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DMV-11 CZDMTF0 AH-EZ38F-MC
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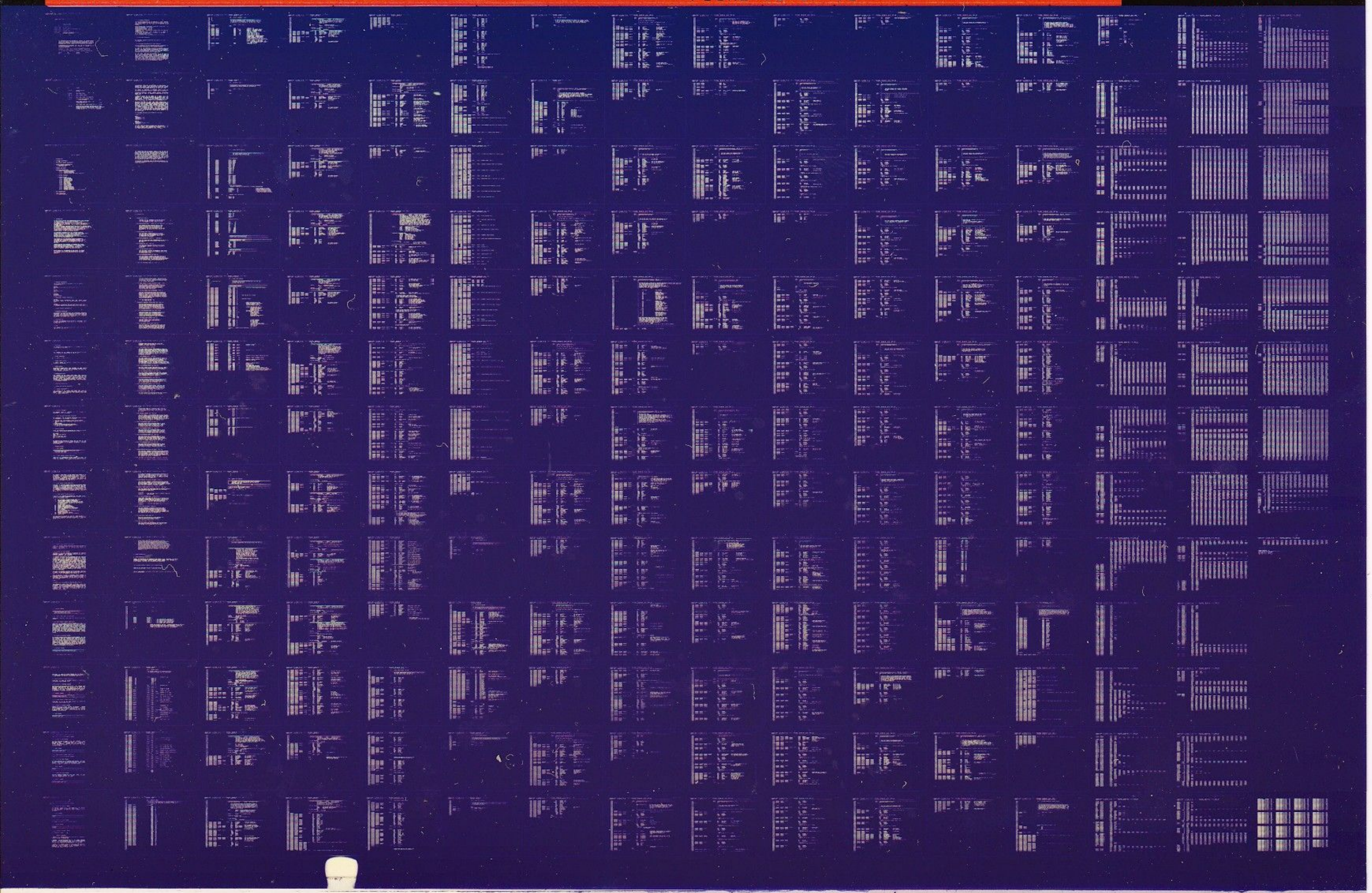

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.TITLE CZDMTFO DMP/V-11 FCTNL TST #1
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IDENTIFICATION

PRODUCT CODE: AC-E237F-MC

PRODUCT NAME: CZDMTFO DMP/V-11 FUNCTIONAL TEST 1

PRODUCT DATE: NOVEMBER 1984

MAINTAINER: MERRIMACK DISTRIBUTED SYSTEMS
SOFTWARE ENGINEERING

HISTORY

REV	DATE	REASON	
A	18-AUG-80	INITIAL RELEASE DMP ONLY	
B	14-JAN-81	DMP11 BUGS FIXED	
C	1-APR-81	DMV11 SUPPORT ADDED	
D	15-FEB-82	DMP11 BUGS FIXED (11/24 RELATED)	
E	1-SEP-83	DMP11 ETCH AND MICROCODE CHANGE (TEST 16 FAILED)	**JPB
		DMP11 CABLE LOOP AND M3254,5 TURN AROUND MODE FAILED.	***JPB
		DMP11 MODEM LOCAL LOOP FAILED TEST 16.	****JPB
F	8-NOV-84	TIMING VALUE IN "WAIT50" ROUTINE WAS TOO SHORT. VALUE (AT LOCATION 4250) WAS 200 DECIMAL, 310 BINARY. CHANGED THE VALUE TO 4000 DECIMAL, 7640 BINARY. REQUIRED BECAUSE THE J-11 IS A FAST PROCESSOR.	

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1.0 INTRODUCTION

THE DMP AND DMV OPTIONS ARE COMMUNICATION OPTIONS THAT IMPLEMENT THE DDCMP PROTOCOL IN A MULTIDROP ENVIRONMENT. THE DMP IS USED WITH UNIBUS SYSTEMS WHILE THE DMV IS A Q BUS OPTION.
THE PURPOSE OF THIS FUNCTIONAL TEST IS TO VERIFY AND EXERCISE THE MICROCODE USED IN THIS OPTION. THIS IS DONE BY PERFORMING THE FOLLOWING TESTS.
CSR ADDRESSING TESTS, ROM VERIFICATION BY CRC TESTS, RUNNING MICRO DIAGNOSTICS, RUNNING INTERFACE DIAGS. (DMP ONLY), CHECKS FOR RDO AND RDI, CHECKS FOR VARIOUS PROCEDURE ERRORS, MODE DEFINITION CHECKS, TEST FOR ALL CONTROL IN COMMANDS AND TESTS FOR ALL CONTROL AND INFORMATION OUT COMMANDS, TRANSMIT, AND RECEIVE MESSAGE TESTS OF VARIOUS LENGTHS, TO AND FROM VARIOUS BUFFERS.

THE FUNCTIONAL DIAGNOSTIC TEST 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 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 DMP/DMV-11
FUNCTIONAL TESTS:

FOR DMP:
PDP-11/04,05,10,20,30,34,35,40,45,50,60, OR 70
DMP-11

FOR DMV:
LSI-11/03,23,23B
DMV-11

FOR BOTH:
16K MEMORY
CONSOLE TERMINAL

3.0 PRELIMINARY PROGRAM REQUIREMENTS

FOR DMP:
THE M8207 STATIC DIAGNOSTICS AND THE M8203 STATIC DIAGNOSTICS SHOULD BE RUN BEFORE RUNNING THIS FUNCTIONAL DIAG.

FOR DMV:
THE M8053/64 MICROCONTROL AND LINE UNIT STATIC LOGIC TESTS (5 PROGRAMS) SHOULD BE RUN BEFORE RUNNING THIS FUNCTIONAL DIAG.

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 TOTAL TIME REQUIRED TO RUN THE DMP-11 FUNCTIONAL TESTS IS ABOUT 120 SECONDS PER PASS (DMP-11) OR ??? SECONDS (DMV-11) 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

IT IS USED IN TX AND RX TESTS.

4.7 MEMORY PARITY OPTION

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

4.8 ERROR LOGGING

THE NUMBER OF ERRORS WHICH HAVE OCCURRED ON EACH DEVICE UNDER TEST SINCE THE LAST START OR RESTART COMMAND IS KEPT IN AN ERROR LOG. THIS LOG MAY BE PRINTED BY USING THE "PRINT" COMMAND (SEE SECTION 6.3.8).

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 WITHOUT READING THE REMAINDER OF THIS DOCUMENT, AS FOLLOWS:

A) LOAD AND START THE DIAGNOSTIC USING THE RUN COMMAND
B) RECEIVE DIAGNOSTIC SUPERVISOR IDENTIFICATION PROMPT (DR)
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 THE PROGRAM IS STARTED, THE FOLLOWING IDENTIFICATION IS TYPED:

```
DRS LOADED
DIAG.  RUN-TIME SERVICES
CZDMT-F-0
DMP/V-11 FUNCTIONAL DIAG.
UNIT IS DMP-11 OR DMV-11
DR>
```

THE OPERATOR THEN PROCEEDS BY TYPING ONE OR MORE OF THE COMMANDS DESCRIBED IN THE FOLLOWING SECTION 6.3. (FOR MORE 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 OCCURRENCE OF AN ERROR WITH THE HALT ON ERROR FLAG BEING SET. THE EXIT IS A RETURN TO COMMAND MODE. SEE EXAMPLE AT END OF 6.3.1.5.

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

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

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

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

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

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

6.3.1.5 EFFECT OF START COMMAND

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

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

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

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

EXAMPLE:

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

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

6.3.2 RESTART COMMAND

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

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

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

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

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

6.3.2.3 EFFECT OF RESTART COMMAND

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

6.3.3 CONTINUE COMMAND

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

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

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

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

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

6.3.3.3 EFFECT OF CONTINUE COMMAND

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

6.3.4 PROCEED COMMAND

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

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

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

6.3.4.2 EFFECT OF PROCEED COMMAND

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

6.3.5 ADD COMMAND

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

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

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

6.3.5.2 EFFECT OF ADD COMMAND

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

6.3.6 DROP COMMAND

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

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

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

6.3.6.2 EFFECT OF DROP COMMAND

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

6.3.7 PRINT COMMAND

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

6.3.7.1 EFFECT OF PRINT COMMAND

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

6.3.8 DISPLAY COMMAND

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

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

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

6.3.8.2 EFFECT OF DISPLAY COMMAND

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

6.3.9 FLAGS COMMAND

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

6.3.9.1 EFFECT OF FLAGS COMMAND

THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.

6.3.10 ZFLAGS COMMAND

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

6.3.10.1 EFFECT OF ZFLAGS COMMAND

ALL FLAGS ARE CLEARED.

6.3.11 CONTROL CHARACTERS

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

A CONTROL Z (Z) ENTERED DURING ONE OF THE THREE OPERATOR DIALOGUES- INITIAL DIALOGUE (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 SUPPRESSED FOR THE REMAINDER OF THE DIAGNOSTIC OR UNTIL ANOTHER O IS TYPED, WHICH RESTORES NORMAL TELETYPE OUTPUT.

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING 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.

```
SELECT OPTION TYPE (0=8207'DMP',1=8053'DMV',2=8064'DMV): (0) 0 ?
DEVICE CSR ADDRESS : (0) 160170 ?
DEVICE VECTOR ADDRESS : (0) 300 ?
DEVICE PRIORITY LEVEL : (0) 5 ?
TURNAROUND  TYPE -(0=H3254H3255,1=CABLE,2=MOD LOC,3=MOD REM,
4=NONE) (0) 0 ?
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;
OR '6' FOR 500K BAUDS (0) 4 ?
SELECT INTERFACE TYPE (1=INTEGRAL,2=EIA,3=V.35,4=422): (0) 2 ?
```

6.3.13 SOFTWARE PARAMETERS

NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY THE DMP/V-11 FUNCTIONAL TEST

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

UNIT 21
<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 16 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 A 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).

TEST DESCRIPTIONS

7.0

7.1 ADDRESS TEST (TEST-1)

VERIFIES THAT ALL ADDRESSES IN THE MCPU RESPOND.
THIS TEST IS USED TO VERIFY THAT THE OPTION
IS AT THE ADDRESS THE USER THINKS IT IS ON.

7.2 ROM VERIFICATION TESTS (TESTS 2-9) (2-7 DMP ONLY....8-9 DMV ONLY)

THIS SERIES OF TESTS VERIFIES THAT ALL ROMS
ARE IN PLACE AND THAT THE THE CONTENTS ARE
CORRECT BY DOING A CRC CALCULATION ON THE
ROM CONTENTS. THE TEST ALSO PRINTS THE REV AND
ROM NUMBER OF THE ROM ON THE FIRST PASS OF THE
TEST.

7.3 INITIALIZATION TEST (TEST 10)

THIS TEST DOES A MASTER CLEAR TO THE DEVICE
AND WAITS FOR THE MICRO-DIAGNOSTICS TO COMPLETE
IF MICRO DIAGS FAIL TO COMPLETE THEN A TIME
OUT ERROR WILL BE REPORTED.

7.4 INTERFACE DIAGNOSTICS (TEST 11) (DMP ONLY)

THIS TEST RUNS ADDITIONAL MICRODIAGNOSTIC CODE IN THE
DMP THAT CHECKS OUT THE INTERRUPT LOGIC AND THE
NPR LOGIC.

7.5 RDI REMAINS SET TEST (TEST 12)

THIS TEST SETS RQI,WAITS FOR RDI TO SET,ISSUES
A "NO REQUEST" CONTROL IN AND LOOKS FOR RDI TO
REMAIN SET.

7.6 TEST FOR RDO SETTING (TEST 13)

THIS TEST DOES A CONTROL IN COMMAND OF "READ MODEM"
AND EXPECTS RDO TO SET WITH AN INFORMATION OUT CODE
OF RETURN MODEM STATUS.

7.7 CHECK FOR PROCEDURE ERROR 100 (TEST 14)

THIS TEST ISSUES A MASTER CLEAR WAITS FOR RUN TO
SET THEN ISSUES A CONTROL IN COMMAND AND EXPECTS
A PROCEDURE ERROR OF 100 "NON MODE DEFINITION COMMAND
AFTER A MASTER CLEAR". UNLESS MODE HAS BEEN DEFINED
IN THE SWITCHES THEN LOOK FOR INFORMATION OUT.

7.8 CHECK FOR PROCEDURE ERROR 104 (TEST 15)

THIS TEST ISSUES A MASTER CLEAR , MODE DEFINITION, FOLLOWED BY A MODE DEF. COMMAND DEFINING A DIFFERENT TYPE OF MODE. THE TEST LOOKS FOR A PROCEDURE ERROR OF 104 "ILLEGAL MODE CHANGE".

7.9 TEST MODE CHANGE OF DUPLEX PORTION OF MODE (TEST 16)

THIS TEST ISSUES A MASTER CLEAR,MODE DEFINITION SEQUENCE(CONTROL STATION/FULL DUPLEX). THE TEST THEN ISSUES A MODE DEF. COMMAND TO CHANGE TO HALF DUPLEX. THEN THE TESTS WAITS AND MAKES SURE NO PROCEDURE ERROR OCCURS.

7.10 TEST FOR MAX TRIBS TO BE ESTABLISHED. (TEST 17)

THIS TEST ESTABLISHES MAX TRIBS THEN ATTEMPTS TO ESTABLISH MAX+1 TRIBS AND CHECKS FOR A PROCEDURE ERROR 114, "ATTEMPT TO ESTABLISH MORE THEN MAXIMUM NUMBER OF TRIBS". THE TEST THEN TRIES TO ESTABLISH A TRIB THAT HAS ALREADY BEEN ESTABLISHED AND CHECKS FOR A PROCEDURE ERROR OF 116 "ATTEMPT TO ESTABLISH ALREADY ESTABLISHED TRIB".

NOTE: MAX TRIBS FOR DMP = 32
MAX TRIBS FOR DMV = 12

7.11 READ/WRITE TRIBUTARY STATUS SLOTS TEST (TEST 18)

THIS TEST WRITES EACH TSS SLOT WITH VARIOUS DATA PATTERNS THEN READS THAT SLOT TO BE SURE THAT THE CORRECT OUTPUT COMMAND AND DATA IS RETURNED. THE SLOTS THAT ARE WRITTEN ARE TRIB STATUS SLOTS 30 THRU 37. THE DATA PATTERNS USED ARE:0,125252,052525,0,-1,377,177400,562:OCTAL.

7.12 TESTS FOR PROCEDURE ERROR 132 (TEST 19-20)

THESE TESTS CHECK THAT A PROCEDURE ERROR OF 132 "ATTEMPT TO WRITE INTO A RESERVED AREA OF THE TRIBUTARY STATUS SLOTS" IS PRODUCED WHEN
A WRITE TSS COMMAND IS ISSUED FOR ADDRESS 4.
A READ/CLEAR TSS COMMAND IS ISSUED FOR ADDRESS 6.

7.13 TEST FOR READ/CLEAR COMMAND (TEST 21)

THIS TEST ISSUES A READ CLEAR COMMAND TO TRIBUTARY STATUS SLOT 7 AND MAKES SURE THAT NO ERRORS OCCUR.

7.14 TESTS FOR GLOBAL STATUS SLOTS (TEST 22)

THIS TEST READS ALL THE GLOBAL STATUS SLOTS THEN WRITES ALL THE GLOBAL SLOTS USING THE ADDRESSES AS DATA THEN READS THEM BACK AND MAKES SURE THE DATA IS CORRECT. THIS TEST ALSO CHECKS FOR THE LIMITS ON THE WRITE TSS COMMAND BY MAKING SURE A

PROCEDURE ERROR OCCURES WHEN THE LIMITS ARE
EXCEEDED. THIS TEST ALSO CHECKS THE READ/CLEAR
COMMAND TO A GLOBAL STATUS SLOT.

7.15 HALT TRIB COMMAND TESTS (TEST 23)

THIS TEST CHECKS THE HALT TRIB COMMAND BY DOING THE
FOLLOWING: MASTER CLEAR;MODE DEF;ESTABLISH TRIB;ISTRT
TRIB;QUE UP REC BUFFER; ISSUE HALT TRIB COMMAND;CHECK
FOR OUTPUT OF REC BUFFER UNUSED;CHECK FOR SECOND OUTPUT
OF BUFFER RETURNED COMPLETE. THE TEST THEN ISSUES A
SECOND HALT TRIB COMMAND AND CHECKS THAT AFTER A DELAY
NO CONTROL OUT OCCURS

7.16 KILL TRIB COMMAND TESTS (TEST 24)

THIS TEST CHECKS THE KILL TRIB COMMAND BY DOING THE
FOLLOWING: MASTER CLEAR; MODE DEF.; ESTABLISH TRIB;
READ TSS SLOT 1 AND COMPARE FOR GOOD ADDRESS;
PUT TRIB IN MAINT STATE;ISSUE KILL TRIB; CHECK FOR
PROCEDURE ERROR 112 "KILL TO UNHALTED TRIB"; HALT TRIB;
KILL TRIB;READ TSS SLOT 1 AND CHECK FOR PROCEDURE ERROR
106 "NON GLOBAL CONTROL IN COMMAND TO UNESTABLISHED TRIB".

7.17 CHECK FOR PROCEDURE ERROR 102 (TEST 25)

THIS TEST ISSUES ILLEGAL TYPE CODES OF 7 6 5 AND 3
AND CHECKS THAT EACH ONE PRODUCES A PROCEDURE ERROR
102 "ILLEGAL TYPE CODE USED IN AN INPUT COMMAND".

7.18 CHECK FOR PROCEDURE ERROR OF 110 (TEST 26)

THIS TEST ISSUES A MASTER CLEAR; MODE DEF; FOLLOWED
BY AN ISTRT TO TRIB ADDRESS OF ZERO. IT THEN CHECKS
FOR A PROCEDURE ERROR OF 110 "ATTEMPT TO PERFORM A NON-
GLOBAL COMMAND FOR TRIBUTARY ADDRESS OF 0".

7.19 CHECK FOR PROCEDURE ERROR OF 120 (TEST 27)

THIS TEST ISSUES A CONTROL IN WITH A REQEST KEY OF
7 AND ALSO A CONTROL IN WITH A REQUEST KEY OF 17
THEN IT CHECKS THAT BOTH CASES GIVE PROCEDURE ERROR
120 "ILLEGAL REQUEST KEY ON CONTROL IN."

