
035520  012701  000003                 MOV     #3,R1           ;RCV 3 MORE 377 CHARS
035524  004737  007266         6$:     JSR     PC,CKDATA
035530  000377                         377
035532  000000                         0
035534  005301                         DEC     R1
035536  001372                         BNE     6$
035540  004737  007266                 JSR     PC,CKDATA       ;RCV LAST 377 CHAR, CHK EBLK = 1
035544  001377                         1377
035546  000000                         0
035550  004737  003276         24$:    JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
035554                          ENDTST
035554                                                                  L10105:
035554  104401                                                                  TRAP    C$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
                                ;;*************************************************************************
035556                          BGNTST
035556                                                                          T32::
035556  012737  036334  002346         MOV     #24$,RETADR     ;SET TEST EXIT ADRS FOR ERRORS
```

```
2339                                    ;-----------------------------------------------------------------
2340                                    ; TRANSMIT AND RCV ENTIRE MSG
2341                                    ;-----------------------------------------------------------------
2342 035564  004737  005212              JSR     PC,INITRN       ;MST CLR, LOAD 2 SOM'S
2343 035570  000226                      SYNCH
2344 035572  000011                      STRIP!DDCMP
2345 035574  004737  010546              JSR     PC,LDBYTS       ;LOAD 20 WORDS OF PAT A INTO TX SILO
2346 035600  002557                      PATA
2347 035602  000024                      20.
2348 035604  004737  010720              JSR     PC,LODSIL       ;LOAD AN EOM INTO TX SILO
2349 035610  001000                      TXEOM
2350 035612  000001                      1
2351 035614  004737  010546              JSR     PC.LDBYTS       ;LOAD 20 WORDS OF PAT A INTO TX SILO
2352 035620  002557                      PATA
2353 035622  000024                      20.
2354 035624  004737  010720              JSR     PC,LODSIL       ;LOAD 1 EOM INTO TX SILO
2355 035630  001000                      TXEOM
2356 035632  000001                      1
2357 035634  004737  010720              JSR     PC,LODSIL       ;LOAD 3 SOM'S INTO TX SILO
2358 035640  000400                      TXSOM
2359 035642  000003                      3
2360 035644  004737  010470              JSR     PC,LODMSG       ;LOAD MSG1 INTO TX SILO
2361 035650  002670                      MSG1
2362 035652  000013                      11.
2363 035654  004737  004726              JSR     PC,STPLU        ;CLOCK HDR MSG AND CRC CHARS
2364 035660  000300                      192.
2365 035662  012737  000013  002364      MOV     #13,REGNUM      ;SET REG. NO. = 13
2366 035670  004737  003344              JSR     PC,READLU       ;READ REG 13
2367 035674  032737  000040  002350      BIT     #RTS,REDBYT     ;SEE IF RTS SET
2368 035702  001010                      BNE     2$              ;BR IF RTS SET
2369 035704  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2370                                    ;REPORT RTS NOT SET
2371 035710                              ERRDF   60,EM60,ERR7
     035710  104455                                                          TRAP    C$ERDF
     035712  000074                                                          .WORD   60
     035714  014654                                                          .WORD   EM60
     035716  020216                                                          .WORD   ERR7
2372 035720  000137  036334              JMP     24$             ;EXIT TEST
2373 035724  004737  004726      2$:     JSR     PC,STPLU        ;CLK DATA MSG AND FIRST CRC CHAR
2374 035730  000250                      168.
2375 035732  012703  000040              MOV     #32.,R3         ;SET COUNTER FOR CHECKING RTS
2376 035736  004737  004726      4$:     JSR     PC,STPLU        ;CLOCK LINE UNIT FOR 1 CYCLE
2377 035742  000001                      1
2378 035744  004737  003344              JSR     PC,READLU       ;READ REG 13
2379 035750  032737  000040  002350      BIT     #RTS,REDBYT     ;CHK FOR RTS SET
2380 035756  001007                      BNE     5$              ;BR IF RTS SET
2381 035760  004737  004200              JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2382                                    ;REPORT RTS NOT SET
2383 035764                              ERRDF   60,EM60,ERR7
     035764  104455                                                          TRAP    C$ERDF
     035766  000074                                                          .WORD   60
     035770  014654                                                          .WORD   EM60
     035772  020216                                                          .WORD   ERR7
2384 035774  000557                      BR      24$
2385 035776  005303      5$:     DEC     R3              ;DECR COUNTER
2386 036000  001356              BNE     4$              ;BR IF NOT DONE YET
2387                                    ;-----------------------------------------------------------------
```

```
2388                                    ; READ AND CHK HEADER AND CRC
2389                                    ;-------------------------------------------------------------------------
2390 036002  012701  002557                        MOV     #PATA,R1        ;INIT PATTERN A POINTER
2391 036006  112137  036016            7$:         MOVB    (R1)+,8$        ;GET AN EXPECTED CHAR
2392 036012  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK A CHAR
2393 036016  000000                    8$:         .WORD   0
2394 036020  000000                                0
2395 036022  020127  002601                        CMP     R1,#PATB-2      ;SEE IF CHKING NEXT-TO-LAST CHAR YET
2396 036026  103767                                BLO     7$              ;BR IF NOT YET
2397 036030  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK CHAR, BCC 0
2398 036034  100277                                CRCCHK.277
2399 036036  000000                                0
2400 036040  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK LAST CHAR, BCC 1
2401 036044  100577                                CRCCHK.RXBCC!177
2402 036046  000000                                0
2403 036050  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
2404 036054  000156                                156
2405 036056  000000                                0
2406 036060  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
2407 036064  000236                                236
2408 036066  000000                                0
2409                                    ;-------------------------------------------------------------------------
2410                                    ; READ AND CHK DATA MSG AND CRC
2411                                    ;-------------------------------------------------------------------------
2412 036070  012701  002557                        MOV     #PATA,R1        ;INIT PATTERN A POINTER
2413 036074  112137  036104            9$:         MOVB    (R1)+,12$       ;GET AN EXPECTED CHAR
2414 036100  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK A CHAR
2415 036104  000000                    12$:        .WORD   0
2416 036106  000000                                0
2417 036110  020127  002601                        CMP     R1,#PATB-2      ;SEE IF CHKING NEXT-TO-LAST CHAR YET
2418 036114  103767                                BLO     9$              ;BR IF NOT YET
2419 036116  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK CHAR, BCC 0
2420 036122  100277                                CRCCHK!277
2421 036124  000000                                0
2422 036126  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK LAST CHAR, BCC 1
2423 036132  100577                                CRCCHK.RXBCC!177
2424 036134  000000                                0
2425 036136  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
2426 036142  000156                                156
2427 036144  000000                                0
2428 036146  004737  007266                        JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
2429 036152  000236                                236
2430 036154  000000                                0
2431                                    ;-------------------------------------------------------------------------
2432                                    ; CLOCK 3RD MESSAGE ('MSG1'' DATA)
2433                                    ;-------------------------------------------------------------------------
2434 036156  012737  000012  002364                MOV     #12,REGNUM      ;SET REG NO. = 12
2435 036164  112737  000200  002352                MOVB    #IC,WRIBYT      ;SET IC TO CLEAR RECEIVER FOR NEW MSG
2436 036172  004737  003422                        JSR     PC,WRITLU
2437 036176  012737  000013  002364                MOV     #13,REGNUM      ;RESTORE REG NO. TO 13
2438 036204  004737  004726                        JSR     PC,STPLU        ;CLOCK THE REST OF MSG
2439 036210  000150                                104.
2440 036212  004737  003344                        JSR     PC,READLU       ;READ REG 13
2441 036216  032737  000040  002350                BIT     #RTS,REDBYT     ;SEE IF RTS IS CLEARED
2442 036224  001407                                BEQ     14$             ;BR IF RTS CLEARED
2443 036226  004737  004200                        JSR     PC,GETALL       ;GET REGS FOR PRINTOUT
2444                                    ;REPORT RTS NOT CLEARED
```

```
2445 036232                            ERRDF   65,EM65,ERR7
     036232  104455                                          TRAP    C$ERDF
     036234  000101                                          .WORD   65
     036236  014752                                          .WORD   EM65
     036240  020216                                          .WORD   ERR7
2446 036242  000434                    BR      24$
2447                                  ;-------------------------------------------------------------------------------
2448                                  ;READ AND CHECK 3RD MESSAGE AND CRC
2449                                  ;-------------------------------------------------------------------------------
2450 036244  004737  007266      14$:  JSR     PC,CKDATA       ;READ AND CHECK 000 DATA CHAR
2451 036250  000000                    000
2452 036252  000000                    0
2453 036254  004737  007266            JSR     PC,CKDATA       ;READ AND CHECK 125 DATA CHAR
2454 036260  000125                    125
2455 036262  000000                    0
2456 036264  004737  007266            JSR     PC,CKDATA       ;READ AND CHECK 252 DATA CHAR
2457 036270  000252                    252
2458 036272  000000                    0
2459 036274  004737  007266            JSR     PC,CKDATA       ;READ AND CHECK 377 DATA CHAR, AND BCC-0
2460 036300  100377                    CRCCHK.377
2461 036302  000000                    0
2462 036304  004737  007266            JSR     PC,CKDATA       ;READ AND CHECK 000 DATA CHAR, AND BCC-1
2463 036310  100400                    CRCCHK!RXBCC.000
2464 036312  000000                    0
2465 036314  004737  007266            JSR     PC,CKDATA       ;READ AND CHK HI CRC BYTE
2466 036320  000160                    160
2467 036322  000000                    0
2468 036324  004737  007266            JSR     PC,CKDATA       ;READ AND CHK LO CRC BYTE
2469 036330  000034                    034
2470 036332  000000                    0
2471 036334  004737  003276      24$:  JSR     PC,MSTCLR       ;ISSUE MASTER CLEAR TO CLEAN UP
2472 036340                    ENDTST
     036340                                                  L10106:
     036340  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.
                        ;////////////////////////  ////////////////////////////////////////////