7.20 CHECK FOR PROCEDURE ERROR OF 134 (TEST 28)

THIS TEST ISSUES A MASTER CLEAR , MODE DEF, AND
ESTABLISH TRIB SEQUENCE, FOLLOWED BY AN ATTEMPT
TO USE A RESERVED BIT IN BSEL 7 THEN CHECKS THAT
THIS PRODUCES A PROCEDURE ERROR OF 134 "ATTEMPT
TO USE RESERVED BIT IN BSEL 7 ON CONTROL IN "

7.21 LATCH/UNLATCH POLL CHECK (TEST 29)

THIS TEST CHECKS THE LATCH AND UNLATCH POLL COMMANDS
BY DOING THE FOLLOWING SEQUENCE OF COMMANDS:

MASTER CLEAR; MODE DEF; ESTABLISH TRIB; LATCH POLL
TO DEAD STATE; READ TSS SLOT 2 AND CHECK THAT DEAD
BIT IS ON;UNLATCH POLL; READ TSS SLOT 2;CHECK THAT ACTIVE
BIT IS ON.

7.22 SHORT MESSAGE SENDING TEST (TEST 30)

THIS TEST SENDS A 4 BYTE MESSAGE FROM AN EVEN TRANSMIT
BUFFER TO AN EVEN REC BUFFER IN DDCMP FORMAT CONFIGURED
AS A MULTIPOINT CONTROL STATION FULL DUPLEX. THE TEST
CHECKS THAT REC BUFFERS ARE RETURNED AND DATA IS CORRECT
AND THAT THE NEXT OUTPUT IS TRANSMIT BUFFER RETURNED.
THIS TEST IS ALWAYS DONE IN TTL LOOPBACK MODE.

7.23 CHECK FOR PROCEDURE ERROR 122 (TEST 31)

THIS TEST CHECKS FOR A PROCEDURE ERROR OF 122 BY
PERFORMING THE FOLLOWING: MASTER CLEAR ; MODE DEF;
ESTABLISH BUFFER; CHECK FOR ERROR 122 "ATTEMPT
TO ASSIGN A BUFFER FOR AN UNESTABLISHED TRIB".

7.24 CHECK FOR PROCEDURE ERROR 124 (TEST 32)

THIS TEST CHECKS FOR A PROCEDURE ERROR OF 124 BY
PERFORMING THE FOLLOWING: MASTER CLEAR; MODE DEF;
ESTABLISH TRIB;ESTABLISH BUFFER;CHECK FOR ERROR
124 "ATTEMPT TO ASSIGN A BUFFER FOR A HALTED TRIB".

7.25 CHECK FOR PROCEDURE ERROR 126 (TEST 33)

THIS TEST CHECKS FOR A PROCEDURE ERROR OF 126 BY
PERFORMING THE FOLLOWING: MASTER CLEAR; MODE DEF
ESTABLISH TRIB ; PUT TRIB IN MAINT STATE; ESTABLISH
BUFFER WITH 0 BYTE COUNT; LOOK FOR ERROR 126
"ATTEMPT TO ASSIGN A BUFFER WITH A BYTE COUNT OF 0".

7.26 CHECK FOR PROCEDURE ERROR 130 (TEST 34)

THIS TEST CHECKS FOR A PROCEDURE ERROR OF 130 BY
PERFORMING THE FOLLOWING: MASTER CLEAR; MODE DEF;
ESTABLISH TX BUFFER TO TRIB; CHECK FOR ERROR
130 "ATTEMPT TO ASSIGN A TRANSMIT BUFFER FOR TRIB
0".

7.27 TRANSMIT/RECEIVE 256 BYTES,PTP,DDCMP (TEST 35)

THIS TEST WILL TRANSMIT A BUFFER OF 256 BYTES,STARTING
ON AN EVEN BYTE BOUNDRY TO A REC BUFFER STARTING ON AN
EVEN BYTE BOUNDRY. THE MODE DEFINED IS POINT TO POINT
FULL DUPLEX,DDCMP PROTOCOL. IF THERE IS EXTERNAL LOOP
BACK THEN THE TEST WILL BE DONE OVER THAT LOOPBACK;ELSE
THE LOOPBACK WILL BE SET TO INTERNAL(TTL).

7.28 DMV Q22 MODE TX/RX 256 BYTES,DDCMP (TEST 36) * DMV ONLY *

THIS TEST WILL TRANSMIT A BUFFER OF 256 BYTES,STARTING

ON AN EVEN BYTE BOUNDRY TO A REC BUFFER STARTING ON AN
EVEN BOUNDRY. THE MODE DEFINED IS Q22 FORMAT, POINT TO
POINT FULL DUPLEX,DDCMP PROTOCOL. IF THERE IS EXTERNAL
LOOPBACK THEN THE TEST WILL USE IT, OTHERWISE THE LOOP
BACK WILL BE SET TO INTERNAL(TTL).

7.29 TRANSMIT/RECEIVE 255 BYTES,MTP,DDCMP (TEST 37)

THIS TEST WILL TRANSMIT A BUFFER OF 255 BYTES STARTING
ON AN EVEN BYTE ADDRESS TO A REC BUFFER STARTING ON AN
ODD BYTE ADDRESS. THE MODE IS FULL DUPLEX CONTROL STATION
MULTIPOINT,DDCMP PROTOCOL. THE DATA IS COMPARED FOR CORRECT
NESS. THE TEST IS DONE WITH INTERNAL LOOPBACK.

7.30 READ/WRITE MODEM REGISTER TESTS (TEST 38) (DMP ONLY)

THIS TEST WRITES THE MODEM REGS OVER THE VARIOUS INTERFACES
WITH A PATTERN OF 100. THE MODEM REGS ARE THEN READ
AND COMPARED FOR CORRECTNESS.

****
* N O T E ----- THIS TEST ONLY RUNS IF LOOPBACK CONNECTORS
*********   ARE ATTACHED

7.31 TEST OF MEM EXTENSION BITS. (TESTS 39-41)

THESE THREE TESTS CHECK THE ABILITY OF THE DEVICE TO DO
TRANSFERS TO UPPER MEMORY (IF IT EXISTS). THE TRANSFERS
ARE DONE BY TRANSMITTING AND RECEIVING A MESSAGE. (TTL
LOOPBACK ONLY) . THE THREE TESTS ARE DONE FOR BIT 16,
BIT 17 AND BITS 16 AND 17 (DMV SET FOR Q18 MODE).
****
* N O T E ------ THIS TEST USES MEMORY ONLY IF IT EXISTS
****

7.32 TEST FOR TX/RX 257 BYTES (TEST 42)

THIS TEST TRANSMITS A MESSAGE OF 257 BYTES FROM A
TRANSMIT BUFFER STARTING WITH AN ODD BYTE BOUNDRY
TO A RECEIVE BUFFER STARTING ON AN ODD BYTE BOUNDRY
IN DDCMP MODE,POINT TO POINT. IF THERE IS EXTERNAL LOOP
BACK THEN THE TEST WILL BE DONE OVER THAT LOOPBACK;ELSE
THE LOOPBACK WILL BE SET TO INTERNAL(TTL).

7.33 TEST FOR TX/RX 1 BYTE (TEST 43)

THIS TEST TX'S AND REC'S A 1 BYTE MESSAGE FROM
AN ODD TX BUFFER TO AN EVEN RX BUFFER IN
MAINT MODE,MULTIPOINT CONTROL STATION.

7.34 POLLING STATE TESTS (TEST 44)

THIS TEST CHECKS THE DEGRADING OF THE POLLING STATES
FROM ACTIVE TO INACTIVE TO POTENTIALLY DEAD TO DEAD
THE SEQUENCE THAT IS EXECUTED IS AS FOLLOWS:

MASTER CLEAR, MODE DEF(FULL DUP CONTROL STATION),
SET POLL DELAY(GSS ADD 37),ESTABLISH TRIB,SET SELECTION
TIMER(TSS ADD 36),SET NUMBER OF NO DATA MESSAGES TO
INACTIVE TO 10 AND THE NUMBER OF TIME OUTS TO POTENTIALLY
DEAD TO 4.ISTRT TRIB ,WAIT FOR RUN STATE,READ TSS (ADD 2),
CHECK FOR INACTIVE BIT,LOOP UNTIL INACTIVE OR TIME OUT,READ
THE SELECTION TIMER(TSS 11),COMPARE IT TO 10,CHANGE MODE
TO HALF DUPLEX,WAIT FOR TSS SLOT 2 TO INDICATE POT. DEAD,
READ SELECTION TIMER(TSS 16),COMPARE IT TO 4,WAIT FOR
CONTROL OUT INDICATING DEAD TRIB,READ SELECTION TIMER(TSS 16)
COMPARE IT TO 10.

8.0 ERROR INFORMATION

8.1 ERROR REPORTING

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

THE FOLLOWING EXAMPLES PROVIDE TYPICAL ERROR REPORTS:

CZDMT DVC FTL ERR 00024 ON UNIT 00 TST 004 SUB 000 PC: 016170
ERROR IN ROM E04 READ = 177777 ; CALCULATED = 017327

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

ε

K2


```
1100                                    ;
1101            002000                          .=2000
1102
1103
1104
1105            000200                          DRUN==  200
1106
1107
1108
1109
1110
1111
1112            000001                  $LSTIN= 1
1113            000001                  $LSTTAG= 1
1114            000000                  SVCINS= 0       ; LIST INSTRUCTIONS, SHIFTED RIGHT
1115            000000                  SVCTST= 0       ; LIST TEST TAGS, SHIFTED RIGHT
1116            000000                  SVCSUB= 0       ; LIST SUBTEST TAGS, SHIFTED RIGHT
1117            000000                  SVCGBL= 0       ; LIST GLOBAL TAGS, SHIFTED RIGHT
1118            000000                  SVCTAG= 0       ; LIST OTHER TAGS, SHIFTED RIGHT
1119
1120                                    ;       CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
1121                                    ;       TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
1122                                    ;       SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
1123                                    ;       CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
1124
1125
```

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


002000                          L$NAME::                ;DIAGNOSTIC NAME
002000  103                             .ASCII /C/
002001  132                             .ASCII /Z/
002002  104                             .ASCII /D/
002003  115                             .ASCII /M/
002004  124                             .ASCII /T/
002005  000                             .BYTE   0
002006  000                             .BYTE   0
002007  000                             .BYTE   0
002010                          L$REV::                 ;REVISION LEVEL
002010  106                             .ASCII  /F/
002011                          L$DEPO::                ;0
002011  060                             .ASCII  /0/
002012                          L$UNIT::                ;NUMBER OF UNITS
002012  000000                          .WORD   0
002014                          L$TIML::                ;LONGEST TEST TIME
002014  003410                          .WORD   1800.
002016                          L$HPCP::                ;POINTER TO H.W. QUES.
002016  032622                          .WORD   L$HARD
002020                          L$SPCP::                ;POINTER TO S.W. QUES.
002020  000000                          .WORD   0
002022                          L$HPTP::                ;PTR. TO DEF. H.W. PTABLE
002022  002264                          .WORD   L$HW
002024                          L$SPTP::                ;PTR. TO S.W. PTABLE
002024  000000                          .WORD   0
002026                          L$LADP::                ;DIAG. END ADDRESS
002026  037740                          .WORD   L$LAST
002030                          L$STA::                 ;RESERVED FOR APT STATS
002030  000000                          .WORD   0
002032                          L$CO::
002032  000000                          .WORD   0
002034                          L$DTYP::                ;DIAGNOSTIC TYPE
002034  000000                          .WORD   0
002036                          L$APT::                 ;APT EXPANSION
002036  000000                          .WORD   0
002040                          L$DTP::                 ;PTR. TO DISPATCH TABLE
002040  002132                          .WORD   L$DISPATCH
002042                          L$PRIO::                ;DIAGNOSTIC RUN PRIORITY
002042  000340                          .WORD   PRIO7
002044                          L$ENVI::                ;FLAGS DESCRIBE HOW IT WAS SETUP
002044  000000                          .WORD   0
002046                          L$EXP1::                ;EXPANSION WORD
002046  000000                          .WORD   0
002050                          L$MREV::                ;SVC REV AND EDIT #
002050  003                             .BYTE   C$REVISION
002051  003                             .BYTE   C$EDIT
002052                          L$EF::                  ;DIAG. EVENT FLAGS
002052  000000                          .WORD   0
```

```
1182  002054  000000                    .WORD   0
1183  002056                    L$SPC::
1184  002056  000000                    .WORD   0
1185  002060                    L$DEVP::                ; POINTER TO DEVICE TYPE LIST
1186  002060  002564                    .WORD   L$DVTYP
1187  002062                    L$REPP::                ;PTR. TO REPORT CODE
1188  002062  000000                    .WORD   0
1189  002064                    L$EXP4::
1190  002064  000000                    .WORD   0
1191  002066                    L$EXP5::
1192  002066  000000                    .WORD   0
1193  002070                    L$AUT::                 ;PTR. TO ADD UNIT CODE
1194  002070  014544                    .WORD   L$AU
1195  002072                    L$DUT::                 ;PTR. TO DROP UNIT CODE
1196  002072  014540                    .WORD   L$DU
1197  002074                    L$LUN::                 ;LUN FOR EXERCISERS TO FILL
1198  002074  000000                    .WORD   0
1199  002076                    L$DESP::                ;POINTER TO DIAG. DESCRIPTION
1200  002076  002606                    .WORD   L$DESC
1201  002100                    L$LOAD::                ;GENERATE SPECIAL AUTOLOAD EMT
1202  002100  104035                    EMT     E$LOAD
1203  002102                    L$ETP::                 ;POINTER TO ERRTBL
1204  002102  000000                    .WORD   0
1205  002104                    L$ICP::                 ;PTR. TO INIT CODE
1206  002104  014036                    .WORD   L$INIT
1207  002106                    L$CCP::                 ;PTR. TO CLEAN-UP CODE
1208  002106  014534                    .WORD   L$CLEAN
1209  002110                    L$ACP::                 ;PTR. TO AUTO CODE
1210  002110  014472                    .WORD   L$AUTO
1211  002112                    L$PRT::                 ;PTR. TO PROTECT TABLE
1212  002112  002122                    .WORD   L$PROT
1213  002114                    L$TEST::                ;TEST NUMBER
1214  002114  000000                    .WORD   0
1215  002116                    L$DLY::                 ;DELAY COUNT
1216  002116  000000                    .WORD   0
1217  002120                    L$HIME::                ;PTR. TO HIGH MEM
1218  002120  000000                    .WORD   0
1219
1220  002122                    L$PROT::
1221  002122  177777                    .WORD   -1
1222  002124  177777                    .WORD   -1
1223  002126  177777                    .WORD   -1
1224
```

```
1225                                    .SBTTL  DISPATCH TABLE
1226                                    ;////////////////////////////////////////////////////////////////////////////////
1227                                    ;/ THE DISPATCH TABLE CONTAINS THE STARTING ADDRESS OF EACH TEST.
1228                                    ;/ IT IS USED BY THE SUPERVISOR TO DISPATCH TO EACH TEST.
1229                                    ;////////////////////////////////////////////////////////////////////////////////
1230  002130  000054                            .WORD   44
1231  002132                            L$DISPATCH::
1232  002132  014546                            .WORD   T1
1233  002134  014726                            .WORD   T2
1234  002136  015260                            .WORD   T3
1235  002140  015612                            .WORD   T4
1236  002142  016144                            .WORD   T5
1237  002144  016476                            .WORD   T6
1238  002146  017030                            .WORD   T7
1239  002150  017362                            .WORD   T8
1240  002152  017522                            .WORD   T9
1241  002154  017662                            .WORD   T10
1242  002156  020046                            .WORD   T11
1243  002160  021200                            .WORD   T12
1244  002162  021312                            .WORD   T13
1245  002164  021522                            .WORD   T14
1246  002166  021766                            .WORD   T15
1247  002170  022176                            .WORD   T16
1248  002172  022454                            .WORD   T17
1249  002174  022706                            .WORD   T18
1250  002176  023172                            .WORD   T19
1251  002200  023300                            .WORD   T20
1252  002202  023406                            .WORD   T21
1253  002204  023522                            .WORD   T22
1254  002206  024250                            .WORD   T23
1255  002210  024676                            .WORD   T24
1256  002212  025324                            .WORD   T25
1257  002214  025440                            .WORD   T26
1258  002216  025524                            .WORD   T27
1259  002220  025752                            .WORD   T28
1260  002222  026200                            .WORD   T29
1261  002224  026526                            .WORD   T30
1262  002226  026622                            .WORD   T31
1263  002230  026742                            .WORD   T32
1264  002232  027110                            .WORD   T33
1265  002234  027276                            .WORD   T34
1266  002236  027414                            .WORD   T35
1267  002240  027536                            .WORD   T36
1268  002242  027700                            .WORD   T37
1269  002244  027774                            .WORD   T38
1270  002246  030422                            .WORD   T39
1271  002250  030664                            .WORD   T40
1272  002252  031126                            .WORD   T41
1273  002254  031370                            .WORD   T42
1274  002256  031506                            .WORD   T43
1275  002260  031604                            .WORD   T44
1276
1277
1278
1279
1280
```

```
1281                                    .SBTTL  DEFAULT HARDWARE P-TABLE
1282
1283                                    ;//////////////////////////////////////////////////////////////////////////////
1284                                    ;/ THE DEFAULT HARDWARE P-TABLE CONTAINS DEFAULT VALUES OF
1285                                    ;/ THE TEST-DEVICE PARAMETERS.  THE STRUCTURE OF THIS TABLE
1286                                    ;/ IS IDENTICAL TO THE STRUCTURE OF THE RUN-TIME P-TABLE.
1287                                    ;//////////////////////////////////////////////////////////////////////////////
1288
1289  002262  000014                            .WORD   L10001-L$HW/2
1290  002264                            L$HW::
1291  002264                            DFPTBL::
1292
1293  002264  000000                            .WORD   0               ;HARDWARE TYPE
1294  002266  160170                            .WORD   160170          ;M8200,4,7 CSR UNIBUS ADDRESS
1295  002270  000300                            .WORD     300           ;M8200,4,7 INTERRUPT VECTOR
1296  002272  005000                            .WORD    5000           ;M8200,4,7 INTERRUPT PRIORITY LEVEL = 5
1297  002274  000003                            .WORD       3           ;LINE UNIT = M8203
1298  002276  000056                            .WORD     056           ;SWITCH PACK #1 (REG 11)
1299  002300  000000                            .WORD     000           ;SWITCH PACK #2 (REG 15)
1300  002302  000000                            .WORD     000           ;SWITCH PACK #3 (REG 16)
1301  002304  000004                            .WORD       4           ;0=M3251&M3252, 1=CABLE LOOPBACK,
1302                                                                    ;2=MODEM LOCAL, 3=MODEM REMOTE,
1303                                                                    ;4=NONE (INTERNAL LOOP DEFAULT)
1304  002306  000004                            .WORD       4           ;CONTAINS BAUD RATE 4=56K BAUD DEFAULT
1305                                                                    ;0=2.4K, 1=4.8K, 2=9.6K, 3=19.2K, 4=56K
1306                                                                    ;5=250K, 6=500K, 7=1 MEG BAUD
1307                                                                    ;NOTE: 1 MEG BAUD IS NOT ASKED. THIS IS
1308                                                                    ;       USED IN MANUFACTURING TEST ONLY.
1309  002310  000000                            .WORD       0           ;DUMMY WORD FOR RUN
1310  002312  000002                            .WORD       2           ;1=INTEGRAL ;2=EIA; 3=V.35; 4=422
1311
1312  002314                            L10001:
1313
1314
1315
1316
1317
```

```
1318                                    .SBTTL  SOFTWARE P-TABLE
1319
1320                                    ;////////////////////////////////////////////////////////////////////////////
1321                                    ;/ THE SOFTWARE P-TABLE CONTAINS THE VALUES OF THE PROGRAM
1322                                    ;/ PARAMETERS THAT CAN BE CHANGED BY THE OPERATOR.
1323                                    ;////////////////////////////////////////////////////////////////////////////
1324
1325  002314  000000                            .WORD   L10002-L$SW/2
1326  002316                          L$SW::
1327  002316                          SFPTBL::
1328
1329
1330  002316                          L10002:
1331
1332
1333
1334
1335
1336
```

```
1337
1338
1339                            .SBTTL  GLOBAL EQUATES SECTION
1340
1341
1342                            ;////////////////////////////////////////////////////////////////////////////////
1343                            ;/      THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
1344                            ;/      ARE USED IN MORE THAN ONE TEST.
1345                            ;////////////////////////////////////////////////////////////////////////////////
1346
1347                            ;
1348                            ; BIT DIFINITIONS
1349                            ;
1350  100000                    BIT15== 100000
1351  040000                    BIT14== 40000
1352  020000                    BIT13== 20000
1353  010000                    BIT12== 10000
1354  004000                    BIT11== 4000
1355  002000                    BIT10== 2000
1356  001000                    BIT09== 1000
1357  000400                    BIT08== 400
1358  000200                    BIT07== 200
1359  000100                    BIT06== 100
1360  000040                    BIT05== 40
1361  000020                    BIT04== 20
1362  000010                    BIT03== 10
1363  000004                    BIT02== 4
1364  000002                    BIT01== 2
1365  000001                    BIT00== 1
1366                            ;
1367  001000                    BIT9==  BIT09
1368  000400                    BIT8==  BIT08
1369  000200                    BIT7==  BIT07
1370  000100                    BIT6==  BIT06
1371  000040                    BIT5==  BIT05
1372  000020                    BIT4==  BIT04
1373  000010                    BIT3==  BIT03
1374  000004                    BIT2==  BIT02
1375  000002                    BIT1==  BIT01
1376  000001                    BIT0==  BIT00
1377                            ;
1378                            ; EVENT FLAG DEFINITIONS
1379                            ;   EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
1380                            ;
1381  000040                    EF.START==      32.                     ; START COMMAND WAS ISSUED
1382  000037                    EF.RESTART==    31.                     ; RESTART COMMAND WAS ISSUED
1383  000036                    EF.CONTINUE==   30.                     ; CONTINUE COMMAND WAS ISSUED
1384  000035                    EF.NEW==        29.                     ; A NEW PASS HAS BEEN STARTED
1385  000034                    EF.PWR==        28.                     ; A POWER-FAIL/POWER-UP OCCURRED
1386                            ;
1387                            ;
1388                            ; PRIORITY LEVEL DEFINITIONS
1389                            ;
1390  000340                    PRI07== 340
1391  000300                    PRI06== 300
1392  000240                    PRI05== 240
```

```
1393            000200                  PRI04== 200
1394            000140                  PRI03== 140
1395            000100                  PRI02== 100
1396            000040                  PRI01== 40
1397            000000                  PRI00== 0
1398                                    ;
1399                                    ;OPERATOR FLAG BITS
1400                                    ;
1401            000004                  EVL==       4
1402            000010                  LOT==      10
1403            000020                  ADR==      20
1404            000040                  IDU==      40
1405            000100                  ISR==     100
1406            000200                  UAM==     200
1407            000400                  BOE==     400
1408            001000                  PNT==    1000
1409            002000                  PRI==    2000
1410            004000                  IXE==    4000
1411            010000                  IBE==   10000
1412            020000                  IER==   20000
1413            040000                  LOE==   40000
1414            100000                  HOE==  100000
1415
1416
1417                                    ;;*****************************************************************************
1418                                    ;* PROGRAM EVENT FLAG DEFINITIONS
1419                                    ;;*****************************************************************************
1420
1421                                    ;;*************************************************************************************
1422                                    ;* MAINTENANCE REGISTER - BSEL1
1423                                    ;;*************************************************************************************
1424     000200                         RUN     = BIT7
1425     000100                         MCLR    = BIT6
1426     000020                         STEPLU  = BIT4
1427     000010                         LULOOP  = BIT3
1428     0C0004                         ROMO    = BIT2
1429     000002                         ROMI    = BIT1
1430     000001                         STEPMP  = BIT0
1431
1432                                    ;*********************************************************
1433                                    ; OTHER BIT DEFINITIONS
1434                                    ;*********************************************************
1435     000010                         Q22BIT  =BIT3
1436     000200                         RQI     =200
1437     000020                         RDI     =020
1438     000200                         RDO     =200
1439
1440
```

```
                        .SBTTL  GLOBAL DATA SECTION

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

                        ;*************************************************************************
                        ;* MISCELLANEOUS STORAGE
                        ;*************************************************************************
002316  000000          SAVE4:  .WORD   0               ;SAVE LOC 4 HERE (ERROR TRAP VECTOR)
002320  000000          SAVE6:  .WORD   0
002322  000000          PSTACK: .WORD   0
002324  000000          SUBRPC: .WORD   0
002326  000000          ERROR1: .WORD   0
002330  000000          FRSTIM: .WORD   0
002332  000000          LOGDEV: .WORD   0
002334  000000          IFLAG:  .WORD   0
002336  000000          $GDDAT: .WORD   0       ;GOOD AND BAD DATA STORAGE
002340  000000          $BDDAT: .WORD   0
002342  000000          COUNT:  .WORD   0
002344  000000          REG:    .WORD   0
002346  000000          STARES: .WORD   0       ;INDICATES PASSES
002350  000000          DEVMAP: .WORD   0
002352  000000          DEVPTR: .WORD   0
002354  000000          FRSPAS: .WORD   0
002356  000000          MODINT: .WORD   0               ;MODEM INTERFACE SELECTION
002360  000000          TRIBN:  .WORD   0               ;POINTS TO CURRENT TRIP NUMBER.
002362  000040          TRIBMX: .WORD   32.             ;MAXIMUM NUMBER OF TRIBS
002364  000000          TRIBH:  .WORD   0               ;VALUE OF HIGHEST TRIB USED

002366  000000          ROMN:   .WORD   0               ;CURRENT ROM AND USED FOR TEST #
002370  000000          ROMN1:  .WORD   0                       ;CURRENT ROM NUMBER
002372  000000          WORDT:  .WORD   0                       ;CURRENT ROM CONTENTS.
002374  177777          CWORD:  .WORD   -1                      ;CURRENT CRC CAL.
002376  000000          MODQ22: .WORD   0               ;DMV Q22 FORMAT FLAG (Q22 MODE)
002400  000000          EXLOOP: .WORD   0               ;DMV EXTERNAL LOOP FLAG
002402  000000          ERRWRD: .WORD   0                       ;ERROR OCCURRED.
002404  000000          CADDR:  .WORD   0                       ;CURRENT ROM ADDR.
002406  000000          ERRADD: .WORD   0                       ;PC OF ERROR
002410  000000          PERR:   .WORD   0                       ;PROCEDURE ERROR CHECKED
002412  000000          TSSADD: .WORD   0                       ;WORD FOR TSS ADD
002414  003406          TYLST:  .WORD   3406
002416  002403                  .WORD   2403
002420                  TYEND:
002420  000000          TXADD:  .WORD   0                       ;TX BUFF ADDRESS
002422  000000          RXADD:  .WORD   0                       ;RX BUFF ADDRESS
002424  000000          RXCC:   .WORD   0                       ;RX CHAR COUNT
002426  000000          TXCC:   .WORD   0                       ;TX CHAR COUNT
002430  000000          CODEW:  .WORD   0                       ;LOCATION FOR ERROR CODES
002432  000000          GENWRD: .WORD   0                       ;USED FOR MAINT STATE AND EX MEM
002434  000000          CRCCAL: .WORD   0                       ;TEMP FOR CRC
002436  000000          ROMADD: .WORD   0                       ;ROM ADDRESS

                        ;;*********  CURRENT DEVICE PARAMETERS  **************
002440                  BSEL0:
```

```
1497  002440                    SEL0:
1498  002440  160170            MPCSR:  .WORD   160170          ;POINTER TO M8200,4,7 CSR'S
1499  002442  160171            BSEL1:  .WORD   160171          ;POINTER TO BSEL1
1500  002444                    SEL2:
1501  002444  160172            BSEL2:  .WORD   160172
1502  002446  160173            BSEL3:  .WORD   160173
1503  002450                    BSEL4:
1504  002450  160174            SEL4:   .WORD   160174          ;POINTER TO SEL4
1505  002452  160175            BSEL5:  .WORD   160175
1506  002454                    BSEL6:
1507  002454  160176            SEL6:   .WORD   160176
1508  002456  160177            BSEL7:  .WORD   160177
1509  002460                    BSEL10:
1510  002460  160200            SEL10:  .WORD   160200          ;POINTER TO SEL10 (REQ'D FOR DMV Q22 MODE)
1511  002462                    KMRVEC:
1512  002462  000300            MPIVEC: .WORD      300          ;M8200,4,7 INPUT INTERRUPT VECTOR
1513  002464                    KMTVEC:
1514  002464  000304            MPOVEC: .WORD      304          ;M8200,4,7 OUTPUT INTERRUPT VECTOR
1515  002466  000000            SPEEDM: .WORD        0          ;SPEED OF LINE UNIT
1516  002470                    KMRLVL:
1517  002470                    KMTLVL:
1518  002470  000240            MPRIOR: .WORD      240          ;M8200,4,7 DEVICE PRIORITY
1519  002472  000000            OPTYP:  .WORD   0               ;OPTION TYPE
1520  002474  000000            IFTYP:  .WORD   0               ;INTERFACE TYPE
1521  002476  000000            TSTCON: .WORD        0          ;TEST CONNECTOR INDICATOR
1522  002500  000000            RETADR: .WORD        0          ;SUBR ERROR RETURN ADDRESS
1523  002502  000000            REDBYT: .WORD        0          ;LO BYTE CONTAINS BYTE READ FROM LU REG
1524  002504  000000            WRIBYT: .WORD        0          ;LO BYTE CONTAINS BYTE TO LOAD INTO LU REG
1525  002506  000000            AXNUM:  .WORD        0          ;NUMBER (0-7) OF EXTENDED REG BYTE BEING TESTED
1526  002510  000000            DISILO: .WORD        0          ;CONTAINS CURRENT STATE OF DISSI IN BIT5
```

```
1527                                    ;***** STORAGE FOR DATA READ IN ADDRESS TESTS *****
1528  002512  000                       REDDAT: .BYTE   0
1529  002513  000                               .BYTE   0
1530  002514  000                               .BYTE   0
1531  002515  000                               .BYTE   0
1532  002516  000                               .BYTE   0
1533  002517  000                               .BYTE   0
1534  002520  000                               .BYTE   0
1535  002521  000                               .BYTE   0
1536
1537                                    ;;****  GENERAL PURPOSE SCRATCH STORAGE  *****
1538  002522  000000                    REG0:   .WORD   0
1539  002524  000000                    REG1:   .WORD   0
1540  002526  000000                    REG2:   .WORD   0
1541  002530  000000                    REG3:   .WORD   0
1542  002532  000000                    REG4:   .WORD   0
1543  002534  000000                    REG5:   .WORD   0
1544  002536  000000                    REG6:   .WORD   0
1545  002540  000000                    REG7:   .WORD   0
1546
1547                                    ;;****  SCRATCH STORAGE FOR MESSAGE REPORTING   *****
1548  002542  000000                    $TMP0:  .WORD   0
1549  002544  000000                    TMP0:   .WORD   0
1550  002546  000000                    TMP1:   .WORD   0
1551  002550  000000                    TMP2:   .WORD   0
1552  002552  000000                    TMP3:   .WORD   0
1553  002554  000000                    TMP4:   .WORD   0
1554  002556  000000                    TMP5:   .WORD   0
1555  002560  000000                    TMP6:   .WORD   0
1556  002562  000000                    TMP7:   .WORD   0
1557
```

```
                                        .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
                                        ;;*********************************************************************
 002564                                 L$DVTYP::
 002564   046504   026520   030461              .ASCIZ  /DMP-11 OR DMV-11/
 002572   047440   020122   046504
 002600   026526   030461      000
          002606                                .EVEN

 002606                                 L$DESC::
 002606   046504   020120   051117              .ASCIZ  /DMP OR DMV-11 FUNCTIONAL DIAG./
 002614   042040   053115   030455
 002622   020061   052506   041516
 002630   044524   047117   046101
 002636   042040   040511   027107
 002644      000
          002646                                .EVEN