036342                          BGNHRD
036342  000046                                                          .WORD L10107-L$HARD/2
036344                                                                  L$HARD::

036344                          GPRMA   ADDRES,2,0,160000,177776,YES
036344  001031                                                          .WORD   T$CODE
036346  036460                                                          .WORD   ADDRES
036350  160000                                                          .WORD   T$LOLIM
036352  177776                                                          .WORD   T$HILIM
036354                          GPRMA   VECTOR,4,0,0,674,YES
036354  002031                                                          .WORD   T$CODE
036356  036506                                                          .WORD   VECTOR
036360  000000                                                          .WORD   T$LOLIM
036362  000674                                                          .WORD   T$HILIM
036364                          GPRMD   PRIRTY,6,0,7000,4,7,YES
036364  003032                                                          .WORD   T$CODE
036366  036537                                                          .WORD   PRIRTY
036370  007000                                                          .WORD   7000
036372  000004                                                          .WORD   T$LOLIM
036374  000007                                                          .WORD   T$HILIM
036376                          GPRMD   SWPAC1,12,0,377,0,056,YES
036376  005032                                                          .WORD   T$CODE
036400  036570                                                          .WORD   SWPAC1
036402  000377                                                          .WORD   377
036404  000000                                                          .WORD   T$LOLIM
036406  000056                                                          .WORD   T$HILIM
036410                          GPRMD   SWPAC2,14,0,377,0,377,YES
036410  006032                                                          .WORD   T$CODE
036412  036631                                                          .WORD   SWPAC2
036414  000377                                                          .WORD   377
036416  000000                                                          .WORD   T$LOLIM
036420  000377                                                          .WORD   T$HILIM
036422                          GPRMD   SWPAC3,16,0,377,0,377,YES
036422  007032                                                          .WORD   T$CODE
036424  036672                                                          .WORD   SWPAC3
036426  000377                                                          .WORD   377
036430  000000                                                          .WORD   T$LOLIM
036432  000377                                                          .WORD   T$HILIM
036434                          GPRMD   LOOPBK,20,0,7,0,4,YES
036434  010032                                                          .WORD   T$CODE
036436  036733                                                          .WORD   LOOPBK
036440  000007                                                          .WORD   7
036442  000000                                                          .WORD   T$LOLIM
036444  000004                                                          .WORD   T$HILIM
```

HARDWARE PARAMETER CODING SECTION

```
    23 036446                                   GPRMD   BAUDRT,22,0,7,0,7,YES
       036446  011032                                                       .WORD   T$CODE
       036450  037050                                                       .WORD   BAUDRT
       036452  000007                                                       .WORD   7
       036454  000000                                                       .WORD   T$LOLIM
       036456  000007                                                       .WORD   T$HILIM
    24
    25 036460                                   ENDHRD
                                                                            .EVEN
       036460                                                       L10107:
    26
    27 036460     104     105     126  ADDRES: .ASCIZ  /DEVICE CSR ADDRESS : /
       036463     111     103     105
       036466     040     103     123
       036471     122     040     101
       036474     104     104     122
       036477     105     123     123
       036502     040     072     040
       036505     000
    28 036506     104     105     126  VECTOR: .ASCIZ  /DEVICE VECTOR ADDRESS : /
       036511     111     103     105
       036514     040     126     105
       036517     103     124     117
       036522     122     040     101
       036525     104     104     122
       036530     105     123     123
       036533     040     072     040
       036536     000
    29 036537     104     105     126  PRIRTY: .ASCIZ  /DEVICE PRIORITY LEVEL : /
       036542     111     103     105
       036545     040     120     122
       036550     111     117     122
       036553     111     124     131
       036556     040     114     105
       036561     126     105     114
       036564     040     072     040
       036567     000
    30 036570     115     070     062  SWPAC1: .ASCIZ  /M8203 SWITCH PACK #1 (REG 11) : /
       036573     060     063     040
       036576     123     127     111
       036601     124     103     110
       036604     040     120     101
       036607     103     113     040
       036612     043     061     040
       036615     050     122     105
       036620     107     040     061
       036623     061     051     040
       036626     072     040     000
    31 036631     115     070     062  SWPAC2: .ASCIZ  /M8203 SWITCH PACK #2 (REG 15) : /
       036634     060     063     040
       036637     123     127     111
       036642     124     103     110
       036645     040     120     101
       036650     103     113     040
       036653     043     062     040
       036656     050     122     105
       036661     107     040     061
```

HARDWARE PARAMETER CODING SECTION

```
                036664  065     051     040
                036667  072     040     000
            32  036672  115     070     062     SWPAC3: .ASCIZ  /M8203 SWITCH PACK #3 (REG 16) : /
                036675  060     063     040
                036700  123     127     111
                036703  124     103     110
                036706  040     120     101
                036711  103     113     040
                036714  043     063     040
                036717  050     122     105
                036722  107     040     061
                036725  066     051     040
                036730  072     040     000
            33  036733  124     125     122     LOOPBK: .ASCII  /TURNAROUND TYPE -/<15><12>
                036736  116     101     122
                036741  117     125     116
                036744  104     040     124
                036747  131     120     105
                036752  040     055     015
                036755  012
            34  036756  050     060     075             .ASCIZ  /(0=H3254&H3255, 1=CABLE, 2 MOD LOC, 3=MOD REM, 4-NONE) : /
                036761  110     063     062
                036764  065     064     046
                036767  110     063     062
                036772  065     065     054
                036775  040     061     075
                037000  103     101     102
                037003  114     105     054
                037006  040     062     075
                037011  115     117     104
                037014  040     114     117
                037017  103     054     040
                037022  063     075     115
                037025  117     104     040
                037030  122     105     115
                037033  054     040     064
                037036  075     116     117
                037041  116     105     051
                037044  040     072     040
                037047  000
            35  037050  120     114     105     BAUDRT: .ASCII  /PLEASE SELECT BAUD RATE; TYPE '0' FOR 2.4K; '1' FOR 4.8K;/<15><12>
                037053  101     123     105
                037056  040     123     105
                037061  114     105     103
                037064  124     040     102
                037067  101     125     104
                037072  040     122     101
                037075  124     105     073
                037100  040     124     131
                037103  120     105     040
                037106  047     060     047
                037111  040     106     117
                037114  122     040     062
                037117  056     064     113
                037122  073     040     047
                037125  061     047     040
                037130  106     117     122
```

HARDWARE PARAMETER CODING SECTION

```
        037133      040      064      056
        037136      070      113      073
        037141      015      012
     36 037143      047      062      047          .ASCII  /'2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;/<15><12>
        037146      040      106      117
        037151      122      040      071
        037154      056      066      113
        037157      073      040      047
        037162      063      047      040
        037165      106      117      122
        037170      040      061      071
        037173      056      062      113
        037176      073      040      047
        037201      064      047      040
        037204      106      117      122
        037207      040      065      066
        037212      113      073      040
        037215      047      065      047
        037220      040      106      117
        037223      122      040      062
        037226      065      060      113
        037231      073      015      012
     37 037234      047      066      047          .ASCII  /'6' FOR 500K; OR '7' FOR 1 MEG BAUD : /
        037237      040      106      117
        037242      122      040      065
        037245      060      060      113
        037250      073      040      117
        037253      122      040      047
        037256      067      047      040
        037261      106      117      122
        037264      040      061      040
        037267      115      105      107
        037272      040      102      101
        037275      125      104      040
        037300      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
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                        ;/ WITH THE OPERATOR.
                        ;////////////////////////////////////////////////////////////////

037304                          BGNSFT
037304  000016                                                  .WORD L10110-L$SOFT/2
037306                                                        L$SOFT::

037306                          GPRML   ISMANI,0,1,YES
037306  000130                                                  .WORD   T$CODE
037310  037342                                                  .WORD   ISMANI
037312  000001                                                  .WORD   1
037314                          GPRML   ISPRNT,2,1,YES
037314  001130                                                  .WORD   T$CODE
037316  037430                                                  .WORD   ISPRNT
037320  000001                                                  .WORD   1
037322                          GPRML   ISWPAK,4,1,YES
037322  002130                                                  .WORD   T$CODE
037324  037513                                                  .WORD   ISWPAK
037326  000001                                                  .WORD   1
037330                          GPRMD   TIMCNT,6,0,177777,0,177777,YES
037330  003032                                                  .WORD   T$CODE
037332  037560                                                  .WORD   TIMCNT
037334  177777                                                  .WORD   177777
037336  000000                                                  .WORD   T$LOLIM
037340  177777                                                  .WORD   T$HILIM

037342                          ENDSFT
                                                                .EVEN
037342                                                        L10110:

037342  111     123     040  ISMANI: .ASCIZ  /IS MAN. INTERVEN. DESIRED TO MOUNT TEST CONNECTOR(S) /
037345  115     101     116
037350  056     040     111
037353  116     124     105
037356  122     126     105
037361  116     056     040
037364  104     105     123
037367  111     122     105
037372  104     040     124
037375  117     040     115
037400  117     125     116
037403  124     040     124
037406  105     123     124
037411  040     103     117
037414  116     116     105
037417  103     124     117
037422  122     050     123
037425  051     040     000
```

SOFTWARE PARAMETER CODING SECTION