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

```
1598                                    .SBTTL  GLOBAL SUBROUTINES
1599
1600                                    ;////////////////////////////////////////////////////////////////////////////////
1601                                    ;/      THE GLOBAL SUBROUTINES ARE CALLED BY MORE THAN ONE TEST
1602                                    ;////////////////////////////////////////////////////////////////////////////////
1603
1604
1605                                    ;
1606
1607                                    ;+*************************************************************************
1608                                    ; FUNCTIONAL DESCRIPTION: WRDO.. WAITS FOR READY OUT
1609                                    ;               FIRST SAVE THE CALLING ADDRESS
1610                                    ;               IN ERRADD. THEN SEE IF TIME OUT OCCURED
1611                                    ;               IF TIME OUT EXIT ROUTINE..ELSE SEE IF
1612                                    ;               READY OUT SET IF READY OUT SET EXIT
1613                                    ;               ROUTINE. IF NOT THEN WAIT A WHILE
1614                                    ;               THEN SEE IF READY IN SET. IF READY IN
1615                                    ;               IS SET REPORT ERROR AND EXIT ROUTINE.
1616                                    ;               IF NOT READY IN THEN GO BACK AND CHECK
1617                                    ;               FOR TIME OUT.
1618                                    ;               NOTE: CAN BE ENTERED AT WRDO1 IF CALLING
1619                                    ;               ADDRESS FROM R5 DOES NOT NEED TO BE SAVED.
1620                                    ;
1621                                    ; INPUTS:       R5=ADDRESS FROM WHERE ROUTINE WAS CALLED
1622                                    ;
1623                                    ; OUTPUTS:      ERRWRD= -1 IF ERROR OCCURED IN ROUTINE.
1624                                    ;
1625                                    ; SUBORDINATE ROUTINES USED:
1626                                    ;               TOUT - TIME OUT ROUTINE
1627                                    ;              WAIT50 - SHORT DELAY ROUTINE
1628                                    ; CALLING SEQUENCE:
1629                                    ;               JSR     R5,WRDO
1630                                    ;--*************************************************************************
1631
1632  002646  010537  002406           WRDO:   MOV     R5,ERRADD       ;STORE ERROR ADD. AWAY
1633  002652  004537  005070           WRDO1:  JSR     R5,TOUT         ; GO TO TIME OUT ROUTINE
1634  002656  005737  002402                   TST     ERRWRD          ;CHECK IF ERROR
1635  002662  100422                   WRDOE   BMI     WRDOE           ;EXIT NOW
1636  002664  032777  000200  177552           BIT     #RDO,@BSEL2     ;RDO SET?
1637  002672  001016                           BNE     WRDOE           ;EXIT IF RDO IS SET
1638  002674  004737  004244                   JSR     PC,WAIT50       ;ELSE DELAY A LITTLE
1639  002700  032777  000020  177536           BIT     #RDI,@BSEL2     ;THEN SEE IF RDI IS SET
1640  002706  001761                           BEQ     WRDO1           ;IF NOT THEN GO BACK TO START
1641
1642                                           ; ERROR -UNEXPECTED RDI SET
1643
1644  002710  104455                           TRAP    C$ERDF
1645  002712  000001                           .WORD   1
1646  002714  012063                           .WORD   MEF14
1647  002716  010330                           .WORD   ERR26
1648  002720  005337  002402                   DEC     ERRWRD
1649  002724  105077  177514                   CLRB    @BSEL2          ;CLEAR RDO
1650  002730  000205                   WRDOE:  RTS     R5              ;EXIT
1651
1652
```

```
1653
1654                                    ;++*********************************************************************
1655                                    ; FUNCTIONAL DESCRIPTION:  WRDI - WAIT FOR READY IN
1656                                    ;                  THIS ROUTINE FIRST SAVES THE CALLING ADDRESS
1657                                    ;                  IN ERRADD,UNLESS ENTERED AT WRDI1.
1658                                    ;                  THEN CHECK FOR TIME OUT IF TIME OUT REPORT
1659                                    ;                  ERROR AND EXIT. IF NOT TIME OUT CHECK FOR
1660                                    ;                  READY IN. IF READY IN EXIT IF NOT READY IN
1661                                    ;                  DELAY A LITTLE AND CHECK FOR READY OUT. IF
1662                                    ;                  READY OUT REPORT ERROR AND EXIT ROUTINE.
1663                                    ;                  IF NOT READY OUT GO BACK AND CHECK FOR TIME OUT.
1664                                    ;
1665                                    ; INPUTS:          R5= CALLING ADDRESS
1666                                    ; OUTPUTS:         ERRWRD= -1 IF ERROR OCCURED IN ROUTINE
1667                                    ; SUBORDINATE ROUTINES USED:
1668                                    ;                  TOUT- TIME OUT
1669                                    ;                 WAIT50- DELAY A LITTLE
1670                                    ; CALLING SEQUENCE:
1671                                    ;                  JSR     R5,WRDI    ;OR
1672                                    ;                  JSR     R5,WRDI1
1673                                    ;--*********************************************************************
1674
1675  002732  010537  002406           WRDI:   MOV     R5,ERRADD       ;STORE AWAY ERROR ADD.
1676  002736  004537  005070           WRDI1:  JSR     R5,TOUT         ;GO TO TIME OUT
1677  002742  005737  002402                   TST     ERRWRD          ;IF ERROR EXIT
1678  002746  100422                           BMI     WRDIE           ;
1679  002750  032777  000020  177466   1$:     BIT     #20,@BSEL2      ;RDI SET?
1680  002756  001016                           BNE     WRDIE           ;YES-EXIT
1681  002760  004737  004244                   JSR     PC,WAIT50       ;SHORT DELAY
1682  002764  032777  000200  177452           BIT     #200,@BSEL2     ;RDYO SET?
1683  002772  001761                           BEQ     WRDI1           ;NO-LOOP.
1684
1685                                           ;RDO INSTEAD OF RDI
1686
1687  002774  104455                           TRAP    C$ERDF
1688  002776  000002                           .WORD   2
1689  003000  012130                           .WORD   MEF15
1690  003002  010330                           .WORD   ERR26
1691  003004  005337  002402                   DEC     ERRWRD          ;SET ERROR OCCURRED
1692  003010  105077  177430                   CLRB    @BSEL2          ;CLEAR RDYO
1693  003014  000205                   WRDIE:  RTS     R5              ;EXIT.
1694
1695
1696
1697
1698
```

```
1699
1700                            ;**********************************************************************
1701                            ; FUNCTIONAL DESCRIPTION:  WFPE - WAIT FOR PROCEDURE ERROR
1702                            ;                  FIRST SAVE CALLING ADDRESS IN ERRADD.
1703                            ;                  THEN WAIT FOR READY OUT,IF ERROR FROM
1704                            ;                  WRDO ROUTINE EXIT THIS ROUTINE. ELSE
1705                            ;                  GET CONTROL KEY FROM BSEL2 IF NOT CONTROL
1706                            ;                  OUT REPORT ERROR AND EXIT. ELSE CHECK THAT
1707                            ;                  CONTROL OUT CODE IS SAME AS IN PERR. IF
1708                            ;                  EQUAL THEN EXIT ELSE REPORT ERROR AND EXIT.
1709                            ;
1710                            ; INPUTS:          R5= CALLING ADDRESS
1711                            ;                  PERR = PROCEDURE ERROR EXPECTED.
1712                            ; OUTPUTS:         ERRWRD= -1 IF ERROR OCCURED IN ROUTINE
1713                            ; SUBORDINATE ROUTINES USED:
1714                            ;                 WRD01 - WAIT FOR READY OUT
1715                            ; CALLING SEQUENCE:
1716                            ;                  JSR     R5,WFPE
1717                            ;--**********************************************************************
1718
1719  003016  010537  002406    WFPE:   MOV     R5,ERRADD       ;STORE OFF ERROR ADDRESS
1720  003022  004537  002652            JSR     R5,WRD01        ;WAIT FOR READY OUT
1721  003026  005737  002402            TST     ERRWRD
1722  003032  100452                    BMI     20$             ;IF ERROR OCCURRED IN SR
1723                                                            ; EXIT THIS SR.
1724  003034  117737  177404  002340            MOVB    @BSEL2,$BDDAT   ;
1725  003042  042737  177770  002340            BIC     #^C<7>,$BDDAT   ; STRIP DATA TO CONTROL KEY
1726  003050  122737  000001  002340            CMPB    #01,$BDDAT
1727  003056  001415                    BEQ     10$             ; GO TO 10 IF CONTROL OUT
1728                                                            ; ELSE REPORT ERROR
1729  003060  012737  000001  002336            MOV     #01,$GDDAT      ;SET GOOD DATA TO 01
1730  003066  012737  012042  002430            MOV     #M18F,CODEW     ;SET UP CODE WORD
1731
1732                                    ;ERROR  NOT CONTROL OUT
1733
1734  003074  104455                    TRAP    C$ERDF
1735  003076  000003                    .WORD   3
1736  003100  011550                    .WORD   EROIC
1737  003102  010366                    .WORD   ERR27
1738  003104  005337  002402            DEC     ERRWRD          ;SET ERROR OCCURRED
1739  003110  000423                    BR      20$             ;AND EXIT SUBROUTINE
1740  003112  117737  177336  002340  10$:       MOVB    @BSEL6,$BDDAT   ;MOVE ERROR CODE TO BDDAT
1741  003120  123737  002410  002340            CMPB    PERR,$BDDAT     ;IS IT WHAT IT SHOULD BE
1742  003126  001414                    BEQ     20$             ; IF SO GO TO 20
1743  003130  013737  002410  002336            MOV     PERR,$GDDAT     ;PUT EXPECTED IN GOOD DATA
1744  003136  012737  012024  002430            MOV     #M13F,CODEW     ;SET UP ERROR WORD
1745
1746                                    ;ERROR BAD ERROR CODE RETURNED
1747
1748  003144  104455                    TRAP    C$ERDF
1749  003146  000004                    .WORD   4
1750  003150  011550                    .WORD   EROIC
1751  003152  010366                    .WORD   ERR27
1752  003154  005337  002402            DEC     ERRWRD          ;SET ERROR INDICATOR
1753  003160                    20$:
1754  003160  000205                    RTS     R5              ;RETURN TO CALLER
```

```
1755
1756                                    ;++*************************************************************************
1757                                    ; FUNCTIONAL DESCRIPTION:       CONTIN - CONTROL IN ROUTINE
1758                                    ;               THIS ROUTINE SAVES THE CALLING ADDRESS IN R5.
1759                                    ;               THEN SETS RQI AND WAITS FOR RDI TO BE RETURNED BY
1760                                    ;               THE DMP/V-11. IF WRDI REPORTS ERROR EXIT TEST. ELSE
1761                                    ;               LOAD BSEL 3 WITH TRIB NUMBER FROM TRIBN,CLEAR THE RQI
1762                                    ;               BIT,MOV DATA FROM R4 TO SEL4,DATA FROM R3 TO SEL6, AND
1763                                    ;               THEN ISSURE CONTROL IN AND EXIT ROUTINE.
1764                                    ;
1765                                    ; INPUTS:       R4 = SEL4 DATA
1766                                    ;               R3 = SEL6 DATA
1767                                    ;               TIRBN = TRIBUTARY NUMBER.
1768                                    ;               R5 = CALLING ADDRESS
1769                                    ;
1770                                    ; OUTPUTS:      ERRWRD = -1 IF ERROR REPORTED IN THIS OR ANY SUBODINATE
1771                                    ;                       SUB ROUTINE.
1772                                    ; SUBORDINATE ROUTINES USED:
1773                                    ;               WRDI1 - WAIT FOR READY IN.
1774                                    ; CALLING SEQUENCE:
1775                                    ;               JSR     R5,CONTIN
1776                                    ;--*************************************************************************
1777
1778  003162  010537  002406           CONTIN: MOV     R5,ERRADD       ;SET UP ERROR ADDRESS
1779  003166  052777  000200  177244           BIS     #RQI,@BSEL0     ;SET REQUEST
1780  003174  004537  002736                   JSR     R5,WRDI1        ;GO WAIT FOR RDI
1781  003200  005737  002402                   TST     ERRWRD
1782  003204  100415                           BMI     43$             ;EXIT IF ERROR OCCURRED
1783  003206  113777  002360  177232         MOVB    TRIBN,@BSEL3    ;SET TRIBN
1784  003214  042777  000200  177216         BIC     #RQI,@BSEL0     ;CLEAR REQUEST
1785  003222  010477  177222                 MOV     R4,@SEL4        ;SET DATA
1786  003226  010377  177222                 MOV     R3,@BSEL6       ;SET REQUEST TYPE
1787  003232  112777  000001  177204         MOVB    #01,@BSEL2      ;DO CONTROL IN
1788  003240  000205                   43$:    RTS     R5              ;RETURN TO CALLER
1789
```

```
                        ;++*************************************************************************
                        ; FUNCTIONAL DESCRIPTION:       GETOUT - GET OUTPUT CODE
                        ;
                        ;       THIS SUB-ROUTINE WAITS FOR RDO(REPORTS ERROR IF
                        ;       RDI OR TIME OUT);CHECKS THAT OUTPUT COMMAND TYPE
                        ;       IS THE SAME AS THE VALUE IN $GDDAT(REPORTS ERROR
                        ;       IF NOT);THEN CHECKS THAT TRIB NUMBER IN BSEL3 IS
                        ;       EQUAL TO  THE VALUE IN TRIBN(REPORTS ERROR IF NOT
                        ;       THEN RETURNS TO CALLER.
                        ;
                        ; INPUTS:       $GDDAT = OUTPUT COMMAND TYPE EXPECTED
                        ;               TRIBN  = TRIBUTARY ADDRESS EXPECTED
                        ;               R5     = ADDRESS OF CALLING ROUTINE
                        ;
                        ; OUTPUTS:      ERRWRD = -1 IF ERROR OCCURED
                        ;
                        ; SUBORDINATE ROUTINES USED:
                        ;               WRDO1 - WAIT FOR READY OUT
                        ;
                        ; CALLING SEQUENCE:
                        ;               JSR     R5,GETOUT
                        ;--*************************************************************************
003242  010537  002406  GETOUT: MOV     R5,ERRADD       ;STORE OFF ERROR ADD.
003246  004537  002652         JSR     R5,WRDO1        ; GO WAIT FOR READY OUT
003252  005737  002402         TST     ERRWRD
003256  100444                 BMI     20$             ;EXIT IF ERROR OCCURRED
003260  117737  177160  002340         MOVB    @BSEL2,$BDDAT   ;GET COMMAND TYPE TO BDDAT
003266  042737  177770  002340         BIC     #^C<7>,$BDDAT   ;STRIP IT TO JUST COMMAND TYPE
003274  023737  002340  002336         CMP     $BDDAT,$GDDAT   ;IS IT THE RIGHT VALUE??
003302  001412                 BEQ     10$             ;IF YES GO TO 10
                                                       ;ELSE REPORT ERROR
003304  012737  012051  002430         MOV     #M28F,CODEW
003312  104455                 TRAP    C$ERDF
003314  000005                 .WORD   5
003316  011550                 .WORD   EROIC
003320  010366                 .WORD   ERR27
003322  005337  002402         DEC     ERRWRD
003326  000420                 BR      20$             ;AND EXIT ON ERROR
003330  013737  002360  002336  10$:   MOV     TRIBN,$GDDAT    ;SET UP GDDAT FOR GOOD TRIBN
003336  117737  177104  002340         MOVB    @BSEL3,$BDDAT   ;GET TRIB NUMBER RETURNED
003344  023737  002340  002336         CMP     $BDDAT,$GDDAT   ;ARE THEY THE SAME???
003352  001406                 BEQ     20$             ;IF YES GO TO 20
                                                       ;ELSE REPORT ERROR
003354  104455                 TRAP    C$ERDF
003356  000006                 .WORD   6
003360  012304                 .WORD   MEF18A
003362  007642                 .WORD   ERR18
003364  005337  002402         DEC     ERRWRD
003370  000205         20$:    RTS     R5              ;RETURN TO CALLER
```

```
1843
1844                                    ;+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
1845                                    ; FUNCTIONAL DESCRIPTION:       GETRKY - GET RETURN KEY VALUE
1846                                    ;                       THIS ROUTINE GETS THE VALUE OF THE RETURN KEY
1847                                    ;                       FROM BSEL6 ADN COMPARES IT TO THE VALUE IN
1848                                    ;                       $GDDAT. IF EQUAL EXIT IF NOT EQUAL REPORT
1849                                    ;                       ERROR AND EXIT.
1850                                    ;
1851                                    ; INPUTS:               R5      = ADDRESS OF CALLER
1852                                    ;                       $GDDAT  = VALUE OF EXPECTED RETURN KEY
1853                                    ;
1854                                    ; OUTPUTS:              ERRWRD  = -1 IF ERROR OCCURS
1855                                    ; CALLING SEQUENCE:
1856                                    ;                       JSR     R5,GETRKY
1857                                    ;---++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
1858  003372  010537  002406           GETRKY: MOV     R5,ERRADD       ; STORE OFF ERROR ADDRESS
1859  003376  017737  177052  002340           MOV     @BSEL6,$BDDAT   ; GET RETURN KEY FROM BSEL6
1860  003404  042737  177600  002340           BIC     #^C<177>,$BDDAT ; STRIP TO VALID BITS
1861  003412  023737  002340  002336           CMP     $BDDAT,$GDDAT   ;ARE THE VALUES EQUAL
1862  003420  001411                           BEQ     10$             ;IF YES GO TO 10
1863                                                                   ;ELSE ERROR.....
1864  003422  012737  012011  002430           MOV     #M12F,CODEW     ;SET UP CODE WORD
1865  003430  104455                           TRAP    C$ERDF
1866  003432  000007                           .WORD   7
1867  003434  011550                           .WORD   EROIC
1868  003436  010366                           .WORD   ERR27
1869  003440  005337  002402                   DEC     ERRWRD          ;SET ERROR OCCURRED
1870  003444  000205                   10$:    RTS     R5              ;RETURN TO CALLER
1871
```

```
1872
1873                                    ;**********************************************************************
1874                                    ; FUNCTIONAL DESCRIPTION:       GETDAT - GET DATA CODE
1875                                    ;                       THIS ROUTINE GETS THE DATA CODE FROM BSEL4
1876                                    ;                       AND COMPARES IIT TO THE VALUE IN $GDDAT
1877                                    ;                       IF EQUAL EXIT ELSE REPORT ERROR AND EXIT
1878                                    ;
1879                                    ; INPUTS:               R5      = ADDRESS OF CALLER
1880                                    ;                       $GDDAT  = VALUE OF EXPECTED DATA
1881                                    ;
1882                                    ; OUTPUTS:              ERRWRD  = -1 IF ERROR OCCURED
1883                                    ; CALLING SEQUENCE:
1884                                    ;                       JSR     R5,GETDAT
1885                                    ;--**********************************************************************
1886
1887  003446  010537  002406            GETDAT: MOV     R5,ERRADD       ;STORE OFF ERROR ADDRESS
1888  003452  017737  176772  002340            MOV     @BSEL4,$BDDAT   ;GET DATA
1889  003460  023737  002340  002336            CMP     $BDDAT,$GDDAT   ;COMPARE GOOD AND BAD
1890  003466  001411                            BEQ     10$             ;IF OK GO TO 10
1891                                                                    ;ELSE ERROR
1892                                            ;ERROR BAD DATA CODE
1893
1894  003470  012737  012056  002430            MOV     #M30F,CODEW
1895  003476  104455                            TRAP    C$ERDF
1896  003500  000010                            .WORD   8
1897  003502  011550                            .WORD   EROIC
1898  003504  010366                            .WORD   ERR27
1899  003506  005337  002402                   DEC     ERRWRD          ;SET ERROR OCCURRED
1900  003512  000205                    10$:    RTS     R5              ;RETURN TO CALLER
1901
```

```
1902                                    ;**********************************************************************
1903                                    ; FUNCTIONAL DESCRIPTION:       GETCC - GET CHARACTER COUNT
1904                                    ;                       THIS ROUTINE GETS THE CHAR. COUNT FROM EITHER:
1905                                    ;                       (1) CSR6 IF DMP OR DMV IN Q18 MODE
1906                                    ;                       (2) CSR10 IF DMV IN Q22 MODE
1907                                    ;                       AND THEN COMPARES IT TO THE VALUE IN $GDDAT.
1908                                    ;                       IF EQUAL EXIT, ELSE REPORT ERROR AND EXIT
1909                                    ;
1910                                    ; INPUTS:               R5      = ADDRESS OF CALLER
1911                                    ;                       $GDDAT  = VALUE OF EXPECTED DATA
1912                                    ;
1913                                    ; OUTPUTS:              ERRWRD  = -1 IF ERROR OCCURED
1914                                    ; CALLING SEQUENCE:
1915                                    ;                       JSR     R5,GETCC
1916                                    ;--**********************************************************************
1917  003514  010537  002406           GETCC:  MOV     R5,ERRADD       ;STORE OFF RETURN ADDRESS
1918  003520  017737  176730  002340           MOV     @SEL6,$BDDAT    ;GET CSR6 TO BDDAT
1919  003526  005737  002376                   TST     MODQ22          ;IS THIS DMV W/Q22 ?
1920  003532  001403                           BEQ     1$
1921  003534  017737  176720  002340           MOV     @SEL10,$BDDAT   ;IF YES: GET CSR10 INSTEAD
1922  003542  042737  140000  002340  1$:      BIC     #140000,$BDDAT  ;STRIP TO CHAR COUNT
1923  003550  023737  002340  002336           CMP     $BDDAT,$GDDAT   ;COMPARE
1924  003556  001406                           BEQ     10$             ;IF OK GO TO 10
1925
1926                                           ;ELSE REPORT ERROR : BAD CHAR COUNT
1927
1928  003560  104455                           TRAP    C$ERDF
1929  003562  000011                           .WORD   9
1930  003564  012175                           .WORD   MEF16A
1931  003566  010156                           .WORD   ERR23
1932  003570  005337  002402                   DEC     ERRWRD          ;SET ERROR OCCURRED
1933  003574  000205                   10$:    RTS     R5              ;RETURN TO CALLER
1934
1935
```

```
                        ;**********************************************************************
                        ; FUNCTIONAL DESCRIPTION:       GETBA - GET BUFFER ADDRESS
                        ;                       THIS ROUTINE GETS THE BUFFER ADDRESS FROM SEL4
                        ;                       AND THEN COMPARES IT TO THE VALUE IN $GDDAT
                        ;                       IF EQUAL EXIT ELSE REPORT ERROR AND EXIT
                        ;                       (IF DMV IN Q22 MODE: SEL6 IS CHECKED FOR 0).
                        ;
                        ; INPUTS:       R5      = ADDRESS OF CALLER
                        ;                       $GDDAT  = VALUE OF EXPECTED BUFFER ADDRESS
                        ;
                        ; OUTPUTS:      ERRWRD  = -1 IF ERROR OCCURED
                        ; CALLING SEQUENCE:
                        ;                       JSR     R5,GETBA
                        ;--**********************************************************************

003576  010537  002406          GETBA:  MOV     R5,ERRADD       ;STORE OFF ERROR ADDRESS
003602  017737  176642  002340          MOV     @SEL4,$BDDAT    ;GET ADDRESS OUTPUT
003610  023737  002340  002336          CMP     $BDDAT,$GDDAT   ;ARE THEY EQUAL ?
003616  001015                          BNE     1$              ;IF NOT; REPORT IN
003620  005737  002376                  TST     MODQ22          ;* IS THIS Q22 MODE ?
003624  001420                          BEQ     10$             ;* IF NOT; EXIT
003626  012737  000000  002340          MOV     #0,$BDDAT       ;* GET EXPECTED EXTENDED ADDRESS
003634  017737  176614  002336          MOV     @SEL6,$GDDAT    ;* GET ACTUAL EXTENDED ADDRESS
003642  023737  002340  002336          CMP     $BDDAT,$GDDAT   ;* ARE THEY EQUAL ?
003650  001406                          BEQ     10$             ;IF YES: EXIT
                                                                ;ELSE ERROR
003652                          1$:
003652  104455                          TRAP    C$ERDF
003654  000012                          .WORD   10
003656  012240                          .WORD   MEF17A
003660  010156                          .WORD   ERR23
003662  005337  002402                  DEC     ERRWRD          ;SET ERROR OCCURRED
003666  000205                  10$:    RTS     R5              ;RETURN TO CALLER
```

```
                        ;+*********************************************************************
                        ; FUNCTIONAL DESCRIPTION:       GETOC - GET OUTPUT CODE
                        ;                       THIS ROUTINE GETS THE OUTPUT CODE FROM
                        ;                       BSEL6 AND THEN COMPARES IT TO
                        ;                       THE VALUE IN $GDDAT
                        ;                       IF EQUAL EXIT ELSE REPORT ERROR AND EXIT
                        ;
                        ; INPUTS:       R5      = ADDRESS OF CALLER
                        ;               $GDDAT  = VALUE OF EXPECTED OUTPUT CODE
                        ;
                        ; OUTPUTS:      ERRWRD  = -1 IF ERROR OCCURED
                        ; CALLING SEQUENCE:
                        ;               JSR     R5,GETOC
                        ;--*********************************************************************

003670  010537  002406        GETOC:  MOV     R5,ERRADD       ;STORE OFF ERROR ADDRESS
003674  017737  176554  002340        MOV     @BSEL6,$BDDAT   ;GET OUTPUT FROM BSEL6
003702  042737  177400  002340        BIC     #^C<377>,$BDDAT ;STRIP TO VALID BITS
003710  023737  002340  002336        CMP     $BDDAT,$GDDAT   ;ARE THEY EQUAL
003716  001411                      BEQ     10$             ;IF SO GO TO 10
                                                            ;ELSE ERROR
003720  012737  012042  002430        MOV     #M18F,CODEW
003726  104455                      TRAP    C$ERDF
003730  000013                      .WORD   11
003732  011550                      .WORD   EROIC
003734  010366                      .WORD   ERR27
003736  005337  002402              DEC     ERRWRD          ;SET ERROR OCCURRED
003742  000205                10$:  RTS     R5              ;RETURN TO CALLER
```

```
                        ;++*************************************************************************
                        ; FUNCTIONAL DESCRIPTION:  MEMEX - MEMORY EXTENSTION CODE
                        ;                 THIS ROUTINE IS USED WITH THE
                        ;                 MEMORY EXTENTION TESTS. THE ROUTINE FIRST
                        ;                 CHECKS FOR A CONTROL OUT.. IF THE CONTROL
                        ;                 OUT IS A REC COMPLETE IT COMPARES THE FIRST
                        ;                 DATA WORD ON THE EXTENTIONS PAGE IF GOOD
                        ;                 THEN EXIT IF BAD REPORT ERROR AND EXIT.
                        ;                 IF CONTROL OUT IS NON EXISTENT MEMORY THEN
                        ;                 CHECK TO BE SURE MEMORY IS NON-EXISITENT
                        ;                 IF MEMORY EXIST THEN PRINT ERROR AND
                        ;                 EXIT ROUTINE.
                        ;
                        ; INPUTS:         R5      = CALLING ADDRESS
                        ;
                        ; OUTPUTS:        ERRWRD  = -1 IF ERROR OCCURED
                        ; SUBORDINATE ROUTINES USED:
                        ;                 WRDO    = WAIT FOR READY OUT
                        ; CALLING SEQUENCE:
                        ;                 JSR     R4,MEMEX
                        ;--*************************************************************************

003744                  MEMEX:
003744  004537  002646  EXMEM:  JSR     R5,WRDO         ;WAIT FOR READY OUT
003750  005737  002402          TST     ERRWRD
003754  100524                  BMI     EXMEMX
003756  117737  176462  002340  MOVB    @BSEL2,$BDDAT   ;
003764  042737  177770  002340  BIC     #^C<7>,$BDDAT   ;STRIP TO TYPE CODE
003772  122737  000000  002340  CMPB    #0,$BDDAT       ;IS IT REC COMP
004000  001450                  BEQ     EXMEMA          ; IF YES THEN GO TO A
004002  122737  000001  002340  CMPB    #1,$BDDAT       ;IF NOT IS IT CONTROL OUT
004010  001012                  BNE     EXMEMB          ;IF NOT GO TO B
004012  012737  000302  002336  MOV     #302,$GDDAT
004020  117737  176430  002340  MOVB    @BSEL6,$BDDAT
004026  123737  002336  002340  CMPB    $GDDAT,$BDDAT   ;IS IT NON EXISTENT MEM?
004034  001412                  BEQ     EXMEMC          ;IF YES GO TO C
004036  012737  012024  002430  EXMEMB: MOV     #M13F,CODEW
004044  104455                  TRAP    C$ERDF
004046  000014                  .WORD   12
004050  011550                  .WORD   EROIC
004052  010366                  .WORD   ERR27
004054  005337  002402          DEC     ERRWRD          ;SET ERROR FLAG
004060  000462                  BR      EXMEMX          ;PRINT ERROR AND EXIT
004062                  EXMEMC:
                        ;IF ERROR IS NON EXISTENT

004062  005237  177572          INC     177572          ;INCREMENT MM
004066  012737  004216  000004  MOV     #METB,4         ;SET UP TRAP
004074  005737  120000          TST     @#120000                ;TEST THE NON EXISTENT
004100  005037  177572          CLR     177572          ;CLEAR MM
004104  104455                  TRAP    C$ERDF
004106  000015                  .WORD   13
004110  000000                  .WORD   0
004112  007750                  .WORD   ERR20
004114  005337  002402          DEC     ERRWRD
004120  000442                  BR      EXMEMX          ;PRINT ERROR AND EXIT TEST
```

```
2058
2059                                        ; GET HERE IF BUFFER RETURNED OK
2060
2061  004122  005237  177572        EXMEMA: INC     177572          ;ENABLE MM
2062  004126  012737  004202  000004        MOV     #METC,4         ;SET UP TRAP
2063  004134  013737  033536  002336        MOV     MR1+2,$GDDAT    ;GET FIRST WORD FROM NEW PAGE
2064  004142  013737  120000  002340        MOV     120000,$BDDAT   ;AND FIRST RX WORD
2065  004150  005037  177572                CLR     177572          ;DISABLE MM
2066  004154  023737  002336  002340        CMP     $GDDAT,$BDDAT   ;COMPARE DATA
2067  004162  001421                        BEQ     EXMEMX          ;EXIT IF GOOD
2068  004164  104455                        TRAP    C$ERDF
2069  004166  000016                        .WORD   14
2070  004170  000000                        .WORD   0
2071  004172  010002                        .WORD   ERR21
2072  004174  005337  002402                DEC     ERRWRD
2073  004200  000412                        BR      EXMEMX          ;AND EXIT
2074  004202  005037  177572        METC:   CLR     177572          ;DISABLE MM
2075  004206  104455                        TRAP    C$ERDF
2076  004210  000017                        .WORD   15
2077  004212  000000                        .WORD   0
2078  004214  010064                        .WORD   ERR22
2079  004216  005037  177572        METB:   CLR     177572          ;DISABLE MM
2080  004222  062706  000004        META:   ADD     #4,SP           ;;(SP)                  VRG021882
2081  004226  013737  002316  000004 EXMEMX: MOV     SAVE4,4
2082  004234  013737  002320  000006        MOV     SAVE6,6         ;RESTORE TRAPS
2083  004242  000205                        RTS     R5
2084
```

```
                        ;+**********************************************************************
                        ; FUNCTIONAL DESCRIPTION:       WAIT50 - WAIT 50 MICRO SECONDS
                        ;               THIS ROUTINE COUNTS DOWN R1 FROM 200 TO 0
                        ;               IF DMP AND FROM 600 TO 0 IF DMV. THIS
                        ;               IS USED AS A DELAY ROUTINE
                        ;
                        ; CALLING SEQUENCE:
                        ;               JSR     PC,WAIT50
                        ;--**********************************************************************

004244  010146          WAIT50: MOV     R1,-(SP)        ;SAVE R1
004246  012701  007640          MOV     #4000.,R1       ;INIT COUNTER ;; N.M. (CHANGED FROM 200 TO 4000)
004252  005737  002472          TST     OPTYP
004256  001402                  BEQ     3$              ;IF DMP GO TO 3
004260  062701  000620          ADD     #400.,R1        ;ELSE TRIPLE UP TIMER FOR DMV
004264  005301          3$:     DEC     R1              ;DECREMENT COUNTER
004266  001376                  BNE     3$              ;BR IF NOT DONE YET
004270  012601                  MOV     (SP)+,R1        ;RESTORE R1
004272  000207                  RTS     PC              ;RETURN

                        ;+**********************************************************************
                        ; FUNCTIONAL DESCRIPTION:       GWORD   - GET WORD
                        ;               THIS ROUTINE READS A WORD FROM THE M8207 ROM.
                        ;
                        ; INPUTS:       CADDR   = ADDRESS TO BE READ
                        ;
                        ; OUTPUTS:      SEL6    = DATA READ
                        ; SUBORDINATE ROUTINES USED:
                        ;               ROMCLK  - ROUTINE TO ISSUE CLOCKS TO ROM CIRCUT
                        ; CALLING SEQUENCE:
                        ;               JSR     PC,GWORD
                        ;--**********************************************************************

004274  005077  176140  GWORD:  CLR     @SEL0           ;INIT
004300  113777  002405  176136  MOVB    CADDR+1,@SEL2   ;NOW HIGH BYTE OF ADDRESS
004306  004537  004346          JSR     R5,ROMCLK
004312  121053                  .WORD   121053          ;MOV IBUS* 2 TO OBUS* 13
004314  042737  000377  004334  BIC     #377,1$         ;STRIP ADDR FLIED.
004322  153737  002404  004334  BISB    CADDR,1$                ;ADD IN IMM ADDR.
004330  004537  004346          JSR     R5,ROMCLK       ;GO DO BRANCH.
004334  100000          1$:     .WORD   100000          ;BRANCH EXT PUTS ADDR. IN PCREG.
004336  052777  002000  176074  BIS     #2000,@SEL0     ;SET READ ENABLE.
004344  000207                  RTS PC                  ;EXIT.
```

```
2128
2129                            ;**********************************************************************
2130                            ; FUNCTIONAL DESCRIPTION:       ROMCLK  - ROM CLOCK ROUTINE
2131                            ;               THIS ROUTINE ISSUES A SINGE STEP TO THE
2132                            ;               M8207.
2133                            ; INPUTS:       R5      - POINTS TO INSTRUCTION TO BE STEPPED
2134                            ;
2135                            ; RETURN:       RETURN IS TO WORD FOLLWOING INSTRUCTION
2136                            ;
2137                            ; CALLING SEQUENCE:
2138                            ;               JSR     R5,ROMCLK
2139                            ;               .WORD   INSTR           ;INSTURCITON TO EXECUTE
2140                            ;--**********************************************************************
2141
2142  004346                    ROMCLK:
2143  004346  152777  000002  176066        BISB    #2,@BSEL1               ;SET ROMI
2144  004354  012577  176074                MOV     (R5)+,@BSEL6    ;SET INSTRUCTION.
2145  004360  152777  000003  176054        BISB    #3,@BSEL1       ;CLOCK INSTR.
2146  004366  142777  000007  176046        BICB    #7,@BSEL1       ;CLEAR.
2147  004374  000205                        RTS     R5
2148
2149                            ;**********************************************************************
2150                            ; FUNCTIONAL DESCRIPTION:       CRCR    - CRC CALCULATE ROUTINE
2151                            ;               THIS ROUTINE TAKES 16 BITS OF DATA FROM WORDT
2152                            ;               AND CONVERTS THEM INTO PART OF THE SERIAL STREAM
2153                            ;               THAT IS BEING USED TO CALCULATE A CRC-CCITT WORD.
2154                            ;
2155                            ; INPUTS:       WORDT   - WORD TO CALCULATE ON
2156                            ;
2157                            ; IMPLICIT INPUTS:
2158                            ;               CWORD   - MUST BE A -1 FIRST TIME CALLED
2159                            ;
2160                            ; OUTPUTS:      CWORD   - 16 BIT CALCULATED WORD
2161                            ; CALLING SEQUENCE:
2162                            ;               JSR     PC,CRCR
2163                            ;--**********************************************************************
2164  004376  010146            CRCR:   MOV     R1,-(SP)
2165  004400  010246                    MOV     R2,-(SP)
2166  004402  012702  000020            MOV     #16.,R2
2167  004406  000241            10$:    CLC
2168  004410  006037  002374            ROR     CWORD
2169  004414  006037  002372            ROR     WORDT
2170  004420  102011                    BVC     20$
2171  004422  012701  102010            MOV     #102010,R1
2172  004426  043701  002374            BIC     CWORD,R1
2173  004432  042737  102010  002374    BIC     #102010,CWORD
2174  004440  050137  002374            BIS     R1,CWORD
2175  004444  005302            20$:    DEC     R2
2176  004446  003357                    BGT     10$
2177  004450  012602                    MOV     (SP)+,R2
2178  004452  012601                    MOV     (SP)+,R1
2179  004454  000207                    RTS PC
2180
```

```
2181
2182                                    ;++*********************************************************************
2183                                    ; FUNCTIONAL DESCRIPTION:       MINITR  - MASTER CLEAR ROUTINE
2184                                    ;               THIS ROUTINE ISSUES A MASTER CLEAR TO THE DEVICE
2185                                    ;               IF OPTION IS AN 8206 IT ALSO SETS THE RUN BIT.
2186                                    ;
2187                                    ; SUBORDINATE ROUTINES USED:
2188                                    ;               WAIT50  - SHORT DELAY ROUTINE
2189                                    ; CALLING SEQUENCE:
2190                                    ;               JSR     PC,MINITR
2191                                    ;--*********************************************************************
2192
2193  004456  112777  000100  175756  MINITR: MOVB    #100,@BSEL1             ;SET MASTER CLEAR.
2194  004464  022737  000004  002472           CMP     #04,OPTYP               ;IS THIS 8206
2195  004472  001003                           BNE     MIN1R                   ;BRANCH IF NOT
2196  004474  112777  000200  175740           MOVB    #200,@BSEL1             ;SET RUN
2197  004502  000240                  MIN1R:   NOP
2198  004504  004737  004244          1$:     JSR     PC,WAIT50               ;SHORT DELAY.
2199  004510  000207                           RTS     PC                      ;RETURN.
2200                                    ;++*********************************************************************
2201                                    ; FUNCTIONAL DESCRIPTION:       MINITS  - MASTER CLEAR AND INIT
2202                                    ;               THIS ROUTINE ISSUES A MASTER CLEAR, WAITS FOR THE
2203                                    ;               RUN BIT TO SET, CHECKS FOR GOOD COMPLETION OF MICRO
2204                                    ;               DIAGNOSTICS AND ISSUES THE MODE DEFINITION.
2205                                    ;               IF ENTERED AT MINIT1 - SET MODE TO FULL DUPLEX POINT
2206                                    ;               TO POINT
2207                                    ;               IF ENTERED AT MINITS - SET MODE TO FULL DUPLEX CONTROL
2208                                    ;               IF ENTERED AT MINTR  - SET MODE TO VALUE IN AXNUM
2209                                    ;
2210                                    ; OUTPUTS:      ERRWRD  = -1 IF ERROR OCCURS.
2211                                    ;
2212                                    ; IMPLICIT OUTPUTS:
2213                                    ;               DMP EXITS WITH MODE DEFINED
2214                                    ;
2215                                    ; SUBORDINATE ROUTINES USED:
2216                                    ;               TOUT    - TIME OUT ROUTINE
2217                                    ;               WAIT50  - SHORT DELAY ROUTINE
2218                                    ;               WRDO    - WAIT FOR READY OUT
2219                                    ;
2220                                    ; CALLING SEQUENCE:
2221                                    ;               JSR     PC,MINITS       ;OR MINIT1 OR MINTR
2222                                    ;--*********************************************************************
2223  004512  012737  000003  002506  MINIT1: MOV     #03,AXNUM
2224  004520  000403                           BR      MINTR
2225  004522  012737  000005  002506  MINITS: MOV     #05,AXNUM
2226  004530  112777  000100  175704  MINTR:  MOVB    #100,@BSEL1             ;SET MASTER CLEAR.
2227  004536  022737  000004  002472           CMP     #4,OPTYP                ;IS THIS 8206
2228  004544  001003                           BNE     MIN2R                   ;SKIP IF NOT
2229  004546  112777  000200  175666           MOVB    #200,@BSEL1             ;SET RUN BIT
2230  004554  000240                  MIN2R:   NOP
2231  004556  000240                           NOP
2232  004560  012737  004600  002406           MOV     #ERLB7,ERRADD   ;SET ERROR ADDRESS
2233  004566  004537  005070          TLB7:   JSR     R5,TOUT
2234  004572  005737  002402                   TST     ERRWRD
2235  004576  100533                           BMI     MINTE                   ;EXIT IF ERROR
2236  004600                          ERLB7:
```

```
2237  004600  004737  004244          4$:     JSR     PC,WAIT50
2238  004604  005777  175630                  TST     @BSEL0          ;NOW WAIT FOR RUN TO ACTUALLY SET.
2239  004610  100366                          BPL     TLB7
2240  004612  012737  004632  002406          MOV     #ERLB8,ERRADD   ;SET ERROR ADDRESS
2241  004620  004537  005070          TLB8:   JSR     R5,TOUT         ;CHECK TIME OUT
2242  004624  005737  002402                  TST     ERRWRD
2243  004630  100516                          BMI     MINTE           ;EXIT IF ERROR
2244  004632                          ERLB8:
2245  004632  122777  000305  175614  5$:     CMPB    #305,@BSEL6     ;GOOD END TO MICRO DIAG?
2246  004640  001404                          BEQ     2$
2247  004642  122777  000264  175604          CMPB    #264,@BSEL6     ;LINE UNIT FAILURE.?
2248  004650  001363                          BNE     TLB8            ;NO-STAY IN LOOP.
2249                                                                  ;YES,CATCH THE PROBLEM LATER.
2250  004652  012737  000077  002336  2$:     MOV     #77,$GDDAT
2251  004660  032737  000003  002472          BIT     #3,OPTYP        ;IS THIS DMV
2252  004666  001403                          BEQ     3$              ;IF NOT GO TO 3
2253  004670  012737  000033  002336          MOV     #33,$GDDAT
2254  004676  023777  002336  175544  3$:     CMP     $GDDAT,@BSEL4
2255  004704  001407                          BEQ     4$              ;IF CORRECT OPTYP CONTINUE
2256  004706  104457                          TRAP    C$ERSOFT
2257  004710  000025                          .WORD   21
2258  004712  012630                          .WORD   MEF32
2259  004714  010464                          .WORD   ERR32
2260  004716  005337  002402                  DEC     ERRWRD
2261  004722  000461                          BR      MINTE           ;EXIT TEST
2262  004724  032737  000003  002472  4$:     BIT     #3,OPTYP        ;IS THIS DMV
2263  004732  001423                          BEQ     6$              ;IF NOT GO TO 6
2264  004734  005737  002400                  TST     EXLOOP          ;DMV EXTERNAL LOOP FLAG SET?
2265  004740  001020                          BNE     6$              ;IF YES: THEN GO TO 6
2266  004742  112777  000301  175472          MOVB    #301,@BSEL1
2267  004750  004537  002646                  JSR     R5,WRDO         ;WAIT FOR READY OUT
2268  004754  012777  000006  175462          MOV     #06,@BSEL2      ;DO MAINT LOOP FOR TTL LOOPBACK
2269  004762  004537  005070          60$:    JSR     R5,TOUT
2270  004766  005737  002402                  TST     ERRWRD
2271  004772  100435                          BMI     MINTE
2272  004774  005777  175440                  TST     @SEL0
2273  005000  100370                          BPL     60$
2274  005002  152777  000010  175432  6$:     BISB    #BIT3,@BSEL1    ;SET LINE UNIT LOOP.-
2275                                                                  ;THIS ALLOWS US TO SET THE MODE.
2276  005010  052777  000200  175422          BIS     #RQI,@BSEL0
2277  005016  012737  005036  002406          MOV     #ERLB9,ERRADD   ;SET ERROR ADDRESS
2278  005024  004537  005070          TLB9:   JSR     R5,TOUT
2279  005030  005737  002402                  TST     ERRWRD
2280  005034  100414                          BMI     MINTE           ;EXIT IF ERROR
2281  005036  032777  000020  175400  ERLB9:  BIT     #20,@BSEL2      ;WAIT FOR RDI.
2282  005044  001767                          BEQ     TLB9
2283  005046  013777  002506  175400          MOV     AXNUM,@BSEL6    ;;SET UP FOR F/D CONTROL STATION
2284  005054  105077  175360                  CLRB    @BSEL0          ;NO MORE REQUESTS.
2285  005060  012777  000002  175356          MOV     #2,@BSEL2       ;START.
2286  005066  000207                  MINTE:  RTS     PC
2287
```

```

                                     ;++*******************************************************************
                                     ; FUNCTIONAL DESCRIPTION:        TOUT     - TIME OUT ROUTINE
                                     ;                 THIS ROUTINE INC COUNTT LOCATION EVERY
                                     ;                 TIME IT IS CALLED IF COUNTT OVERFLOWS THEN
                                     ;                 TIME OUT IS REPORTED AND THE ROUTINE IS EXITED.
                                     ; CALLING SEQUENCE:
                                     ;                 JSR      R5,TOUT
                                     ;--*******************************************************************
005070  020537  005136               TOUT:    CMP      R5,LASTR5
005074  001011                                BNE      TOUTE
005076  005237  005134                        INC      COUNTT
005102  001012                                BNE      TOUTEX
005104  104455                                TRAP     C$ERDF
005106  000020                                .WORD    16
005110  011456                                .WORD    MEF7
005112  010330                                .WORD    ERR26
005114  005337  002402                        DEC      ERRWRD
005120  005037  005134               TOUTE:   CLR      COUNTT
005124  010537  005136                        MOV      R5,LASTR5          ;SAVE CURRENT PC.
005130                               TOUTEX:
005130  104422                                TRAP     C$BRK
005132  000205                                RTS      R5                 ;EXIT

005134  000000                       COUNTT:  0                           ;NUMBERS OF TIMES IN THIS ROUTINE FROM
                                                                          ;SAME CALLING LOCATION.
005136  000000                       LASTR5:  0                           ;LAST CALLING LOCATION.

```

```
                                ;++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                                ; FUNCTIONAL DESCRIPTION:       STAND   - PRINT STANDARD REGS
                                ;                THIS ROUTINE PRINTS THE  UNIT NUMBER AND
                                ;                CSR ADDRESS OF THE FAILING UNIT AS WELL AS THE
                                ;                CONTENTS OF ALL THE CSR REGS.
                                ;                THE ERROR MESG ROUTINES USE THIS SUBROUTNE
                                ; IMPLICIT INPUTS:
                                ;                CSRS'   - THE CSR ARE EXPECTED TO CONTAIN USEFUL DATA
                                ;                LOGDEV  - THE LOGIGAL DEVICE NUMBER
                                ;                SEL0    - ADDRESS OF THIS UNIT
                                ; CALLING SEQUENCE:
                                ;                JSR     PC,STAND
                                ;--++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

005140                          STAND:
005140  013746  002440                  MOV     SEL0,-(SP)
005144  013746  002332                  MOV     LOGDEV,-(SP)
005150  012746  005306                  MOV     #CFM1,-(SP)
005154  012746  000003                  MOV     #3,-(SP)
005160  010600                          MOV     SP,R0
005162  104415                          TRAP    C$PNTX
005164  062706  000010                  ADD     #10,SP
005170  017746  175260                  MOV     @SEL6,-(SP)
005174  017746  175250                  MOV     @SEL4,-(SP)
005200  017746  175240                  MOV     @SEL2,-(SP)
005204  017746  175230                  MOV     @SEL0,-(SP)
005210  012746  005373                  MOV     #CFM2,-(SP)
005214  012746  000005                  MOV     #5,-(SP)
005220  010600                          MOV     SP,R0
005222  104415                          TRAP    C$PNTX
005224  062706  000014                  ADD     #14,SP
005230  032737  000003  002472          BIT     #3,OPTYP        ;IS THIS A DMV-11 ?
005236  001412                          BEQ     1$              ;IF NOT: SKIP SEL10 PRINTOUT
005240  017746  175214                  MOV     @SEL10,-(SP)
005244  012746  005451                  MOV     #CFM3,-(SP)
005250  012746  000002                  MOV     #2,-(SP)
005254  010600                          MOV     SP,R0
005256  104415                          TRAP    C$PNTX
005260  062706  000006                  ADD     #6,SP
005264                          1$:
005264  012746  005466                  MOV     #CFM4,-(SP)
005270  012746  000001                  MOV     #1,-(SP)
005274  010600                          MOV     SP,R0
005276  104415                          TRAP    C$PNTX
005300  062706  000004                  ADD     #4,SP
005304  000207                          RTS     PC
005306  047045  040445  040506  CFM1:   .ASCIZ  "<N><A>FAILING MCPU IS UNIT #<02><A> WHOSE ADDRESS IS <06>"
005314  046111  047111  020107
005322  041515  052520  044440
005330  020123  047125  052111
005336  021440  047445  022462
005344  020101  044127  051517
005352  020105  042101  051104
005360  051505  020123  051511
005366  022440  033117     000
005373     045  022516  051501  CFM2:   .ASCIZ  "<N><A>SEL0=<06><A> SEL2=<06><A> SEL4=<06><A> SEL6=<06>"
```

```
2372  005400  046105  036460  047445
2373  005406  022466  020101  042523
2374  005414  031114  022475  033117
2375  005422  040445  051440  046105
2376  005430  036464  047445  022466
2377  005436  020101  042523  033114
2378  005444  022475  033117     000
2379  005451     045  020101  042523  CFM3:   .ASCIZ  "%A SEL10=%06"
2380  005456  030514  036460  047445
2381  005464  000066
2382  005466  047045     000          CFM4:   .ASCIZ  "%N"
2383          005472                  .EVEN
2384
2385
```

```
2386                                    ;**********************************************************************
2387                                    ; FUNCTIONAL DESCRIPTION:       RMVRT - VERIFY ROM CONTENTS
2388                                    ;                       THIS ROUTINE READS DMV ROMS USING 256 BYTE READS
2389                                    ;                       AND CALCULATES/CHECKS THE CRC.
2390                                    ; SUBORDINATE ROUTINES:
2391                                    ;                       WRDO    -   WAIT FOR READY OUT (MRDY)
2392                                    ;                       CRCR    -   CALCULATE CRC
2393                                    ; IMPLICIT INPUTS:
2394                                    ;                       ROMADD  -   STARTING ADDRESS OF PARTICULAR ROM
2395                                    ; CALLING SEQUENCE:
2396                                    ;                       JSR     R5,RMVRT
2397                                    ;--**********************************************************************
2398
2399  005472  012737  177777  002374  RMVRT:  MOV     #-1,CWORD               ;INIT CRC WORD
2400  005500  112777  000301  174734           MOVB    #301,@BSEL1             ;*ENTER MAINTENANCE LOOP
2401  005506  004537  002646                  JSR     R5,WRDO                 ;*
2402  005512  005737  002402                  TST     ERRWRD                  ;*
2403  005516  100477                          BMI     RMVEX                   ;*EXIT IF ERROR
2404  005520  005003                          CLR     R3                      ;CLEAR BLOCK_NUMBER
2405
2406  005522  012777  034014  174724  RMVXX:  MOV     #RECBU1,@BSEL6          ;READ 256 BYTES USING M-LOOP
2407  005530  105077  174724                  CLRB    @BSEL10                 ;RCV BUFFER ADDR => BSR10:CSR6
2408  005534  013777  002436  174706           MOV     ROMADD,@BSEL4           ;ROM ADDRESS => CSR4
2409  005542  112777  000003  174674           MOVB    #03,@BSEL2              ;*DO BLOCK READ OF 256 BYTES
2410  005550  004537  002646                  JSR     R5,WRDO                 ;*WAIT FOR MRDY BIT (RDO)
2411  005554  005737  002402                  TST     ERRWRD                  ;*
2412  005560  100456                          BMI     RMVEX                   ;*EXIT IF ERROR
2413
2414  005562  005002                          CLR     R2                      ;CLEAR WORD_INDEX
2415  005564  005703                          TST     R3                      ;IS THIS THE 1ST BLOCK?
2416  005566  001014                          BNE     RMVYY                   ;
2417  005570  013737  034014  002434           MOV     RECBU1,CRCCAL           ;YES: SAVE 1ST WORD OF 1ST BLOCK
2418  005576  005722                          TST     (R2)+                   ;     (CRC CHARACTER)
2419  005600  116237  034014  014024           MOVB    RECBU1(R2),ROMNO        ;SAVE ROM #
2420  005606  005202                          INC     R2                      ;
2421  005610  116237  034014  014026           MOVB    RECBU1(R2),REVNO        ;SAVE REVISION #
2422  005616  005302                          DEC     R2                      ;ADJUST INDEX FOR ROM#
2423
2424  005620  016237  034014  002372  RMVYY:  MOV     RECBU1(R2),WORDT        ;GET INDEXED WORD FROM BUFFER
2425  005626  004737  004376                  JSR     PC,CRCR                 ;CALCULATE CRC WORD
2426  005632  062702  000002                  ADD     #2,R2                   ;(BUMP INDEX)
2427  005636  022702  000400                  CMP     #256.,R2                ;IS THIS THE LAST WORD ?
2428  005642  001366                          BNE     RMVYY                   ;IF NOT: GET NEXT WORD.
2429
2430  005644  020327  000037          RMVAA:  CMP     R3,#31.                 ;IS THIS THE LAST 256 WORD BLOCK?
2431  005650  001405                          BEQ     RMVBB
2432  005652  062737  000400  002436           ADD     #256.,ROMADD            ;NO: ADD 256 TO ADDRESS
2433  005660  005203                          INC     R3                      ;     AND BUMP BLOCK NUMBER
2434  005662  000717                          BR      RMVXX                   ;     AND GO GET SOME MORE
```

```
 2435  005664  000240                    RMVBB:  NOP                             ;(COM CWORD=5137 2374)
 2436  005666  000240                            NOP                             ;YES:
 2437  005670  013737  002434  002372            MOV     CRCCAL,WORDT            ;
 2438  005676  023737  002374  002372            CMP     CWORD,WORDT             ;    COMPARE CRC WORDS...
 2439  005704  001404                            BEQ     RMVEX                   ; AND REPORT ERROR IF NO MATCH.
 2440  005706  104455                            TRAP    C$ERDF
 2441  005710  000021                            .WORD   17
 2442  005712  000000                            .WORD   0
 2443  005714  010224                            .WORD   ERR24
 2444
 2445  005716  000205                    RMVEX:  RTS     R5                      ;RETURN TO CALLER
 2446
```

```
2447                            ;**************************************************************************
2448                            ; FUNCTIONAL DESCRIPTION:       TXRXSR  - TRANSMIT RECEIVE SUBROUTINE
2449                            ;               THIS ROUTINE IS USED BY ALL TESTS THAT TRANSMIT
2450                            ;               AND RECIEVE DATA. THE FIRST PART OF THE ROUTINE VERIFIES
2451                            ;               THE OPERATOR INPUTS AND MAKES SURE THAT INTERFACE
2452                            ;               SELECTION CORRESPOND TO SELECTED BAUD RATES.
2453                            ;               THE SECOND PART OF THE ROUTINE FORMS "TXRX3" AND DOES THE
2454                            ;               FOLLOWING. ESTABLISH TRIBUTARY. THEN EITHER DO ISTRT OR
2455                            ;               MAINT STATE DEPENDING ON FLAG. IF ISTRT THEN CHECK FOR
2456                            ;               RUN STATE IF MAINT STATE THEN GO TO NEXT STEP. NEXT QUE
2457                            ;               REC AND TRANSMIT BUFFERS THEN WAIT FOR OUTPUT. IF MEMORY
2458                            ;               MANAGEMENT EXIT TEST. IF ISTRT LOOK FOR REC COMPLETED
2459                            ;               FOLLOWED BY TX COMPLETED. IF MAINT LOOK FOR TRANSMIT FIRST.
2460                            ;
2461                            ; INPUTS:       TXADD   - ADDRESS OF TRANSMIT BUFFER
2462                            ;               TXCC    - CHAR COUNT OF TX
2463                            ;               RXADD   - ADDRESS OF REC BUFFER
2464                            ;               RXCC    - CHAR COUNT OF REC BUFFER
2465                            ;               GENWRD  - FLAG WORD IF BIT 15 SET-MAINT MODE
2466                            ;                         IF BIT 14 SET THEN MEMORY MGT.
2467                            ;
2468                            ; SUBORDINATE ROUTINES USED:
2469                            ;               WAIT50  - SHORT DELAY
2470                            ;               CONTIN  - CONTROL IN ROUTINE
2471                            ;               GETOUT  - GET CONTROL OUT CODE
2472                            ;               GETOC   - GET OUTPUT CODE
2473                            ;               WRDI    - WAIT FOR READY IN
2474                            ;               GETCC   - GET CHAR COUNT
2475                            ;               GETBA   - GET BUFFER ADDRESS
2476                            ;
2477                            ; CALLING SEQUENCE:
2478                            ;               JSR     R5,TXRXSR       ;IF NOT INTERFACE CHECK
2479                            ;                                        ;CALL AT JSR    R5,TXRX3
2480                            ;--**************************************************************************
2481
2482  005720  022737  000004  002476  TXRXSR: CMP     #4,TSTCON
2483  005726  001002                          BNE     10$             ;BRANCH IF NOT INTERNAL LOOP
2484  005730  000137  006410                  JMP     TXRX3           ;ELSE GO TO 3
2485
2486                                  ;JUMP TO TXRX 3 IF INTERNAL LOOP
2487
2488  005734  013737  002360  002506  10$:     MOV     TRIBN,AXNUM     ;SAVE TRIBN.
2489  005742  005037  002360                  CLR     TRIBN           ;MAKE TRIBN 0
2490                                                                  ;DMV-11 WILL IGNORE THE FOLLOWING...
2491
2492  005746  022737  000000  002476  TXRX1:  CMP     #0,TSTCON       ;IS H3254,H3255 TURN AROUND SELECTED?   ***JPB
2493  005754  001002                          BNE     1$              ;NO, TRY NEXT ONE.                      ***JPB
2494  005756  000137  006062                  JMP     TXRX1B          ;YES.                                   ***JPB
2495
2496  005762  022737  000001  002476  1$:     CMP     #1,TSTCON       ;IS CABLE LOOP SELECTED?                ***JPB
2497  005770  001011                          BNE     2$              ;NO, TRY NEXT ONE.                      ***JPB
2498  005772  142777  000010  174442          BICB    #BIT3,@BSEL1    ;CLEAR LULOOP FOR EXTERNAL CABLE LOOP.  ***JPB
2499  006000  022737  000003  002474          CMP     #3,IFTYP        ;CHECK TO SEE IF V.35 WAS SELECTED?     ***JPB
2500  006006  001472                          BEQ     V35TC           ;YES, BR AND FORCE SET UP OF V.35       ***JPB
2501  006010  000137  006402                  JMP     TXRX2           ;NO, CONTINUE                           ***JPB
2502
```

```
2503  006014  022737  000002  002476  2$:     CMP     #2,TSTCON       ;IS MODEM LOCAL SELECTED?                    ***JPB
2504  006022  001004                          BNE     3$              ;NO, TRY NEXT ONE.                           ***JPB
2505  006024  012704  000110                  MOV     #110,R4         ;SET DTR AND MAINT1                          ***JPB
2506  006030  000137  006040                  JMP     TXRX1A          ;                                            ***JPB
2507
2508  006034  012704  000104          3$:     MOV     #104,R4         ;MUST BE REMOTE MODEM.                       ***JPB
2509                                                                  ;SET DTR AND MAINT2                          ***JPB
2510  006040  012703  000021          TXRX1A: MOV     #21,R3          ;WRITE MODEM CONTROL-BSEL4,(R4)TO REG 13
2511  006044  004537  003162                  JSR     R5,CONTIN       ; WRITE MODEM WITH CORRECT
2512                                                                  ; TYPE OF LOOP CODE
2513  006050  005737  002402                  TST     ERRWRD
2514  006054  100002                          BPL     TXRX1B
2515  006056  000137  006540                  JMP     TXRXA
2516
2517  006062                          TXRX1B:                         ;                                ...
2518  006062  004737  004244          15$:    JSR     PC,WAIT50       ;WAIT FOR A WHILE
2519  006066  142777  000010  174346          BICB    #BIT3,@BSEL1    ;CLEAR LU LOOP (EXTERNAL LOOP SELECTED)
2520
2521                                  ; IF INTEGRAL MODEM  MAKE SURE OPTION
2522                                  ; IS NOT 8053 AND SPEED IS 56K OR HIGHER
2523                                  ; IF NOT INTEGRAL MODEM GO TO NEXT CHECK IF EIA
2524
2525  006074  022737  000001  002474          CMP     #1,IFTYP        ;IS THIS INTEGRAL MODEM
2526  006102  001014                          BNE     XYZTC           ;IF NOT THEN GO CHECK FOR EIA
2527  006104  022737  000001  002472          CMP     #1,OPTYP        ;IS THIS 8053 (DMV NO INTEGRAL)
2528  006112  001453                          BEQ     BADIF           ;IF SO PRINT BAD INTERFACE MESG.
2529  006114  023727  002466  000004          CMP     SPEEDM,#4       ;IS THIS 56 K OR HIGHER
2530  006122  103464                          BLO     BADBR           ;IF NOT PRINT BAD BAUD RATE
2531
2532                                  ; GET HERE IF EVERYTHING OK FOR INTEGRAL
2533
2534  006124  012704  000323                  MOV     #323,R4         ;LOAD R4 WITH INTERFACE TYPE
2535  006130  000137  006354                  JMP     SETIF           ; AND GO SET IT
2536
2537                                  ;IF THIS IS EIA THEN CHECK THAT OPTION IS NOT
2538                                  ; M8054 AND THAT SPEED IS 56K OR LOWER
2539                                  ;IF NOT EIA CHECK IF V.35
2540
2541  006134  022737  000002  002474  XYZTC:  CMP     #2,IFTYP        ;IS THIS EIA INTERFACE
2542  006142  001014                          BNE     V35TC           ;IF NOT GO CHECK FOR V.35 TYPE
2543  006144  022737  000002  002472          CMP     #2,OPTYP        ;IS THIS 8054 (DMV INTEGRAL MODEM)
2544  006152  001433                          BEQ     BADIF           ;IF SO PRINT BAD INTERFACE
2545  006154  023727  002466  000004          CMP     SPEEDM,#4       ;IS THIS HIGHER THAN 56K
2546  006162  101044                          BHI     BADBR           ;IF SO PRINT BAD BAUD RATE
2547
2548                                  ; GET HERE IF EVERYTHING OK FOR EIA
2549
2550  006164  012704  000233                  MOV     #233,R4         ;LOAD R4 WITH INTERFACE TYPE
2551  006170  000137  006354                  JMP     SETIF           ;AND GO SET IT.
2552
2553                                  ;IF V.35 CHECK THAT OPTION IS NOT 8064
2554                                  ;IF NOT V.35 MUST BE 422
2555
2556  006174  022737  000003  002474  V35TC:  CMP     #3,IFTYP        ;IS THIS V.35 INTERFACE
2557  006202  001010                          BNE     T422C           ;IF NOT IT MUST BE 422
2558  006204  022737  000002  002472          CMP     #2,OPTYP        ;IS THIS 8064 (DMV INTEGRAL)
```

```
2559  006212  001413                          BEQ     BADIF           ;IF SO PRINT BAD INTERFACE
2560
2561                                          ; GET HERE IF EVERYTHING OK FOR V.35
2562
2563  006214  012704  000313                  MOV     #313,R4         ;LOAD R4 WITH INTERFACE TYPE AND
2564  006220  000137  006354                  JMP     SETIF                   ;GO SET IT
2565
2566                                          ;IF OPTION TYPE IS DMV THEN ERROR ELSE OK FOR 422
2567
2568  006224  032737  000003  002472  T422C:  BIT     #3,OPTYP        ;IS THIS DMV
2569  006232  001003                          BNE     BADIF           ;IF SO PRINT BAD INTERFACE
2570
2571                                          ; GET HERE IF EVERYTHING OK FOR 422
2572
2573  006234  012704  000133                  MOV     #133,R4
2574  006240  000445                          BR      SETIF           ;LOAD UP INTERFACE AND SET IT
2575
2576                                          ;PRINTS BAD INTERFACE AND EXITS
2577
2578  006242  022737  000001  002346  BADIF:  CMP     #1,STARES
2579  006250  001037                          BNE     TABEN
2580  006252  012746  010530                  MOV     #BADIFM,-(SP)
2581  006256  012746  000001                  MOV     #1,-(SP)
2582  006262  010600                          MOV     SP,R0
2583  006264  104417                          TRAP    C$PNTF
2584  006266  062706  000004                  ADD     #4,SP
2585  006272  000414                          BR      TABM            ;PRINT 1ST PART OF MESSAGE
2586
2587                                          ;PRINTS BAD BAUD RATE AND EXITS
2588
2589  006274  022737  000001  002346  BADBR:  CMP     #1,STARES
2590  006302  001022                          BNE     TABEN
2591  006304  012746  010606                  MOV     #BADBRM,-(SP)
2592  006310  012746  000001                  MOV     #1,-(SP)
2593  006314  010600                          MOV     SP,R0
2594  006316  104417                          TRAP    C$PNTF
2595  006320  062706  000004                  ADD     #4,SP
2596  006324                          TABM:
2597  006324  013746  002370                  MOV     ROMN1,-(SP)
2598  006330  012746  010666                  MOV     #TESTAB,-(SP)
2599  006334  012746  000002                  MOV     #2,-(SP)
2600  006340  010600                          MOV     SP,R0
2601  006342  104417                          TRAP    C$PNTF
2602  006344  062706  000006                  ADD     #6,SP
2603  006350  000137  007406          TABEN:  JMP     TXRXEN          ;AND THEN EXIT SR.
2604
2605                                          ; GET HERE TO SET INTERFACE
2606
2607  006354  032737  000003  002472  SETIF:  BIT     #03,OPTYP       ;IS THIS A DMV11 ?
2608  006362  001007                          BNE     TXRX2           ; YES: SKIP THIS SETUP STUFF !!!
2609  006364  012703  000023                  MOV     #23,R3          ; NO: SET INTERFACE
2610                                                                  ;  WRITE MODEM TEST REGISTER
2611                                                                  ;  BSEL4 (R4) TO REG AX3-15.
2612  006370  004537  003162                  JSR     R5,CONTIN
2613  006374  005737  002402                  TST     ERRWRD
2614  006400  100457                          BMI     TXRXA
```

```
2615
2616  006402  013737  002506  002360  TXRX2:  MOV     AXNUM,TRIBN     ;GET TRIB NUMBER BACK
2617
2618                                          ;ESTABLISH TRIB
2619
2620  006410  012703  000001          TXRX3:  MOV     #01,R3
2621  006414  004537  003162                  JSR     R5,CONTIN       ;ESTABLISH TRIB
2622
2623  006420  005737  002402                  TST     ERRWRD          ;TIME OUT OR REAY ERORS PRINT PC
2624  006424  100445                          BMI     TXRXA           ;EXIT IF ERROR OCCURRED
2625
2626  006426  032737  100000  002432          BIT     #BIT15,GENWRD   ;TEST THE MAINT STATE BIT
2627  006434  001033                          BNE     TXRXB           ;IF SET GO TO 10
2628
2629                                          ;ISTRT TRIB IF NOT MAINT STATE
2630
2631  006436  012703  000003                  MOV     #03,R3          ;ELSE;
2632  006442  004537  003162                  JSR     R5,CONTIN       ;ISTRT THE TRIB
2633                                                                  ; TIME OUT OR READY ERRORS REPORT THIS PC
2634  006446  005737  002402                  TST     ERRWRD          ;
2635  006452  100432                          BMI     TXRXA           ;EXIT IF ERROR OCCURRED
2636
2637                                          ;CHECK FOR RUN STATE
2638
2639  006454  012737  000001  002336          MOV     #01,$GDDAT      ;CHECK FOR CONTROL OUT
2640  006462  004537  003242                  JSR     R5,GETOUT       ; AND CORRECT TRIBN
2641  006466  005737  002402                  TST     ERRWRD          ;
2642  006472  100422                          BMI     TXRXA           ;EXIT IF ERROR OCCURRED
2643  006474  012737  000024  002336          MOV     #24,$GDDAT      ;CHECK FOR RUN STATE
2644  006502  004537  003670                  JSR     R5,GETOC        ; IN OUTPUT CODE
2645  006506  005737  002402                  TST     ERRWRD          ;
2646  006512  100412                          BMI     TXRXA           ;EXIT IF ERROR OCCURRED
2647  006514  042777  000200  173722          BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
2648  006522  000411                          BR      TXRXC           ;AND GO TO 20
2649
2650                                          ; PUT TRIB IN MAINT STATE
2651
2652  006524  012703  000004          TXRXB:  MOV     #04,R3          ;PUT TRIB IN MAINT STATE
2653  006530  004537  003162                  JSR     R5,CONTIN       ;
2654                                                                  ; TIME OUT OR READY ERRORS REPORT THIS PC
2655  006534  005737  002402                  TST     ERRWRD          ;
2656  006540  100002          TXRXA:  BPL     TXRXC           ;
2657  006542  000137  007406                  JMP     TXRXEN          ;EXIT IF ERROR OCCURRED
2658
2659                                          ;QUEUE RECEIVE BUFFER
2660
2661  006546  052777  000200  173664  TXRXC:  BIS     #RQI,@BSEL0     ;SET REQUEST
2662  006554  004537  002732                  JSR     R5,WRDI
2663                                                                  ; TIME OUT OR READY ERROR REPORT THIS PC
2664  006560  005737  002402                  TST     ERRWRD          ;
2665  006564  100002                          BPL     5$              ;
2666  006566  000137  007406                  JMP     TXRXEN          ;EXIT IF ERROR OCCURRED
2667  006572  013777  002422  173650  5$:     MOV     RXADD,@BSEL4    ;SET ADDRESS
2668  006600  113777  002360  173640          MOVB    TRIBN,@BSEL3    ;SET TRIBN
2669
2670  006606  005737  002376                  TST     MODQ22          ;*IS THIS "Q22 MODE" ?
```

```
2671  006612  001411                          BEQ     1$              ;*
2672
2673  006614  013777  002424  173636          MOV     RXCC,@BSEL10    ;*YES: SET CHARACTER COUNT
2674  006622  005077  173626                  CLR     @BSEL6          ;*      CLEAR EXTENDED ADDR BITS
2675  006626  112777  000010  173610          MOVB    #10,@BSEL2      ;*      SET RX BUFFER IN (*Q22 BIT)
2676  006634  000406                          BR      2$              ;*      AND CONTINUE...
2677
2678  006636  013777  002424  173610  1$:     MOV     RXCC, @BSEL6    ;*NO: SET CHAR COUNT [*BA16/17]
2679  006644  112777  000000  173572          MOVB    #0,   @BSEL2    ;       SET RX BUFFER IN
2680
2681                                          ;QUEUE TX BUFFER
2682
2683  006652  004537  002732          2$:     JSR     R5,WRDI         ;WAIT FOR READY
2684                                          ; TIME OUT OR READY ERROR REPORT THIS PC
2685  006656  005737  002402                  TST     ERRWRD          ;
2686  006662  100002                          BPL     35$             ;*
2687  006664  000137  007406                  JMP     TXRXEN          ;*EXIT IF ERROR OCCURRED
2688  006670  013777  002420  173552  35$:    MOV     TXADD,@BSEL4    ;SET TX ADD
2689  006676  113777  002360  173542          MOVB    TRIBN,@BSEL3    ;SET TRIBN
2690
2691  006704  005737  002376                  TST     MODQ22          ;*IS THIS "Q22 MODE" ?
2692  006710  001414                          BEQ     3$              ;*
2693
2694  006712  013777  002426  173540          MOV     TXCC,@BSEL10    ;*YES: SET CHARACTER COUNT
2695  006720  005077  173530                  CLR     @BSEL6          ;*      CLEAR EXTENDED ADDR BITS
2696  006724  042777  000200  173506          BIC     #RQI,@BSEL0     ;*      CLEAR REQUEST
2697  006732  112777  000014  173504          MOVB    #14,@BSEL2      ;*      SET UP TX BUFFER (*Q22 BIT)
2698  006740  000411                          BR      4$              ;*      AND CONTINUE...
2699
2700  006742  013777  002426  173504  3$:     MOV     TXCC, @BSEL6    ;*NO: SET CHAR COUNT [*BA16/17]
2701  006750  042777  000200  173462          BIC     #RQI,@BSEL0     ;       CLEAR REQUEST
2702  006756  112777  000004  173460          MOVB    #04,  @BSEL2    ;       SET UP TX BUFFER
2703
2704  006764  032737  040000  002432  4$:     BIT     #BIT14,GENWRD
2705  006772  001402                          BEQ     20$
2706  006774  000137  007406                  JMP     TXRXEN          ;IF  MM GO TO RETURN
2707  007000  005037  007410          20$:    CLR     MTFLG           ;* CLEAR LOCAL_MAINT_FLAG
2708  007004  005737  002432                  TST     GENWRD
2709  007010  100052                          BPL     TXRXG           ;GO AHEAD IF NOT MAINT STATE
2710
2711                                          ;CHECK FOR RX COMPLETED
2712
2713                                          ; NOTE: IF MAINT STATE THEN CHECK FOR RX AND TX BUFFERS
2714                                          ;       RETURNED (ORDER NOT IMPORTANT).
2715                                          ;  BUT: IF NOT MAINT STATE THEN RX BUFFER MUST BE RETURNED
2716                                          ;       FIRST AND TX BUFFER SECOND (OR ERROR REPORTED).
2717                                                                  ;* IF WE ARE IN MAINT STATE ....
2718  007012  004537  002646                  JSR     R5,WRDO         ;* WAIT FOR READY_OUT
2719  007016  005737  002402                  TST     ERRWRD          ;*
2720  007022  100571                          BMI     TXRXEN          ;* EXIT IF ERROR
2721  007024  117704  173414                  MOVB    @BSEL2,R4       ;* GET COMMAND TYPE
2722  007030  042704  177770                  BIC     #177770,R4      ;* STRIP EXCESS BITS
2723  007034  022704  000004                  CMP     #4,R4           ;* CHECK FOR TX BUFFER RETURNED
2724  007040  001403                          BEQ     40$             ;* IF YES: GO CHECK IT
2725  007042  005337  007410                  DEC     MTFLG           ;* NO: MTFLG=(-1) TO INDICATE TXBUF
2726  007046  000433                          BR      TXRXG           ;*     RETURNED FIRST
```

```
2727
2728  007050  012737  000004  002336  40$:    MOV     #04,$GDDAT
2729  007056  004537  003242                  JSR     R5,GETOUT       ;GET OUTPUT CODE
2730  007062  005737  002402                  TST     ERRWRD
2731  007066  100547                          BMI     TXRXEN          ;EXIT IF ERROR
2732  007070  013737  002426  002336          MOV     TXCC,$GDDAT     ;*
2733  007076  004537  003514                  JSR     R5,GETCC        ;*ELSE CHECK TX CHAR COUNT
2734  007102  005737  002402                  TST     ERRWRD          ;*
2735  007106  100537                          BMI     TXRXEN          ;*EXIT IF ERROR
2736  007110  013737  002420  002336          MOV     TXADD,$GDDAT
2737  007116  004537  003576                  JSR     R5,GETBA        ;IS THE TX BUFFER ADDR RIGHT ?
2738  007122  005737  002402                  TST     ERRWRD          ;
2739  007126  100527                          BMI     TXRXEN          ;EXIT IF ERROR OCCURED
2740
2741  007130  042777  000200  173306          BIC     #RDO,@BSEL2     ;CLEAR READY OUT
2742  007136  012737  000000  002336  TXRXG:  MOV     #0,  $GDDAT     ;
2743  007144  004537  003242                  JSR     R5,GETOUT       ;CHECK FOR RX RETURNED
2744  007150  005737  002402                  TST     ERRWRD          ;
2745  007154  100514                          BMI     TXRXEN          ;EXIT IF ERROR OCCURRED
2746  007156  013737  002426  002336          MOV     TXCC,$GDDAT     ;
2747  007164  004537  003514                  JSR     R5,GETCC        ;IS THE CHAR COUNT CORRECT
2748  007170  005737  002402                  TST     ERRWRD          ;
2749  007174  100504                          BMI     TXRXEN          ;EXIT IF ERROR OCCURRED
2750  007176  013737  002422  002336          MOV     RXADD,$GDDATT
2751  007204  004537  003576                  JSR     R5,GETBA        ;IS THE BUFFER ADD RIGHT
2752  007210  005737  002402                  TST     ERRWRD          ;
2753  007214  100474                          BMI     TXRXEN          ;EXIT IF ERROR OCCURRED
2754                                  ;*******************************************************
2755                                                                  ;DATA CHECK....
2756  007216  013703  002422                  MOV     RXADD,R3
2757  007222  013701  002420                  MOV     TXADD,R1        ;SET UP ADDRESS
2758  007226  005004                          CLR     R4              ;CLEAR R4
2759  007230                          25$:
2760  007230  112337  002340          26$:    MOVB    (R3)+,$BDDAT    ;GET BYTE OF RX
2761  007234  112137  002336          28$:    MOVB    (R1)+,$GDDAT    ;GET BYTE OF TX
2762  007240  123737  002340  002336          CMPB    $BDDAT,$GDDAT           ;ARE THEY THE SAME
2763  007246  001411                          BEQ     30$             ;IF SO GO TO 30
2764  007250  005204                          INC     R4              ;MAKE COUNT RIGHT
2765  007252  104455                          TRAP    C$ERDF
2766  007254  000022                          .WORD   18
2767  007256  012401                          .WORD   MEF19A
2768  007260  007710                          .WORD   ERR19
2769  007262  005337  002402                  DEC     ERRWRD
2770  007266  005304                          DEC     R4                      ;MAKE COUNT RIGHT
2771  007270  000446                          BR      TXRXEN          ;EXIT IF ERROR
2772  007272  005204                  30$:    INC     R4                      ;BUMP TO NEXT BYTE
2773  007274  020437  002426                  CMP     R4,TXCC         ;ARE WE DONE?
2774  007300  103753                          BLO     25$             ;IF NOT GO BACK
2775                                  ;*******************************************************
2776  007302  005737  007410                  TST     MTFLG           ;* CHECK LOCAL_MAINT_FLAG
2777  007306  001401                          BEQ     31$             ;* IF CLEARED: GOTO 31$
2778  007310  000403                          BR      32$             ;* SET: CHECK EXPECTED TXBUFF RETURN
2779
2780  007312  005737  002432          31$:    TST     GENWRD          ;TEST FOR MAINT STATE
2781  007316  100433                          BMI     TXRXEN          ;RETURN TO CALLER IF MAINT STATE
2782  007320  042777  000200  173116  32$:    BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
```

```
 2783  007326  012737  000004  002336          MOV     #4,$GDDAT
 2784  007334  004537  003242                  JSR     R5,GETOUT       ;CHECK FOR TX BUFF COMP
 2785  007340  005737  002402                  TST     ERRWRD          ;*
 2786  007344  100420                          BMI     TXRXEN          ;*IF ERROR: THEN EXIT
 2787  007346  013737  002426  002336          MOV     TXCC,$GDDAT     ;*
 2788  007354  004537  003514                  JSR     R5,GETCC        ;*ELSE CHECK TX CHAR COUNT
 2789  007360  005737  002402                  TST     ERRWRD          ;*
 2790  007364  100410                          BMI     TXRXEN          ;*EXIT IF ERROR
 2791  007366  013737  002420  002336          MOV     TXADD,$GDDAT
 2792  007374  004537  003576                  JSR     R5,GETBA        ;IS THE TX BUFFER ADDR RIGHT ?
 2793  007400  005737  002402                  TST     ERRWRD          ;
 2794  007404  100400                          BMI     TXRXEN          ;EXIT IF ERROR OCCURED
 2795  007406  000205                  TXRXEN: RTS     R5
 2796
 2797  007410  000000                  MTFLG:  0                       ;* LOCAL_MAINT_FLAG
 2798                                                                  ;* (IF MAINT MODE * MTFLG SET THEN TXBUF
 2799                                                                  ;*  RETURN EXPECTED AFTER RXBUF RETURN)
```

```
                                .SBTTL  GLOBAL ERROR REPORT SECTION

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

007412                          ERR1::
007412  013746  002440                  MOV     SEL0,-(SP)
007416  012746  010737                  MOV     #MEF1,-(SP)
007422  012746  000002                  MOV     #2,-(SP)
007426  010600                          MOV     SP,R0
007430  104414                          TRAP    C$PNTB
007432  062706  000006                  ADD     #6,SP
007436                          L10003:
007436  104423                          TRAP    C$MSG

                                        ;FAILING CODE

007440                          ERR3::
007440  017746  173010                  MOV     @BSEL6,-(SP)
007444  012746  011147                  MOV     #MEF3,-(SP)
007450  012746  000002                  MOV     #2,-(SP)
007454  010600                          MOV     SP,R0
007456  104414                          TRAP    C$PNTB
007460  062706  000006                  ADD     #6,SP
007464  004737  005140                  JSR     PC,STAND
007470                          L10004:
007470  104423                          TRAP    C$MSG

007472                          ERR5::
007472  013746  002340                  MOV     $BDDAT,-(SP)
007476  013746  002336                  MOV     $GDDAT,-(SP)
007502  012746  011305                  MOV     #MEF5,-(SP)
007506  012746  000003                  MOV     #3,-(SP)
007512  010600                          MOV     SP,R0
007514  104414                          TRAP    C$PNTB
007516  062706  000010                  ADD     #10,SP
007522  004737  005140                  JSR     PC,STAND
007526                          L10005:
007526  104423                          TRAP    C$MSG

007530                          ERR6::
007530  013746  002340                  MOV     $BDDAT,-(SP)
007534  013746  002336                  MOV     $GDDAT,-(SP)
007540  012746  011400                  MOV     #MEF6,-(SP)
007544  012746  000003                  MOV     #3,-(SP)
007550  010600                          MOV     SP,R0
007552  104414                          TRAP    C$PNTB
007554  062706  000010                  ADD     #10,SP
007560  004737  005140                  JSR     PC,STAND
007564                          L10006:
007564  104423                          TRAP    C$MSG

                                        ;PRINT FAILED TO SET RDI
```

```
2856
2857  007566                          ERR9::
2858  007566  012746  011722                  MOV     #MRDI,-(SP)
2859  007572  012746  000001                  MOV     #1,-(SP)
2860  007576  010600                          MOV     SP,R0
2861  007600  104414                          TRAP    C$PNTB
2862  007602  062706  000004                  ADD     #4,SP
2863  007606  004737  005140                  JSR     PC,STAND
2864  007612                          L10007:
2865  007612  104423                          TRAP    C$MSG
2866
2867                                          ;PRINT FAILED TO SET RDO
2868
2869  007614                          ERR10::
2870  007614  012746  011746                  MOV     #MRDO,-(SP)
2871  007620  012746  000001                  MOV     #1,-(SP)
2872  007624  010600                          MOV     SP,R0
2873  007626  104414                          TRAP    C$PNTB
2874  007630  062706  000004                  ADD     #4,SP
2875  007634  004737  005140                  JSR     PC,STAND
2876  007640                          L10010:
2877  007640  104423                          TRAP    C$MSG
2878
2879
2880                                          ;PRINTS GOOD AND BAD DATA (BYTES) AND
2881                                          ;FAILING PC ADDRS AND STANDARD REGS
2882
2883  007642                          ERR18::
2884  007642  013746  002406                  MOV     ERRADD,-(SP)
2885  007646  012746  011653                  MOV     #MFPC,-(SP)
2886  007652  013746  002340                  MOV     $BDDAT,-(SP)
2887  007656  013746  002336                  MOV     $GDDAT,-(SP)
2888  007662  012746  012343                  MOV     #MEF18,-(SP)
2889  007666  012746  000005                  MOV     #5,-(SP)
2890  007672  010600                          MOV     SP,R0
2891  007674  104414                          TRAP    C$PNTB
2892  007676  062706  000014                  ADD     #14,SP
2893  007702  004737  005140                  JSR     PC,STAND
2894  007706                          L10011:
2895  007706  104423                          TRAP    C$MSG
2896
2897                                          ;DATA COMPARE ERROR
2898
2899  007710                          ERR19::
2900  007710  013746  002340                  MOV     $BDDAT,-(SP)
2901  007714  013746  002336                  MOV     $GDDAT,-(SP)
2902  007720  010446                          MOV     R4,-(SP)
2903  007722  012746  012434                  MOV     #MEF19,-(SP)
2904  007726  012746  000004                  MOV     #4,-(SP)
2905  007732  010600                          MOV     SP,R0
2906  007734  104414                          TRAP    C$PNTB
2907  007736  062706  000012                  ADD     #12,SP
2908  007742  004737  005140                  JSR     PC,STAND
2909  007746                          L10012:
2910  007746  104423                          TRAP    C$MSG
2911
```

```
2912                                            ;NON-EXISTENT MEMORY ERROR
2913
2914  007750                                    ERR20::
2915  007750  013746  002542                           MOV     $TMP0,-(SP)
2916  007754  012746  012675                           MOV     #TFM20,-(SP)
2917  007760  012746  000002                           MOV     #2,-(SP)
2918  007764  010600                                   MOV     SP,R0
2919  007766  104414                                   TRAP    C$PNTB
2920  007770  062706  000006                           ADD     #6,SP
2921  007774  004737  005140                           JSR     PC,STAND
2922  010000                                    L10013:
2923  010000  104423                                   TRAP    C$MSG
2924
2925  010002                                    ERR21::
2926  010002  012746  013020                           MOV     #TFM21,-(SP)
2927  010006  012746  000001                           MOV     #1,-(SP)
2928  010012  010600                                   MOV     SP,R0
2929  010014  104414                                   TRAP    C$PNTB
2930  010016  062706  000004                           ADD     #4,SP
2931  010022  013746  002340                           MOV     $BDDAT,-(SP)
2932  010026  013746  002336                           MOV     $GDDAT,-(SP)
2933  010032  013746  002542                           MOV     $TMPC,-(SP)
2934  010036  012746  013107                           MOV     #TFM2A,-(SP)
2935  010042  012746  000004                           MOV     #4,-(SP)
2936  010046  010600                                   MOV     SP,R0
2937  010050  104414                                   TRAP    C$PNTB
2938  010052  062706  000012                           ADD     #12,SP
2939  010056  004737  005140                           JSR     PC,STAND
2940  010062                                    L10014:
2941  010062  104423                                   TRAP    C$MSG
2942
2943  010064                                    ERR22::
2944  010064  012746  013170                           MOV     #TFM22,-(SP)
2945  010070  012746  000001                           MOV     #1,-(SP)
2946  010074  010600                                   MOV     SP,R0
2947  010076  104414                                   TRAP    C$PNTB
2948  010100  062706  000004                           ADD     #4,SP
2949  010104  013746  002542                           MOV     $TMP0,-(SP)
2950  010110  012746  013256                           MOV     #TFM22A,-(SP)
2951  010114  012746  000002                           MOV     #2,-(SP)
2952  010120  010600                                   MOV     SP,R0
2953  010122  104414                                   TRAP    C$PNTB
2954  010124  062706  000006                           ADD     #6,SP
2955  010130  012746  013345                           MOV     #TFM22B,-(SP)
2956  010134  012746  000001                           MOV     #1,-(SP)
2957  010140  010600                                   MOV     SP,R0
2958  010142  104414                                   TRAP    C$PNTB
2959  010144  062706  000004                           ADD     #4,SP
2960  010150  004737  005140                           JSR     PC,STAND
2961  010154                                    L10015:
2962  010154  104423                                   TRAP    C$MSG
2963
2964
2965                                            ;PRINTS GOOD AND BAD DATA (WORDS) AND
2966                                            ;FAILING PC ADDRS AND STANDARD REGS
2967
```

```
2968  010156
2969  010156  013746  002406          ERR23::
2970  010162  012746  011653                MOV     ERRADD,-(SP)
2971  010166  013746  002340                MOV     #MFPC,-(SP)
2972  010172  013746  002336                MOV     $BDDAT,-(SP)
2973  010176  012746  012522                MOV     $GDDAT,-(SP)
2974  010202  012746  000005                MOV     #MEF23,-(SP)
2975  010206  010600                        MOV     #5,-(SP)
2976  010210  104414                        MOV     SP,R0
2977  010212  062706  000014                TRAP    C$PNTB
2978  010216  004737  005140                ADD     #14,SP
2979  010222                                JSR     PC,STAND
2980  010222  104423                L10016:
2981                                        TRAP    C$MSG
2982  010224
2983  010224  013746  002374          ERR24::
2984  010230  013746  002372                MOV     CWORD,-(SP)
2985  010234  013746  002366                MOV     WORDT,-(SP)
2986  010240  012746  013431                MOV     ROMN,-(SP)
2987  010244  012746  000004                MOV     #TFM24,-(SP)
2988  010250  010600                        MOV     #4,-(SP)
2989  010252  104414                        MOV     SP,R0
2990  010254  062706  000012                TRAP    C$PNTB
2991  010260  004737  005140                ADD     #12,SP
2992  010264                                JSR     PC,STAND
2993  010264  104423                L10017:
2994                                        TRAP    C$MSG
2995  010266
2996  010266  013746  002372          ERR25::
2997  010272  013746  002370                MOV     WORDT,-(SP)
2998  010276  013746  002366                MOV     ROMN1,-(SP)
2999  010302  012746  013523                MOV     ROM#:,-(SP)
3000  010306  012746  000004                MOV     #TFM25,-(SP)
3001  010312  010600                        MOV     #4,-(SP)
3002  010314  104414                        MOV     SP,R0
3003  010316  062706  000012                TRAP    C$PNTB
3004  010322  004737  005140                ADD     #12,SP
3005  010326                                JSR     PC,STAND
3006  010326  104423                L10020:
3007                                        TRAP    C$MSG
3008
3009                                        ;PRINTS FAILING PC ADDRESS AND STANARD REGS
3010  010330
3011  010330  013746  002406          ERR26::
3012  010334  012746  011653                MOV     ERRADD,-(SP)
3013  010340  012746  011645                MOV     #MFPC,-(SP)
3014  010344  012746  000003                MOV     #MEF1A,-(SP)
3015  010350  010600                        MOV     #3,-(SP)
3016  010352  104414                        MOV     SP,R0
3017  010354  062706  000010                TRAP    C$PNTB
3018  010360  004737  005140                ADD     #10,SP
3019  010364                                JSR     PC,STAND
3020  010364  104423                L10021:
3021                                        TRAP    C$MSG
3022
3023                                        ;PRINTS FAILING PC ADDRESS AND
                                            ;CODE IN ERROR FROM CODEW AND
```

```
                                                 ;STANDARD REGISTERS

        010366                          ERR27::
        010366  013746  002406                   MOV     ERRADD,-(SP)
        010372  012746  011653                   MOV     #MFPC,-(SP)
        010376  012746  011645                   MOV     #MEF1A,-(SP)
        010402  012746  000003                   MOV     #3,-(SP)
        010406  010600                           MOV     SP,R0
        010410  104414                           TRAP    C$PNTB
        010412  062706  000010                   ADD     #10,SP
        010416  013746  002340                   MOV     $BDDAT,-(SP)
        010422  013746  002336                   MOV     $GDDAT,-(SP)
        010426  012746  011772                   MOV     #MGB,-(SP)
        010432  013746  002430                   MOV     CODEW,-(SP)
        010436  012746  011600                   MOV     #MEF11,-(SP)
        010442  012746  000005                   MOV     #5,-(SP)
        010446  010600                           MOV     SP,R0
        010450  104414                           TRAP    C$PNTB
        010452  062706  000014                   ADD     #14,SP
        010456  004737  005140                   JSR     PC,STAND
        010462                          L10022:
        010462  104423                           TRAP    C$MSG

                                                 ;PRINTS THE STANDARD REGS

        010464                          ERR32::
        010464  012746  010512                   MOV     #BASER,-(SP)
        010470  012746  000001                   MOV     #1,-(SP)
        010474  010600                           MOV     SP,R0
        010476  104414                           TRAP    C$PNTB
        010500  062706  000004                   ADD     #4,SP
        010504  004737  005140                   JSR     PC,STAND
        010510                          L10023:
        010510  104423                           TRAP    C$MSG

        010512  040445  040502  044523  BASER:   .ASCIZ  "%ABASIC ERROR"
        010520  020103  051105  047522
        010526  000122
        010530  047045  040445  044440  BADIFM:  .ASCIZ  "%N%A INCORRECT INTERFACE FOR OPTION SELECTED "
        010536  041516  051117  042522
        010544  052103  044440  052116
        010552  051105  040506  042503
        010560  043040  051117  047440
        010566  052120  047511  020116
        010574  042523  042514  052103
        010602  042105  000040
        010606  047045  040445  044440  BADBRM:  .ASCIZ  "%N%A INCORRECT BAUD RATE FOR INTERFACE SELECTED"
        010614  041516  051117  042522
        010622  052103  041040  052501
        010630  020104  040522  042524
        010636  043040  051117  044440
        010644  052116  051105  040506
        010652  042503  051440  046105
        010660  041505  042524  000104
        010666  047045  040445  025040  TESTAB:  .ASCIZ  "%N%A ****** SUBTEST %02%A ABORTED ***** "
        010674  025052  025052  020052
```

```
3080  010702  052523  052102  051505
3081  010710  020124  047445  022462
3082  010716  020101  041101  051117
3083  010724  042524  020104  025052
3084  010732  025052  020052     000
3085
3086  010737     045  020101  042101  MEF1:   .ASCIZ  "%A ADDRESSING PROBLEM UNIT ADDRESS %O6%N"
3087  010744  051104  051505  044523
3088  010752  043516  050040  047522
3089  010760  046102  046505  052440
3090  010766  044516  020124  042101
3091  010774  051104  051505  020123
3092  011002  047445  022466  000116
3093  011010  042101  051104  051505  EMTO:   .ASCIZ  /ADDRESS ERROR -TRAP 4/
3094  011016  020123  051105  047522
3095  011024  020122  052055  040522
3096  011032  020120  000064
3097  011036  051445  022463  041501  FMTO:   .ASCIZ  /%S3%ACSR (SEL%D1%A) DOES NOT RESPOND%N/
3098  011044  051123  024040  042523
3099  011052  022514  030504  040445
3100  011060  020051  047504  051505
3101  011066  047040  052117  051040
3102  011074  051505  047520  042116
3103  011102  047045     000
3104  011105     111  052116  051105  MEF3A:  .ASCIZ  /INTERNAL DMP-11 DIAGNOSTIC FAILED/
3105  011112  040516  020114  046504
3106  011120  026520  030461  042040
3107  011126  040511  047107  051517
3108  011134  044524  020103  040506
3109  011142  046111  042105     000
3110  011147     045  052101  051505  MEF3:   .ASCII  "%ATEST CODE- %03"
3111  011154  020124  047503  042504
3112  011162  020055  047445     063
3113  011167     045  022516  044501  MEF4:   .ASCIZ  /%N%AINTERNAL DMP-11-LINE UNIT TEST FAILURE/
3114  011174  052116  051105  040516
3115  011202  020114  046504  026520
3116  011210  030461  046055  047111
3117  011216  020105  047125  052111
3118  011224  052040  051505  020124
3119  011232  040506  046111  051125
3120  011240  000105
3121  011242  047111  042524  043122  MEFC:   .ASCIZ  /INTERFACE MICRO-DIAGNOSTIC FAILURE/
3122  011250  041501  020105  044515
3123  011256  051103  026517  044504
3124  011264  043501  047516  052123
3125  011272  041511  043040  044501
3126  011300  052514  042522     000
3127  011305     045  020101  052515  MEF5:   .ASCII  "%A MULTIPORT RAM WRITE/READ ERROR%N"
3128  011312  052114  050111  051117
3129  011320  020124  040522  020115
3130  011326  051127  052111  027505
3131  011334  042522  042101  042440
3132  011342  051122  051117  047045
3133  011350  040445  043440  047517          .ASCIZ  "%A GOOD= %03%A BAD= %03"
3134  011356  036504  022440  031517
3135  011364  040445  041040  042101
```