```
    23 037430  123  110  117  ISPRNT: .ASCIZ  /SHOULD SWITCH PACK AND AX3-15 PRINTOUT BE ALLOWED /
       037433  125  114  104
       037436  040  123  127
       037441  111  124  103
       037444  110  040  120
       037447  101  103  113
       037452  040  101  116
       037455  104  040  101
       037460  130  063  055
       037463  061  065  040
       037466  120  122  111
       037471  116  124  117
       037474  125  124  040
       037477  102  105  040
       037502  101  114  114
       037505  117  127  105
       037510  104  040  000
    24 037513  123  110  117  ISWPAK: .ASCIZ  /SHOULD SWITCH PACK TESTS BE ALLOWED /
       037516  125  114  104
       037521  040  123  127
       037524  111  124  103
       037527  110  040  120
       037532  101  103  113
       037535  040  124  105
       037540  123  124  123
       037543  040  102  105
       037546  040  101  114
       037551  114  117  127
       037554  105  104  040
       037557  000
    25 037560  115  123  107  TIMCNT: .ASCIZ  /MSG TIMER VALUE (0-177777), 0 - LONGEST TIME-OUT : /
       037563  040  124  111
       037566  115  105  122
       037571  040  126  101
       037574  114  125  105
       037577  040  050  060
       037602  055  061  067
       037605  067  067  067
       037610  067  051  054
       037613  040  060  040
       037616  075  040  114
       037621  117  116  107
       037624  105  123  124
       037627  040  124  111
       037632  115  105  055
       037635  117  125  124
       037640  040  072  040
       037643  000
    26                       .EVEN
    27
    28
    29
    30
    31
    32
    33
    34
```

```
                                ;****** PATCH AREA FOR DEBUG ******
037644                          PATCH:
        037744                          .=.+100
037744  000240                          NOP
037746  000240                          NOP
037750  000240                          NOP
                                ;**********************************



037752                                  ENDMOD

037752                                  LASTAD
                                                                        .EVEN
037752  000000                                                          .WORD   0
037754  000000                                                          .WORD   0
037756                          L$LAST::

        000001                  .END
```

SYMBOL TABLE

```
ABORT = 000004          BSEL4   002442          C$RDBU= 000007          EM40    014016          FMT18   013034
ADDRES  036460          CARR  = 000001          C$REFG= 000047          EM41    014032          FMT19   013076
ADR   = 000020 G        CHKABT  012130          C$RESE= 000033          EM42    014053          FMT2    012266
ANBITS  002547          CHPCHK= 100000          C$REVI= 000003          EM43    014070          FMT25   013127
APA   = 000200          CHPTYP  002420          C$RFLA= 000021          EM44    014115          FMT26   013157
ASBC0 = 000020          CKDATA  007266          C$RPT = 000025          EM45    014142          FMT27   023104
ASBC1 = 000040          CKLPBK  010770          C$SEFG= 000046          EM46    014167          FMT3    012310
ASBC2 = 000100          CRCCHK= 100000          C$SPRI= 000041          EM47    014222          FMT4    012352
ASSEMB= 000010          CRCTY0= 000001          C$SVEC= 000037          EM48    014255          FMT5    012365
AXNUM   002366          CRCTY1= 000002          C$TPRI= 000013          EM49    014310          FMT6    012415
AX0.15= 002306          CRCTY2= 000004          C32BCC= 000040          EM50    014347          FMT7    012450
AX0.16= 002310          CRC1  = 000100          C32ENB= 000004          EM51    014403          FMT8    012460
AX1   - 000001          CRC2  = 000200          DDC   = 000100          EM52    014443          FMT9    012514
AX1.15= 002312          CS    = 000004          DDCMP = 000001          EM53    014477          FRSPAS  002400
AX1.16= 002314          C$AU  = 000052          DEVMAP  002426          EM54    014533          FRSTIM  002376
AX2   - 000002          C$AUTO= 000061          DEVPTR  002430          EM55    014555          F$AU  = 000015
AX2.15= 002316          C$BRK = 000022          DFPTBL  002226 G        EM56    014571          F$AUTO= 000020
AX2.16= 002320          C$BSEG= 000004          DH1     015013          EM57    014606          F$BGN = 000040
AX3.15= 002322          C$BSUB= 000002          DH2     015035          EM58    014623          F$CLEA= 000007
AX3.16= 002324          C$CEFG= 000045          DH3     015064          EM59    014637          F$DU  = 000016
AX315U= 000372          C$CLCK= 000062          DH4     015122          EM60    014654          F$END = 000041
A11     025426          C$CLEA= 000012          DH5     015164          EM61    014670          F$HARD= 000004
A12     033736          C$CLOS= 000035          DH6     015167          EM62    014703          F$HW  = 000013
BADDAT  002372          C$CLP1= 000006          DH7     015172          EM63    014720          F$INIT= 000006
BAUDRT  037050          C$CVEC= 000036          DH8     015224          EM64    014735          F$JMP = 000050
BCC   - 000001          C$DCLN= 000044          DH9     015263          EM65    014752          F$MOD = 000000
BCCCHK= 100000          C$DODU= 000051          DIAGMC- 000000          EM66    014772          F$MSG = 000011
BDRATE  002464          C$DRPT= 000024          DISILO  002416          EM7     013276          F$PROT= 000021
BIT0  = 000001 G        C$DU  = 000053          DISSI = 000040          EM8     013313          F$PWR = 000017
BIT00 - 000001 G        C$EDIT= 000003          DTR   = 000100          EM9     013334          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   022512          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    013351          ERR1    015326 G        GETALL  004200
BIT08   000400 G        C$FSUB= 000003          EM11    013372          ERR1C   021356 G        GETPRM  022214
BIT09 - 001000 G        C$ETST= 000001          EM12    013407          ERR2    015360 G        GETREG  003470
BIT1    000002 G        C$EXIT= 000032          EM17    013430          ERR3    015666 G        GOAH  = 000010
BIT10 - 002000 G        C$GETB= 000026          EM18    013445          ERR4    016350 G        GOODAT  002370
BIT11 = 004000 G        C$GETW= 000027          EM19    013466          ERR5    017026 G        G$CNTO= 000200
BIT12 - 010000 G        C$GMAN= 000043          EM2     013220          ERR6    017540 G        G$DELM= 000372
BIT13 - 020000 G        C$GPHR= 000042          EM20    013503          ERR7    020216 G        G$DISP= 000003
BIT14 = 040000 G        C$GPLO= 000030          EM21    013524          ERR8    020650 G        G$EXCP= 000400
BIT15 = 100000 G        C$GPRI= 000040          EM22    013541          EVL   = 000004 G        G$HILI= 000002
BIT2  = 000004 G        C$INIT= 000011          EM28    013562          E$END = 002100          G$LOLI= 000001
BIT3    000010 G        C$INLP= 000020          EM29    013603          E$LOAD= 000035          G$NO  = 000000
BIT4  - 000020 G        C$MANI= 000050          EM3     013257          FMT1    012256          G$OFFS= 000400
BIT5  - 000040 G        C$MEM = 000031          EM30    013620          FMT10   012521          G$OFSI= 000376
BIT6  = 000100 G        C$MSG = 000023          EM31    013641          FMT11   012552          G$PRMA= 000001
BIT7    000200 G        C$OPEN= 000034          EM34    013656          FMT12   012611          G$PRMD= 000002
BIT8  = 000400 G        C$PNTB= 000014          EM35    013704          FMT13   012655          G$PRML= 000000
BIT9    001000 G        C$PNTF= 000017          EM36    013724          FMT14   012721          G$RADA= 000140
BOE   - 000400 G        C$PNTS= 000016          EM37    013740          FMT15   012765          G$RADB= 000000
BPOLL   000100          C$PNTX= 000015          EM38    013761          FMT16   022514          G$RADD= 000040
BSEL1   002440          C$QIO   000377          EM39    013776          FMT17   022636          G$RADL- 000120
```

SYMBOL TABLE

```
G$RADO= 000020          LOT    = 000010 G      L$REPP  002062 G        L10056  031562          O$DU   = 000001
G$XFER- 000004          LULOOP= 000010          L$REV   002010 G        L10057  031744          O$ERRT= 000000
G$YES = 000010          LULP   = 000040         L$RPT   022010 G        L10060  032126          O$GNSW= 000001
HDX   - 000020          LUREG    002266         L$SOFT  037306 G        L10061  032224          O$POIN= 000001
HELP  = 000001          LUR10  = 002266         L$SPC   002056 G        L10062  032434          O$SETU= 000000
HOE   = 100000 G        LUR11  = 002270         L$SPCP  002020 G        L10063  033742          PATA    002557
IACT  - 000100          LUR12  = 002272         L$SPTP  002024 G        L10064  032732          PATB    002603
IACTIV  006232          LUR13  = 002274         L$STA   002030 G        L10065  033024          PATCH   037644
IBE   = 010000 G        LUR14  = 002276         L$SW    002256 G        L10066  033112          PATQ    002613
IC    = 000200          LUR15  = 002300         L$TEST  002114 G        L10067  033142          PATR    002623
ICIR  = 000010          LUR16  = 002302         L$TIML  002014 G        L10070  033260          PATS    002642
IDL   = 000010          LUR17  = 002304         L$UNIT  002012 G        L10071  033346          PATT    002662
IDLE  - 000040          LUSW11   002454         L10000  002254          L10072  033426          PNT   - 001000 G
IDU   = 000040 G        LUSW12   002456         L10001  002266          L10073  033522          POLL  = 000200
IER   = 020000 G        LUSW13   002460         L10002  015356          L10074  033602          PRI   = 002000 G
IERR  - 000002          LU2MOD   002000 G       L10003  015664          L10075  033734          PRIOR   002334
INITRN  005212          L$ACP    002110 G       L10004  016346          L10076  034132          PRIRTY  036537
INTFLG  002340          L$APT    002036 G       L10005  017024          L10077  034322          PRI00 = 000000 G
INTGRL= 000010          L$AU     023136 G       L10006  017536          L10100  034512          PRI01 = 000040 G
IRDY  = 000020          L$AUT    002070 G       L10007  020214          L10101  034702          PRI02 = 000100 G
ISIRDY  005746          L$AUTO   022772 G       L10010  020646          L10102  035072          PRI03 = 000140 G
ISMANI  037342          L$CCP    002106 G       L10011  021354          L10103  035256          PRI04 = 000200 G
ISPRNT  037430          L$CLEA   023052 G       L10012  022006          L10104  035442          PRI05 = 000240 G
ISR   = 000100 G        L$CO     002032 G       L10013  022010          L10105  035554          PRI06 = 000300 G
ISWPAK  037513          L$DEPO   002011 G       L10015  022512          L10106  036340          PRI07 = 000340 G
IXE   - 004000 G        L$DESC   003170 G       L10016  023050          L10107  036460          PRNFLG  002260
I$AU  = 000041          L$DESP   002076 G       L10017  023052          L10110  037342          PSTACK  002332
I$AUTO= 000041          L$DEVP   002060 G       L10020  023102          MAINT1= 000010          RAB   = 000004
I$CLN = 000041          L$DISP   002124 G       L10021  023136          MAINT2= 000004          RABT  - 000004
I$DU  = 000041          L$DLY    002116 G       L10022  023266          MCLK  = 000002          RAX15   002354
I$HRD = 000041          L$DTP    002040 G       L10023  023642          MCLR  = 000100          RAX16   002356
I$INIT= 000041          L$DTYP   002034 G       L10024  024200          MIFLAG  002256          RCVBUF  002762
I$MOD = 000041          L$DU     023054 G       L10025  024262          MODINT  002422          RCV1ST  006752
I$MSG = 000041          L$DUT    002072 G       L10026  024352          MODR  = 000010          RDALL = 000004
I$PROT= 000040          L$DVTY   003162 G       L10027  024546          MPCSR   002436          RDAX  = 000020
I$PTAB= 000041          L$EF     002052 G       L10030  025316          MPIVEC  002446          RDRXSI  006672
I$PWR = 000041          L$ENVI   002044 G       L10031  025556          MPOVEC  002450          READAX  003576
I$RPT = 000041          L$ETP    002102 G       L10032  025420          MPRIOR  002452          READLU  003344
I$SEG = 000041          L$EXP1   002046 G       L10033  025540          MSG1    002670          READY = 000200
I$SETU= 000041          L$EXP4   002064 G       L10034  025762          MSG2    002716          REDBYT  002350
I$SFT = 000041          L$EXP5   002066 G       L10035  025660          MSG3    002732          REDDAT  002466
I$SRV - 000041          L$HARD   036344 G       L10036  025760          MSTCLR  003276          REGNUM  002364
I$SUB = 000041          L$HIME   002120 G       L10037  026116          MVIOX - 021000          REG0    002476
I$TST   000041          L$HPCP   002016 G       L10040  026570          MVIXO = 122000          REG1    002500
I422    000200          L$HPTP   002022 G       L10041  026302          NEWST   022170          REG2    002502
J$JMP - 000167          L$HW     002226 G       L10042  026434          OACT  = 000100          REG3    002504
LDBYTS  010546          L$ICP    002104 G       L10043  026566          OACTIV  005024          REG4    002506
LDMSG1  010630          L$INIT   022020 G       L10044  026704          OC    = 000200          REG5    002510
LDTXSI  004646          L$LADP   002026 G       L10045  027242          OCOR  = 000020          REG6    002512
LOADAT  002374          L$LAST   037756 G       L10046  027652          OP    = 000002          REG7    002514
LODATA  010156          L$LOAD   002100 G       L10047  030324          ORDY  = 000020          REOM  = 000002
LODMSG  010470          L$LUN    002074 G       L10050  030074          OSIRDY  004334          RERR  = 000200
LODSIL  010720          L$MREV   002050 G       L10051  030316          OVRR  = 000010          RETADR  002346
LOE   - 040000 G        L$NAME   002000 G       L10052  031026          O$APTS= 000000          RING  = 000200
LOGDEV  002330          L$PRIO   002042 G       L10053  030562          O$AU  = 000001          ROMI  = 000002
LOOPBK  036733            $PROT  022012 G       L10054  031020          O$BGNR= 000000          ROMO  = 000004
LOOPIN  003546          .$PRT    002112 G       L10055  031310          O$BGNS  000001          ROR   - 000010
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SYMBOL TABLE

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RRDYTO= 000001          STR   = 000040          TXAB  = 000004          T$TSTM= 177777          T23.6   033262
RSEOM   006420          STRIP = 000010          TXABT = 002000          T$TSTS= 000001          T23.7   033350
RSOM  = 000001          SUBRPC  002336          TXCHAR  005574          T$$AU = 010021          T23.8   033430
R'S   = 000040          SVCGBL= 000000          TXDATA= 000040          T$$AUT= 010016          T23.9   033524
RUN   = 000200          SVCINS= 000001          TXEN  = 000100          T$$CLE= 010017          T24     033744 G
RXABT = 002000          SVCSUB= 000001          TXEOM = 001000          T$$DU = 010020          T25     034134 G
RXBCC = 000400          SVCTAG= 000001          TXGA  = 000010          T$$HAR= 010107          T26     034324 G
RXEBL = 001000          SVCTST= 000001          TXGOA = 004000          T$$HW = 010000          T27     034514 G
RXLEN0= 000001          SWIFLG  002262          TXLEN0= 000040          T$$INI= 010015          T28     034704 G
RXLEN1= 000002          SWPAC1  036570          TXLEN1= 000100          T$$MSG= 010012          T29     035074 G
RXLEN2= 000004          SWPAC2  036631          TXLEN2= 000200          T$$PRO= 010014          T3      023644 G
RXOVR - 004000          SWPAC3  036672          TXSOM = 000400          T$$RPT= 010013          T30     035260 G
RXWORD  002414          SW0   = 000002          TXWORD  002412          T$$SOF= 010110          T31     035444 G
RX0   - 000001          SW1   = 000004          TX0   = 000001          T$$SUB= 010075          T32     035556 G
RX1   = 000002          SW2   = 000010          TX1   = 000002          T$$SW = 010001          T4      024202 G
RX2   - 000004          SW3   = 000040          TX2   = 000004          T$$TES= 010106          T5      024264 G
RX3   = 000010          SYNCH = 000226          TX3   = 000010          T1      023140 G        T6      024354 G
RX4   - 000020          SYN0  = 000001          TX4   = 000020          T10     025764 G        T7      024550 G
RX5   = 000040          SYN1  - 000002          TX5   = 000040          T11     026120 G        T8      025320 G
RX6   = 000100          SYN2  = 000004          TX6   = 000100          T11.1   026120          T8.1    025320
RX7   - 000200          SYN3  = 000010          TX7   = 000200          T11.2   026304          T8.2    025426
R14NRW  002546          SYN4  = 000020          TYPEY   022725          T11.3   026436          T9      025560 G
SAVE4   002404          SYN5  = 000040          T$ARGC= 000002          T12     026572 G        T9.1    025560
SAVE6   002406          SYN6  = 000100          T$CODE= 003032          T13     026706 G        T9.2    025662
SAVLEN  002424          SYN7  = 000200          T$ERRN= 000101          T14     027244 G        UAM   - 000200 G
SCRACH  002326          S$LSYM= 010000          T$EXCP= 000000          T15     027654 G        UNIT    002432
SEC   = 000020          TCCHEK= 100000          T$FLAG= 000040          T15.1   027670          UNRR  = 000001
SECA  = 000020          TCOUNT  002264          T$GMAN= 000000          T15.2   030112          UPBITS  002536
SELFR = 000040          TEOM  = 000002          T$HILI= 177777          T16     030326 G        VECTOR  036506
SELSBY- 000002          TERR  = 000200          T$LAST= 000001          T16.1   030342          V35   = 000020
SEL4    002442          TEST  = 000001          T$LOLI= 000000          T16.2   030600          WAIT50  004620
SEL6    002444          TESTMD= 000004          T$LSYM= 010000          T17     031030 G        WAX   = 000010
SETUP   010276          TIMCNT  037560          T$LTNO= 000040          T18     031312 G        WAX15   002360
SFPTBL  002256 G        TIMFLG  002344          T$NEST= 177777          T19     031564 G        WAX16   002362
SIGQ  = 000100          TMP0    002516          T$NS0 = 000000          T2      023270 G        WRDYTO= 000002
SIGR  = 000200          TMP1    002520          T$NS1 = 000005          T20     031746 G        WRIBYT  002352
SOM   - 000001          TMP2    002522          T$NS2 = 000002          T21     032130 G        WRITAX  003764
STALL   004636          TMP3    002524          T$PTNU= 000000          T22     032226 G        WR!TLU  003422
STARES  002402          TMP4    002526          T$SAVL= 177777          T23     032436 G        XYZ   = 000100
STARST  022160          TMP5    002530          T$SEGL= 177777          T23.1   032460          X$ALWA= 000000
STBY  - 000002          TMP6    002532          T$SUBN= 000000          T23.10  033604          X$FALS= 000040
STEPLU= 000020          TMP7    002534          T$TAGL= 177777          T23.2   032734          X$OFFS= 000400
STEPMP= 000001          TSOM  = 000001          T$TAGN= 010111          T23.3   033026          X$TRUE= 000020
STPCLK  003240          TSTCON  002462          T$TEMP- 000000          T23.4   033114          $LSTIN- 000001
STPERR  007164          TSTNUM  002434          T$TEST- 000040          T23.5   033144          $LSTTA- 000001
STPLU   004726