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3136  011372  020075  047445  000063
3137
3138  011400  040445  047040  051120  MEF6:   .ASCII  "%A NPR TRANSFER TEST"
3139  011406  052040  040522  051516
3140  011414  042506  020122  042524
3141  011422  052123
3142  011424  047045  040445  043440          .ASCIZ  "%N%A GOOD= %O6%A BAD= %O6"
3143  011432  047517  036504  022440
3144  011440  033117  040445  041040
3145  011446  042101  020075  047445
3146  011454  000066
3147
3148  011456  047125  054105  042520  MEF7:   .ASCIZ  /UNEXPECTED TEST LOOP HANG/
3149  011464  052103  042105  052040
3150  011472  051505  020124  047514
3151  011500  050117  044040  047101
3152  011506  000107
3153  011510  046504  020120  047111  MEF8:   .ASCIZ  /DMP INTERRUPTED TO WRONG VECTOR/
3154  011516  042524  051122  050125
3155  011524  042524  020104  047524
3156  011532  053440  047522  043516
3157  011540  053040  041505  047524
3158  011546  000122
3159  011550  047111  047503  051122  EROIC:  .ASCIZ  /INCORRECT CODE RETURNED/
3160  011556  041505  020124  047503
3161  011564  042504  051040  052105
3162  011572  051125  042516  000104
3163  011600  047045  052045  040445  MEF11:  .ASCIZ  '%N%T%A CODE INCORRECT%N%T%N%O6%S3%O6'
3164  011606  041440  042117  020105
3165  011614  047111  047503  051122
3166  011622  041505  022524  022516
3167  011630  022524  022516  033117
3168  011636  051445  022463  033117
3169  011644     000
3170  011645     045  022524  033117  MEF1A:  .ASCIZ  '%T%O6'
3171  011652     000
3172  011653     106  044501  052514  MFPC:   .ASCIZ  'FAILURE AT PC '
3173  011660  042522  040440  020124
3174  011666  041520  000040
3175
3176  011672  047522  020115  052506  MRFT:   .ASCIZ  'ROM FUNCTION TEST ERROR'
3177  011700  041516  044524  047117
3178  011706  052040  051505  020124
3179  011714  051105  047522  000122
3180  011722  040445  042122  020111  MRDI:   .ASCIZ  '%ARDI FAILED TO SET'
3181  011730  040506  046111  042105
3182  011736  052040  020117  042523
3183  011744  000124
3184  011746  040445  042122  020117  MRDO:   .ASCIZ  '%ARDO FAILED TO SET'
3185  011754  040506  046111  042105
3186  011762  052040  020117  042523
3187  011770  000124
3188  011772  047507  042117  020040  MGB:    .ASCIZ  'GOOD       BAD'
3189  012000  020040  020040  041040
3190  012006  042101     000
3191  012011     122  052105  051125  M12F:   .ASCIZ  'RETURN KEY'
```