. ABS.  037756      000
        000000      001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  21865 WORDS  ( 86 PAGES)
DYNAMIC MEMORY AVAILABLE FOR  69 PAGES
(ZDMSB.BIC,CZDMSB.SEQ/C/N:TOC=SVC34R.MLB,CZDMSB.P11
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CROSS REFERENCE TABLE (CREF V01-05)

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$LSTIN   9-27#
$LSTTA   9-28#
A11      26-538#  26-568
A12      26-@75   26-B95#
ABORT    14-61#
ADDRES   18-102   18-108   18-123   18-143   18-161   18-182   18-200   18-219   18-238   27-16    27-27#
ADR      14-20#
ANBITS   15-113#
APA      14-239#
ASBC0    14-196#
ASBC1    14-195#
ASBC2    14-194#
ASSEMB    9-18     9-18
AX0.15   14-309#  17-230   18-132   18-151   18-171   18-190   18-208   18-228   18-246
AX0.16   14-310#  18-132   18-151   18-171   18-190   18-208   18-228   18-246
AX1      14-92#   14-164#
AX1.15   14-311#  18-132   18-151   18-171   18-190   18-208   18-228   18-246
AX1.16   14-312#  18-132   18-151   18-171   18-190   18-208   18-228   18-246
AX2      14-91#   14-163#
AX2.15   14-313#  18-134   18-153   18-173   18-192   18-210   18-230   18-248
AX2.16   14-314#  18-134   18-153   18-173   18-192   18-210   18-230   18-248
AX3.15   14-315#  18-134   18-153   18-173   18-192   18-210   18-230   18-248
AX3.16   14-316#  18-134   18-153   18-173   18-192   18-210   18-230   18-248
AX315U   14-259#
AXNUM    15-33#   17-147   17-185   17-198   17-223   17-225   17-231*  17-237*  17-238   17-240*  17-242   17-433   17-441*  17-484*
         17-648   17-654*  17-683*  17-689*  17-966   17-968*  17-976*  17-987*  17-;14   17-;28*  17-<77*  17-<92   17-<95*  17-=08*
         17-=12*  26-403*  26-431*  26-434*  26-446*  26-815*  26-;06*  26-;52*  26-<28*  26-<81*  26-@24*
BADDAT   15-75#   17-820*  17-821*  17-842*  17-843*  18-111   18-126   18-165   18-222   26-352*  26-361*  26-468*  26-745*  26-769*
         26-793*  26-=91*  26->31*  26-@89*  26-@99*  26-A10*  26-A18*
BAUDRT   27-23    27-35#
BCC      14-140#  17-846   17-848   17-854
BCCCHK   14-324#  17-844   26-<64   26-<72   26-=17   26-=25   26-F16   26-F70
BDRATE   15-67#   17-;48   17-<03   21-75*
BIT0     14-20#   14-42    14-54    14-63    14-92    14-104   14-116   14-128   14-140   14-152   14-164   14-176   14-188   14-200
         14-212   14-221   14-233   14-246   14-258   14-269   14-342   17-225   17-266   17-395   17-575   17-616   17-656   21-45
         26-<70   26-=23
BIT00    14-20    14-20#
BIT01    14-20    14-20#
BIT02    14-20    14-20#
BIT03    14-20    14-20#
BIT04    14-20    14-20#
BIT05    14-20    14-20#
BIT06    14-20    14-20#
BIT07    14-20    14-20#
BIT08    14-20    14-20#
BIT09    14-20    14-20#
BIT1     14-20#   14-41    14-53    14-62    14-81    14-91    14-103   14-115   14-127   14-139   14-151   14-163   14-175   14-187
         14-199   14-211   14-220   14-232   14-245   14-257   14-268   14-343   17-282   17-559   17-670
BIT10    14-20#   14-279   14-291
BIT11    14-20#   14-278   14-290
BIT12    14-20#
BIT13    14-20#
BIT14    14-20#
BIT15    14-20#   14-322   14-324   14-325   14-327   17-363   17-517
BIT2     14-20#   14-40    14-52    14-61    14-80    14-90    14-102   14-114   14-126   14-138   14-150   14-162   14-174   14-186
         14-198   14-210   14-219   14-231   14-244   14-256   14-267
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(ROSS 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 17-814 17-815
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* 17-32* 17-33* 17-38* 17-126* 17-128* 17-229* 17-367* 17-368* 17-370* 17-460*
      17-461* 17-466* 17-479* 17-982* 17-984* 17-;27* 17-<79* 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# 17-64 17-85*
C$AU 9-18# 25-10
C$AUTO 9-18# 22-20
C$BRK 9-18# 21-86
C$BSEG 9-18#
C$BSUB 9-18# 26-510 26-539 26-593 26-620 26-726 26-754 26-778 26-;08 26-;54 26-<30 26-<83 26-@82 26-A26
      26-A45 26-A63 26-A73 26-A98 26-B16 26-B33 26-B52 26-B69
C$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$ERDF 9-18# 17-272 17-278 17-288 17-294 17-401 17-407 17-565 17-571 17-581 17-587 17-622 17-628 17-662
      17-668 17-676 17-682 17-828 17-833 17-852 17-858 17-867 17-873 17-882 17-888 17-897 17-903 17-<49
      17-<65 17-_01 17-=07 26-105 26-145 26-224 26-251 26-364 26-419 26-458 26-471 26-748 26-772 26-796
      26-;37 26-;43 26-;83 26-;89 26-=72 26-=94 26->34 26->49 26->99 26-?49 26-@92 26-A02 26-A37 26-A56
      26-A85 26-A91 26-B09 26-B26 26-B45 26-B62 26-B79 26-B85 26-B91 26-C42 26-C96 26-D50 26-E04 26-E58
      26-F11 26-F65 26-G71 26-G83 26-H45
C$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 26-750 26-774 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)

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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$PNTF    9-18#   17-;56  17-;61  17-;70  21-85   21-90   24-12   26-737  26-739  26-763  26-787  26-823  26-825
C$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-<92#
CHPCHK    14-322#  26-672  26-979  26-:14  26-:49
CHI TYP   15-46#   17-364  17-474*  17-478*  17-518  21-13*  26-436  26-442
CKDATA    17-805#  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-;13#  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#  17-948  17-:63  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-A81
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
          26-<52  26-<87  26-:05  26-=57  26->22  26->84  26-?34  26-?81  26-@14  26-A15  26-A17  26-C80  26-E42  26-E96
          26-F50  26-G44
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CROSS REFERENCE TABLE (CREF V01-05)

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DEVMAP  15-49#  21-40*  21-56*
DEVPTR  15-50#  21-45*  21-54*  21-56  21-57*
DFPTBL  12-9#
DH1     18-85#  18-110  18-145  18-202  18-221
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     17-224  18-89#
DH6     17-227  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#  17-150  17-187  17-201  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
DTR     14-76#  14-146#  17-<69  26-A76  26-A81
ESEND    9-18#
ESLOAD   9-18#  10-17
EBLK    14-139#  17-861  17-863  17-869
EF.CON  14-20#  21-34
EF.NEW  14-20#  21-31
EF.PWR  14-20#
EF.RES  14-20#  21-28
EF.STA  14-20#  21-25
EM10    17-294  18-36#
EM11    17-401  18-37#  26-419
EM12    17-407  18-38#
EM17    17-565  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    17-571  18-40#
EM19    17-581  18-41#
EM2     18-31#  26-A02
EM20    17-587  18-42#
EM21    17-622  18-43#
EM22    17-628  18-44#
EM28    17-668  18-45#
EM29    17-662  18-46#
EM3     18-32#  26-=94  26-@92
EM30    17-682  18-47#
EM31    17-676  17-=07  18-48#  26-458
EM34    17-833  18-49#
EM35    17-852  18-50#
EM36    17-858  18-51#
EM37    17-867  18-52#
EM38    17-873  18-53#
EM39    17-882  18-54#  26-224  26-251
EM40    17-888  17-=01  18-55#
EM41    17-897  18-56#  26-105  26-145
EM42    17-903  18-57#
EM43    18-58#  26-748
EM44    18-59#  26-772
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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EM52    17-<49  18-67#  26-B45
EM53    17-<65  18-68#
EM54    17-828  18-69#
EM55    18-70#  26-A85
EM56    18-71#  26-A37
EM57    18-72#  26-A91
EM58    18-73#  26-B26
EM59    18-74#  26-B62
EM60    18-75#  26-B79  26-G71  26-G83
EM61    18-76#  26-B85
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     17-272  18-33#
EM8     17-278  18-34#
EM9     17-288  18-35#
ENAX    14-90#  14-162#  17-149  17-200
ENDIT   21-35   21-98#
ENDPAT  15-210#  26-567
EOM     14-62#
ERR1    18-101#
ERR10   18-237#  26-458
ERR2    18-107#  26-364  26-748  26-772  26-796  26-@92  26-A02
ERR3    18-122#  26-471  26-=94
ERR4    17-272  17-278  17-288  17-294  17-401  17-407  17-565  17-571  17-581  17-587  17-622  17-628  17-828  17-<49
        17-<65  18-141#
ERR5    18-160#
ERR6    17-662  17-668  17-676  17-682  17-=01  17-=07  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    17-833  17-852  17-858  17-867  17-873  17-882  17-888  17-897  17-903  18-217#
ERRFLG  15-23#
ERROR1  15-42#  17-145*  17-158*  17-183*  17-209*  21-14*
EVL     14-20#
F$AU     9-18#  25-9  25-10
F$AUTO   9-18#  22-8  22-20
F$BGN    9-18#  9-24  18-101  18-107  18-122  18-141  18-160  18-180  18-199  18-217  18-237  19-9  20-8  21-8
        22-8  23-8  24-8  25-9  26-20  26-46  26-65  26-147  26-173  26-253  26-267  26-284  26-299  26-317
        26-332  26-366  26-384  26-480  26-506  26-510  26-510  26-533  26-539  26-539  26-565  26-570  26-589  26-593
        26-593  26-616  26-620  26-620  26-643  26-644  26-663  26-695  26-722  26-726  26-726  26-750  26-754  26-754
        26-774  26-778  26-778  26-798  26-799  26-812  26-827  26-850  26-944  26-969  26-:77  26-;02  26-;08  26-;08
        26-;38  26-;44  26-;48  26-;54  26-;54  26-;84  26-;90  26-;94  26-;96  26-<24  26-<30  26-<30  26-<77  26-<83
        26-<83  26-=30  26-=32  26-=48  26-_96  26->13  26->58  26->75  26-?08  26-?25  26-?58  26-?76  26-?94  26-@09
        26-@42  26-@73  26-@82  26-@82  26-@93  26-A03  26-A21  26-A26  26-A26  26-A38  26-A40  26-A45  26-A45  26-A58
        26-A63  26-A63  26-A68  26-A73  26-A73  26-A86  26-A93  26-A98  26-A98  26-B11  26-B16  26-B16  26-B28  26-B33
        26-B33  26-B47  26-B52  26-B52  26-B64  26-B69  26-B69  26-B80  26-B86  26-B93  26-B97  26-C17  26-C51  26-C71
        26-D05  26-D25  26-D59  26-D79  26-E13  26-E33  26-E67  26-E87  26-F21  26-F41  26-F75  26-F92  26-G18  26-G37
        26-H72  27-14  28-13  28-45
F$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  9-18#  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)

	26-317	26-317	26-332	26-332	26-332	26-366	26-366	26-384	26-384	26-384	26-480	26-480	26-506	26-506
	26-506	26-510	26-510	26-533	26-533	26-539	26-539	26-565	26-565	26-570	26-570	26-589	26-589	26-589
	26-593	26-593	26-616	26-616	26-620	26-620	26-643	26-643	26-644	26-644	26-663	26-663	26-663	26-695
	26-695	26-722	26-722	26-722	26-726	26-726	26-750	26-750	26-754	26-754	26-774	26-774	26-778	26-778
	26-798	26-798	26-799	26-799	26-812	26-812	26-812	26-827	26-827	26-850	26-850	26-850	26-944	26-944
	26-969	26-969	26-969	26-:77	26-:77	26-;02	26-;02	26-;02	26-;08	26-;08	26-;38	26-;44	26-;48	26-;48
	26-;54	26-;54	26-;84	26-;90	26-;94	26-;94	26-;96	26-;96	26-<24	26-<24	26-<24	26-<30	26-<30	26-<77
	26-<77	26-<83	26-<83	26-=30	26-=30	26-=32	26-=32	26-=48	26-=48	26-=48	26-=96	26-=96	26->13	26->13
	26->13	26->58	26->58	26->75	26->75	26->75	26-?08	26-?08	26-?25	26-?25	26-?25	26-?58	26-?58	26-?76
	26-?76	26-?76	26-?94	26-?94	26-@09	26-@09	26-@09	26-@42	26-@42	26-@73	26-@73	26-@73	26-@82	26-@82
	26-@93	26-A03	26-A21	26-A21	26-A26	26-A26	26-A38	26-A40	26-A40	26-A45	26-A45	26-A58	26-A58	26-A63
	26-A63	26-A68	26-A68	26-A73	26-A73	26-A86	26-A93	26-A93	26-A98	26-A98	26-B11	26-B11	26-B16	26-B16
	26-B28	26-B28	26-B33	26-B33	26-B47	26-B47	26-B52	26-B52	26-B64	26-B64	26-B69	26-B69	26-B80	26-B86
	26-B93	26-B93	26-B97	26-B97	26-C17	26-C17	26-C17	26-C51	26-C51	26-C71	26-C71	26-C71	26-D05	26-D05
	26-D25	26-D25	26-D25	26-D59	26-D59	26-D79	26-D79	26-D79	26-E13	26-E13	26-E33	26-E33	26-E33	26-E67
	26-E67	26-E87	26-E87	26-E87	26-F21	26-F21	26-F41	26-F41	26-F41	26-F75	26-F75	26-F92	26-F92	26-F92
	26-G18	26-G18	26-G37	26-G37	26-G37	26-H72	26-H72	27-25	28-20	28-45				
F$SHARD	9-18#	27-14	27-25											
F$SHW	9-18#	12-9	12-23											
F$INIT	9-18#	21-8	21-99											
F$JMP	9-18#													
F$MOD	9-18#	9-24	28-45											
F$MSG	9-18#	18-101	18-103	18-107	18-116	18-122	18-135	18-141	18-154	18-160	18-174	18-180	18-193	18-199
	18-211	18-217	18-231	18-237	18-249									
F$PROT	9-18#	20-8	20-12											
F$PWR	9-18#													
F$RPT	9-18#	19-9	19-11											
F$SEG	9-18#													
F$SOFT	9-18#	28-13	28-20											
F$SRV	9-18#													
F$SUB	9-18#	26-510	26-533	26-539	26-565	26-593	26-616	26-620	26-643	26-726	26-750	26-754	26-774	26-778
	26-798	26-;08	26-;48	26-;54	26-;94	26-<30	26-<77	26-<83	26-=30	26-@82	26-A21	26-A26	26-A40	26-A45
	26-A58	26-A63	26-A68	26-A73	26-A93	26-A98	26-B11	26-B16	26-B28	26-B33	26-B47	26-B52	26-B64	26-B69
	26-B93													
F$SW	9-18#	13-8	13-15											
F$TEST	9-18#	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	26-570	26-589	26-644	26-663	26-695	26-722	26-799	26-812	26-827	26-850	26-944	26-969
	26-:77	26-;02	26-;96	26-<24	26-<32	26-=48	26-=96	26->13	26->58	26->75	26-?08	26-?25	26-?58	26-?76
	26-?94	26-@09	26-@42	26-@73	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					
FMT1	18-9#	18-102	18-108	18-123	18-143	18-161	18-182	18-200	18-219	18-238				
FMT10	18-18#	18-142	18-181	18-218										
FMT11	18-19#	18-162												
FMT12	18-20#	26-739												
FMT13	18-21#	26-763												
FMT14	18-22#	26-787												
FMT15	18-23#	26-825												
FMT16	21-85	21-101#												
FMT17	21-90	21-103#												
FMT18	18-24#	26-737	26-823											
FMT19	17-;61	18-25#												
FMT2	18-10#	18-109	18-124	18-144	18-163	18-183	18-201	18-220	18-239					
FMT25	17-;56	18-26#												
FMT26	17-;70	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

CROSS REFERENCE TABLE (CREF V01-05)

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FMT5    18-13#  18-113  18-128  18-132  18-147  18-151  18-167  18-171  18-186  18-190  18-204  18-208  18-224  18-228
        18-242  18-246
FMT6    18-14#  18-115  18-130  18-134  18-149  18-153  18-169  18-173  18-188  18-192  18-206  18-210  18-226  18-230
        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
FRSPAS  15-38#  21-43*  26-731  26-758  26-782  26-817
FRSTIM  15-37#  21-16   21-23*
G$CNTO   9-18#
G$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
G$OFSI   9-18#  21-94   27-16   27-17   27-18   27-19   27-20   27-21   27-22   27-23   28-15   28-16   28-17   28-18
G$PRMA   9-18#  27-16   27-17
G$PRMD   9-18#  27-18   27-19   27-20   27-21   27-22   27-23   28-18
G$PRML   9-18#  21-94   28-15   28-16   28-17
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$RADO   9-18#  27-16   27-17   27-18   27-19   27-20   27-21   27-22   27-23   28-18
G$XFER   9-18#
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
GETALL  17-222#  17-270  17-276  17-286  17-292  17-399  17-405  17-563  17-569  17-579  17-585  17-620  17-626  17-660
        17-666  17-674  17-680  17-826  17-831  17-850  17-856  17-865  17-871  17-880  17-886  17-895  17-901  17-<47
        17-<63  17-<99  17-=05  26-103  26-143  26-222  26-249  26-362  26-417  26-456  26-469  26-746  26-770  26-794
        26-;35  26-;41  26-;81  26-;87  26-=70  26-=92  26->32  26->47  26->97  26-?47  26-@90  26-A00  26-A35  26-A54
        26-A83  26-A89  26-B07  26-B24  26-B43  26-B60  26-B77  26-B83  26-B89  26-C40  26-C94  26-D48  26-E02  26-E56
        26-F09  26-F63  26-G69  26-G81  26-H43
GETPRM  21-36   21-48#  21-55
GETREG  17-99#  17-228
GOAH    14-60#
GOODAT  15-34#  17-818*  17-819*  17-840*  17-841*  18-111  18-126  18-165  18-222  26-351*  26-465*  26-466*  26-467*  26-744*
        26-768*  26-792*  26-=90*  26->30*  26-@88*  26-@98*  26-A09*  26-A17*
HDX     14-78#  14-148#  26-=87  26-?82  26-@18  26-B18  26-B2?
HELP     9-4#   10-9     10-19   11-10   16-24
HOE     14-20#
ISAU     9-18#  25-9#   25-10#
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#
ISMSG    9-18#  18-101#  18-103#  18-107#  18-116#  18-122#  18-135#  18-141#  18-154#  18-160#  18-174#  18-180#  18-193#  18-199#
        18-211#  18-217#  18-231#  18-237#  18-249#
ISPROT   9-18#  20-8#
ISPTAB   9-18#
ISPWR    9-18#
ISRPT    9-18#  19-9#   19-1'#
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CROSS REFERENCE TABLE (CREF V01-05)