```
  3192  012016  020116  042513  000131
  3193  012024  051105  047522  000122  M13F:   .ASCIZ  'ERROR'
  3194  012032  042122  000117           MFRO:   .ASCIZ  'RDO'
  3195  012036  042122  000111           MFRI:   .ASCIZ  'RDI'
  3196  012042  052517  050124  052125  M18F:   .ASCIZ  'OUTPUT'
  3197  012050     000
  3198  012051     124  050131  000105  M28F:   .ASCIZ  'TYPE'
  3199  012056  040504  040524     000  M30F:   .ASCIZ  'DATA'
  3200  012063     122  044504  051440  MEF14:  .ASCIZ  "RDI SET WHEN EXPECTING RDO TO BE SET"
  3201  012070  052105  053440  042510
  3202  012076  020116  054105  042520
  3203  012104  052103  047111  020107
  3204  012112  042122  020117  047524
  3205  012120  041040  020105  042523
  3206  012126  000124
  3207  012130  042122  020117  042523  MEF15:  .ASCIZ  "RDO SET WHEN EXPECTING RDI TO BE SET"
  3208  012136  020124  044127  047105
  3209  012144  042440  050130  041505
  3210  012152  044524  043516  051040
  3211  012160  044504  052040  020117
  3212  012166  042502  051440  052105
  3213  012174     000
  3214  012175     111  041516  051117  MEF16A: .ASCIZ  /INCORRECT CHARACTER COUNT RETURNED/
  3215  012202  042522  052103  041440
  3216  012210  040510  040522  052103
  3217  012216  051105  041440  052517
  3218  012224  052116  051040  052105
  3219  012232  051125  042516  000104
  3220  012240  047111  047503  051122  MEF17A: .ASCIZ  /INCORRECT REC BUFFER ADDR. RETURNED/
  3221  012246  041505  020124  042522
  3222  012254  020103  052502  043106
  3223  012262  051105  040440  042104
  3224  012270  027122  051040  052105
  3225  012276  051125  042516  000104
  3226  012304  047111  047503  051122  MEF18A: .ASCIZ  /INCORRECT TRIB NUMBER RETURNED/
  3227  012312  041505  020124  051124
  3228  012320  041111  047040  046525
  3229  012326  042502  020122  042522
  3230  012334  052524  047122  042105
  3231  012342     000
  3232  012343     045  043501  047517  MEF18:  .ASCII  "%AGOOD= %03%A BAD= %03"
  3233  012350  036504  022440  031517
  3234  012356  040445  041040  042101
  3235  012364  020075  047445     063
  3236  012371     045  022516  022524          .ASCIZ  "%N%T%06"
  3237  012376  033117     000
  3238  012401     115  051505  040523  MEF19A: .ASCIZ  /MESSAGE DATA COMPARE ERROR/
  3239  012406  042507  042040  052101
  3240  012414  020101  047503  050115
  3241  012422  051101  020105  051105
  3242  012430  047522  000122
  3243  012434  040445  044103  051101  MEF19:  .ASCII  "%ACHARACTER# %03%A SENT CODE"
  3244  012442  041501  042524  021522
  3245  012450  022440  031517  040445
  3246  012456  051440  047105  020124
  3247  012464  047503  042504
```

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3248  012470  022440  031517  040445          .ASCIZ  " %03%A RECEIVED CODES %03"
3249  012476  051040  041505  044505
3250  012504  042526  020104  047503
3251  012512  042504  020123  047445
3252  012520  000063
3253  012522  040445  047507  042117  MEF23:  .ASCII  "%AGOOD= %06%A BAD= %06"
3254  012530  020075  047445  022466
3255  012536  020101  040502  036504
3256  012544  022440  033117
3257  012550  047045  052045  047445          .ASCIZ  "%N%T%06"
3258  012556  000066
3259  012560  042122  020117  046111  MEF30:  .ASCIZ  /RDO ILLEGALLY SET/
3260  012566  042514  040507  046114
3261  012574  020131  042523  000124
3262  012602  047522  020115  042526  MEF31:  .ASCIZ  /ROM VERSION INCORRECT/
3263  012610  051522  047511  020116
3264  012616  047111  047503  051122
3265  012624  041505  000124
3266  012630  053440  047522  043516  MEF32:  .ASCIZ  / WRONG OPTION TYPE SELECTED IN TABLE/
3267  012636  047440  052120  047511
3268  012644  020116  054524  042520
3269  012652  051440  046105  041505
3270  012660  042524  020104  047111
3271  012666  052040  041101  042514
3272  012674     000
3273  012675     045  052501  044516  TFM20:  .ASCII  '%AUNIT RETURNED NON-EXISTENT MEM ERR FOR ADD'
3274  012702  020124  042522  052524
3275  012710  047122  042105  047040
3276  012716  047117  042455  044530
3277  012724  052123  047105  020124
3278  012732  042515  020115  051105
3279  012740  020122  047506  020122
3280  012746  042101     104
3281  012751     040  047445  022462          .ASCIZ  ' %02%A00000%N%A-MEMORY DOES NOT EXIST!'
3282  012756  030101  030060  030060
3283  012764  047045  040445  046455
3284  012772  046505  051117  020131
3285  013000  047504  051505  047040
3286  013006  052117  042440  044530
3287  013014  052123  000041
3288  013020  040445  040504  040524  TFM21:  .ASCIZ  '%ADATA ERROR IN TRANSFER TO RECEIVE BUFFER AT ADDRESS '
3289  013026  042440  051122  051117
3290  013034  044440  020116  051124
3291  013042  047101  043123  051105
3292  013050  052040  020117  042522
3293  013056  042503  053111  020105
3294  013064  052502  043106  051105
3295  013072  040440  020124  042101
3296  013100  051104  051505  020123
3297  013106     000
3298  013107     045  031117  040445  TFM2A:  .ASCII  '%02%A00000%N%ADATA SENT = %06'
3299  013114  030060  030060  022460
3300  013122  022516  042101  052101
3301  013130  020101  042523  052116
3302  013136  036440  022440  033117
3303  013144  040445  020054  040504          .ASCIZ  '%A, DATA RECD = %06'
```