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        26-663  26-722  26-726  26-754  26-778  26-812  26-850  26-969  26-;02  26-;08  26-;54  26-<24  26-<30  26-<83
        26-=48  26->13  26->75  26-?25  26-?76  26-@09  26-@73  26-@82  26-A26  26-A45  26-A63  26-A73  26-A98  26-B16
        26-B33  26-B52  26-B69  26-C17  26-C71  26-D25  26-D79  26-E33  26-E87  26-F41  26-F92  26-G37
I$SETU   9-18#
I$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  26-722  26-726  26-726# 26-750  26-750# 26-750# 26-754  26-754# 26-774  26-774# 26-774#
        26-778  26-778# 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#
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        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#
        26-A58  26-A58# 26-A58# 26-A63  26-A63# 26-A68  26-A68# 26-A68# 26-A73  26-A73# 26-A86  26-A93  26-A93# 26-A93#
        26-A98  26-A98# 26-B11  26-B11# 26-B11# 26-B16  26-B16# 26-B28  26-B28# 26-B28# 26-B33  26-B33# 26-B47  26-B47#
        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
        26-253# 26-253# 26-267  26-267# 26-284  26-284# 26-284# 26-299  26-299# 26-317  26-317# 26-317# 26-332  26-332#
        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-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-;18  17-;37  17-;74  17-;90  17-;92  17-;97  17-<20  26-=54  26->19  26->81  26-?30
IACT    14-134# 17-618  17-624
IACTIV  17-608# 17-735  17-756  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# 17-577  17-583  26-A15  26-A17
IDL     14-243#
IDLE    14-99#  26-271
IDU     14-20#
IER     14-20#
IERR    14-103# 17-780  17-786
INITRN  17-431# 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-;18  17-;33  17-;50  17-;64  17-<14  26-=53  26->19  26->81  26-?31
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        26-F59
ISIRDY  17-551# 17-737  17-750  17-754  17-758  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#
JSJMP    9-18#
LSACP   10-17#
LSAPI   10-17#
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CROSS REFERENCE TABLE (CREF V01-05)

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L$EXP5   10-17#
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L$HPTP   10-17#
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L$LOAD   10-17#
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L$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#
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L$TEST   10-17#
L$TIML   10-17#
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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#
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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#
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L10042  26-774#
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L10060  26-?58#
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L10066  26-A58#
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L10070  26-A86   26-A93#
L10071  26-B11#
L10072  26-B28#
L10073  26-B47#
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L10077  26-D05#
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CROSS REFERENCE TABLE (CREF V01-05)

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L10105  26-G18#
L10106  26-H72#
L10107  27-14    27-25#
L10110  28-13    28-20#
LDBYTS  17-:25#  26-25   26-:13  26-:59  26-<38  26-<91  26-G45  26-G51
LDMSG1  17-:50#  26-=60  26->37  26->87  26-?37
LDTXSI  17-338#  17-451  17-452  17-510  17-943  17-950  17-951  17-:07  17-:33  17-:83  26-29   26-30
LOADAT  15-36#   18-162
LODATA  17-931#  26-C29  26-C83  26-D37  26-D91  26-E45  26-E99  26-F53
LODMSG  17-:00#  17-:55  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  17-934   17-:52  17-:79#  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
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LOGDEV  15-17#   21-42*  21-49*  21-50   21-52   22-17   24-12
LOOPBK  27-22    27-33#
LOOPIN  17-125#
LOT     14-20#
LU2MOD   9-24#
LULOOP  14-39#   17-58   17-229  17-367  17-460  17-982  17-984  17-;27  17-<79  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#  17-101  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*  26-742  26-744
LUSWI2  15-64#   21-72*  26-766  26-768
LUSWI3  15-65#   21-73*  26-790  26-792
MAINT1  14-79#   17-<38  26-B35
MAINT2  14-80#   17-;78  17-<09  17-<54  26-A76
MCLK    14-175#  26-A14
MCLR    14-37#   17-32   17-33
MIFLAG  13-10#   21-78
MODINT  15-47#   17-;18*  17-;50*  17-;79*  17-;83*  17-;90*  17-<06*  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   26-737
        26-823
MPIVEC  15-60#   21-66*
MPOVEC  15-61#   21-67*  21-68*
MPRIOR  15-62#   21-69*
MSG1    15-219#  17-:56  17-:58  17-:61  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#   17-436  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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CROSS REFERENCE TABLE (CREF V01-05)

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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#  17-60
MVIXO   14-337#  17-82
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#  17-397  17-403  17-464  26-412
OACTIV  17-387#  17-439  17-456  17-471  17-521  26-?81
OC      14-59#   14-121#
OCOR    14-172#  17-284  17-290  17-476
OP      14-257#  14-259  17-;18  26-=54  26->19  26->81  26-?31
ORDY    14-124#  17-268  17-274
OSIRDY  17-258#  17-437  17-454  17-481  17-525  17-531  26-?89
OVRR    14-137#  17-891  17-893  17-899  26-101  26-141
PATA    15-124#  17-939  26-G46  26-G52  26-G90  26-H12
PATB    15-147#  17-944  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#   26-733  26-760  26-784  26-819
PSTACK  15-18#   17-296  17-409  17-589  17-630  17-684  17-912  17-=09  21-10*
R14NRW  15-110#
RAB     14-138#  17-876  17-878  17-884  26-220  26-247
RABT    14-198#  17-<97
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        26-825
RAX16   15-29#   17-166*  17-167*  17-235  17-658  17-664  17-672  17-678  17-<97  17-=03  26-449  26-460  26-468
RCV1ST  17-724#  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#  17-938   17-:59  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#  17-149
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CROSS REFERENCE TABLE (CREF V01-05)

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READAX  17-143#  17-232   17-655   17-;29   17-<96   26-448   26-816
READLU  17-52#   17-103   17-153   17-161   17-165   17-204   17-265   17-281   17-394   17-463   17-475   17-558   17-574   17-615
        17-702   17-706   17-745   17-823   17-<42   17-<58   26-411   26-729   26-757   26-781   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#  17-154   17-205
REDBYT  15-26#   17-64*   17-65*   17-104   17-154   17-162   17-166   17-205   17-268   17-274   17-284   17-290   17-397   17-403
        17-464   17-476   17-561   17-567   17-577   17-583   17-618   17-624   17-703   17-707   17-746   17-824   17-<43   17-<59
        26-412   26-730*  26-739   26-742   26-745   26-763   26-766   26-769   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#   17-54    17-80    17-100   17-102*  17-106*  17-107   17-109*  17-144   17-146*  17-160*  17-164*  17-168*  17-182
        17-184*  17-189*  17-193*  17-197*  17-210*  17-258   17-264*  17-280*  17-295*  17-301*  17-338   17-340*  17-343*  17-346*
        17-387   17-393*  17-408*  17-414*  17-432   17-447*  17-459*  17-473*  17-485*  17-551   17-557*  17-573*  17-588*  17-594*
        17-608   17-614*  17-629*  17-635*  17-700   17-701*  17-705*  17-708*  17-726   17-729*  17-761*  17-777   17-778*  17-789*
        17-806   17-822*  17-830*  17-836*  17-911*  17-916*  17-967   17-972*  17-986*  17-;13   17-<35*  17-<40*  17-<56*  17-<68*
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        26-G38*
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RRDYTO  14-342#  17-145   17-158
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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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CROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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        26-A63   26-A73   26-A98   26-B16   26-B33   26-B52   26-B69   26-C17   26-C17   26-C17#  26-C71   26-C71   26-C71#  26-D25
        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#
        26-F92   26-F92   26-F92#  26-G37   26-G37   26-G37#  28-47
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        17-668   17-676   17-682   17-828   17-833   17-852   17-858   17-867   17-873   17-882   17-888   17-897   17-903   17-;56
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        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   26-3o6   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
        26-726   26-737   26-739   26-748   26-750   26-754   26-763   26-772   26-774   26-778   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-A37   26-A38   26-A40   26-A45   26-A56   26-A58   26-A63   26-A68   26-A73   26-A85   26-A86   26-A91   26-A93   26-A98
        26-B09   26-B11   26-B16   26-B26   26-B28   26-B33   26-B45   26-B47   26-B52   26-B62   26-B64   26-B69   26-B79   26-B80
        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
T$TSTS   9-18#   26-20#   26-65#   26-173#  26-267#  26-299#  26-332#  26-384#  26-506#  26-589#  26-663#  26-722#  26-812#  26-850#
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T10      11-8     26-663#
T11      11-8     26-722#
T11.1    26-726#
T11.2    26-754#
T11.3    26-778#
T12      11-8     26-812#
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T15      11-8     26-;02#
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T15.2    26-;54#
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CROSS REFERENCE TABLE (CREF V01-05)

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T23.2     26-A26#
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      26-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#
TCCHEK    14-327#   17-;19    26-@77
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-;18    26-*54    26->19    26->81    26-?31
TESTMD    14-174#   17-<43    17-<59    26-B41
TIMCNT    28-18     28-25#
TIMFLG    15-24#
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TMP1      15-91#    17-242*   17-243*   18-125    18-164    18-184    18-240
TMP2      15-92#
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TMP5      15-95#
TMP6      15-96#
TMP7      15-97#
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CROSS REFERENCE TABLE (CREF V01-05)

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TX3      14-51#   14-209#
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TX6      14-48#   14-206#
TX7      14-47#   14-205#
TXAB     14-219#
TXABT    14-279#  15-242
TXCHAR   17-505#  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   17-949   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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TXSOM    14-281#  15-219   15-220   15-231   15-232   15-243   15-244   17-443   17-935   17-:53   26-<36   26-<89   26-G58
TXWORD   15-43#   17-339*  17-341   17-344   17-443*  17-444*  17-509*  17-940*  17-941*  17-942   17-949*  17-:06*  17-:31*  17-:32*
         17-:80*  26-28*
TYPEV    21-94    21-104#
UAM      14-20#
UNIT     15-51#
UNRR     14-128#  17-824
UPBITS   15-100#
V35      14-254#  14-259   17-;18   17-;35   17-;79   17-;81   17-;83   17-<17   26-=54   26->18   26->81   26-?31
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WAX15    15-30#   17-190*  17-191   17-442*  17-444   17-969*  17-978*  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#  17-183   17-209
WRIBYT   15-27#   17-84*   17-85    17-147*  17-148*  17-149*  17-150*  17-185*  17-186*  17-187*  17-191*  17-195*  17-198*  17-199*
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XSALWA    9-18#
XSFALS    9-18#
XSOFFS    9-18#
XSTRUE    9-18#
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CROSS REFERENCE TABLE (CREF V01-05)

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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  26-722  26-812
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         26-D79  26-E33  26-E87  26-F41  26-F92  26-G37
BNCOMP   1-266#  9-16#
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
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        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
ERRHRD   1-718#  9-18#
ERROR    1-722#  9-18#
ERRSF    1-726#  9-18#
ERRSOF   1-730#  9-18#
ERRTBL   1-734#  9-18#
ESCAPE   1-744#  9-18#  26-;38  26-;44  26-;84  26-;90  26-@93  26-A03  26-A38  26-A86  26-B80  26-B86
EXIT     1-;71#  9-18#
FEQUAL   1-810#  9-18#
GETBYT   1-824#  9-18#
GETPRI   1-834#  9-18#
GETWOR   1-829#  9-18#
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GMANID   1-848#  9-18#
GMANIL   1-859#  9-18#  21-94
GPHARD   1-868#  9-18#  21-52
GPRMA    1-874#  9-18#  27-16  27-17
GPRMD    1-903#  9-18#  27-18  27-19  27-20  27-21  27-22  27-23  28-18
GPRML    1-934#  9-18#  21-94  21-94#  28-15  28-16  28-17
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INLOOP   1-962#  9-18#
IOSETU   1-966#  9-18#
IOSTAR   1-974#  9-18#
KT11     1-982#  9-18#
LASTAD   1-;47#  9-18#  28-47
MSBYTE   1-D00#  9-18#  10-17  10-17  10-17  10-17#
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MSCNTO   1-E82#  9-18#  21-94  21-94#  27-16  27-16#  27-17  27-17#  27-18  27-18#  27-19  27-19#  27-20  27-20#
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(ROSS REFERENCE TABLE (CREF V01-05)

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CROSS REFERENCE TABLE (CREF V01-05)

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                18-174   18-174#  18-193   18-193#  18-211   18-211#  18-231   18-231#  18-249   18-249#  19-11    19-11#   20-12    20-12#
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                26-A93   26-A93#  26-B11   26-B11#  26-B28   26-B28#  26-B47   26-B47#  26-B64   26-B64#  26-B93   26-B93#  26-B97   26-B97#
                26-C51   26-C51#  26-D05   26-D05#  26-D59   26-D59#  26-E13   26-E13#  26-E67   26-E67#  26-F21   26-F21#  26-F75   26-F75#
                26-G18   26-G18#  26-H72   26-H72#  27-25    27-25#   28-20    28-20#   28-45    28-45#
MSPRIN           1-@36#   9-18#   17-;56   17-;56#  17-;61   17-;61#  17-;70   17-;70#  18-102   18-102#  18-108   18-108#  18-109   18-109#
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(ROSS REFERENCE TABLE (CREF V01-05)

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	26-726	26-726#	26-754	26-754#	26-778	26-778#	26-812	26-812#	26-850	26-850#	26-969	26-969#	26-;02	26-;02#
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	26->75	26->75#	26-?25	26-?25#	26-?76	26-?76#	26-@09	26-@09#	26-@73	26-@73#	26-@82	26-@82#	26-A26	26-A26#
	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#
	26-B69	26-B69#	26-C17	26-C17#	26-C71	26-C71#	26-D25	26-D25#	26-D79	26-D79#	26-E33	26-E33#	26-E87	26-E87#
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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-=96#  26->34  26->34#  26->49  26->49#  26->49#  26->58  26->58#  26->99  26->99#  26->99#  26-?08  26-?08#
        26-?49  26-?49#  26-?49#  26-?58  26-?58#  26-?94  26-?94#  26-@42  26-@42#  26-@82  26-@82#  26-@92  26-@92#  26-@92#
        26-@93  26-@93#  26-A02  26-A02#  26-A02#  26-A03  26-A03#  26-A21  26-A21#  26-A26  26-A26#  26-A37  26-A37#  26-A37#
        26-A38  26-A38#  26-A40  26-A40#  26-A45  26-A45#  26-A56  26-A56#  26-A56#  26-A58  26-A58#  26-A63  26-A63#  26-A68
        26-A68#  26-A73  26-A73#  26-A85  26-A85#  26-A85#  26-A86  26-A86#  26-A91  26-A91#  26-A91#  26-A93  26-A93#  26-A98
        26-A98#  26-B09  26-B09#  26-B09#  26-B11  26-B11#  26-B16  26-B16#  26-B26  26-B26#  26-B26#  26-B28  26-B28#  26-B33
        26-B33#  26-B45  26-B45#  26-B45#  26-B47  26-B47#  26-B52  26-B52#  26-B62  26-B62#  26-B62#  26-B64  26-B64#  26-B69
        26-B69#  26-B79  26-B79#  26-B79#  26-B80  26-B80#  26-B85  26-B85#  26-B85#  26-B86  26-B86#  26-B91  26-B91#  26-B91#
        26-B93  26-B93#  26-B97  26-B97#  26-C42  26-C42#  26-C42#  26-C51  26-C51#  26-C96  26-C96#  26-C96#  26-D05  26-D05#
        26-D50  26-D50#  26-D50#  26-D59  26-D59#  26-E04  26-E04#  26-E04#  26-E13  26-E13#  26-E58  26-E58#  26-E58#  26-E67
        26-E67#  26-F11  26-F11#  26-F11#  26-F21  26-F21#  26-F65  26-F65#  26-F65#  26-F75  26-F75#  26-G18  26-G18#  26-G71
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CROSS REFERENCE TABLE (CREF V01-05)

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        11-8     11-8     11-8     11-8     11-8     11-8     11-8     11-8     11-8     11-8#    17-272   17-272   17-272   17-272#
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        17-401   17-401#  17-407   17-407   17-407   17-407#  17-565   17-565   17-565   17-565#  17-571   17-571   17-571   17-571#
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        17-628   17-628#  17-662   17-662   17-662   17-662#  17-668   17-668   17-668   17-668#  17-676   17-676   17-676   17-676#
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        17-852   17-852#  17-858   17-858   17-858   17-858#  17-867   17-867   17-867   17-867#  17-873   17-873   17-873   17-873#
        17-882   17-882   17-882   17-882#  17-888   17-888   17-888   17-888#  17-897   17-897   17-897   17-897#  17-903   17-903
        17-903   17-903#  17-<49   17-<49   17-<49   17-<49#  17-<65   17-<65   17-<65   17-<65#  17-=01   17-=01   17-=01   17-=01#
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        26-145   26-145#  26-224   26-224   26-224   26-224#  26-251   26-251   26-251   26-251#  26-364   26-364   26-364   26-364#
        26-419   26-419   26-419   26-419#  26-458   26-458   26-458   26-458#  26-471   26-471   26-471   26-471#  26-748   26-748
        26-748   26-748#  26-772   26-772   26-772   26-772#  26-796   26-796   26-796   26-796#  26-;37   26-;37   26-;37   26-;37#
        26-;43   26-;43   26-;43   26-;43#  26-;83   26-;83   26-;83   26-;83#  26-;89   26-;89   26-;89   26-;89#  26-=72   26-=72
        26-=72   26-=72#  26-=94   26-=94   26-=94   26-=94#  26->34   26->34   26->34   26->34#  26->49   26->49   26->49   26->49#
        26->99   26->99   26->99   26->99#  26-?49   26-?49   26-?49   26-?49#  26-@92   26-@92   26-@92   26-@92#  26-A02   26-A02
        26-A02   26-A02#  26-A37   26-A37   26-A37   26-A37#  26-A56   26-A56   26-A56   26-A56#  26-A85   26-A85   26-A85   26-A85#
        26-A91   26-A91   26-A91   26-A91#  26-B09   26-B09   26-B09   26-B09#  26-B26   26-B26   26-B26   26-B26#  26-B45   26-B45
        26-B45   26-B45#  26-B62   26-B62   26-B62   26-B62#  26-B79   26-B79   26-B79   26-B79#  26-B85   26-B85   26-B85   26-B85#
        26-B91   26-B91   26-B91   26-B91#  26-C42   26-C42   26-C42   26-C42#  26-C96   26-C96   26-C96   26-C96#  26-D50   26-D50
        26-D50   26-D50#  26-E04   26-E04   26-E04   26-E04#  26-E58   26-E58   26-E58   26-E58#  26-F11   26-F11   26-F11   26-F11#
        26-F65   26-F65   26-F65   26-F65#  26-G71   26-G71   26-G71   26-G71#  26-G83   26-G83   26-G83   26-G83#  26-H45   26-H45
        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
MSXFER   1-@82#   9-18#
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-;56   17-;61   17-;70   21-85    21-90    24-12    26-737   26-739   26-763   26-787   26-823   26-825
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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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