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3304  013152  040524  051040  041505
3305  013160  020104  020075  047445
3306  013166  000066
3307  013170  040445  047125  052111  TFM22:  .ASCIZ  '%AUNIT FAILED TO DETECT NON-EXISTENT MEMORY, ADDRESS '
3308  013176  043040  044501  042514
3309  013204  020104  047524  042040
3310  013212  052105  041505  020124
3311  013220  047516  026516  054105
3312  013226  051511  042524  052116
3313  013234  046440  046505  051117
3314  013242  026131  040440  042104
3315  013250  042522  051523  000040
3316  013256  047445  022462  030101  TFM22A: .ASCIZ  '%02%A00000%N%A W A R N I N G  PARTS OF THIS DIAGNOSTIC'
3317  013264  030060  030060  047045
3318  013272  040445  053440  040440
3319  013300  051040  047040  044440
3320  013306  047040  043440  020040
3321  013314  040520  052122  020123
3322  013322  043117  052040  044510
3323  013330  020123  044504  043501
3324  013336  047516  052123  041511
3325  013344     000
3326  013345     045  020101  040515  TFM22B: .ASCIZ  '%A MAY HAVE BEEN %N%ADESTROYED BY THE NPR TRANSFER!'
3327  013352  020131  040510  042526
3328  013360  041040  042505  020116
3329  013366  047045  040445  042504
3330  013374  052123  047522  042531
3331  013402  020104  054502  052040
3332  013410  042510  047040  051120
3333  013416  052040  040522  051516
3334  013424  042506  020522     000
3335  013431     045  041501  041522  TFM24:  .ASCIZ  "%ACRC ERROR IN ROM E%02%A READ = %06%A ; CALCULATED = %06"
3336  013436  042440  051122  051117
3337  013444  044440  020116  047522
3338  013452  020115  022505  031117
3339  013460  040445  051040  040505
3340  013466  020104  020075  047445
3341  013474  022466  020101  020073
3342  013502  040503  041514  046125
3343  013510  052101  042105  036440
3344  013516  022440  033117     006
3345  013523     045  042501  051122  TFM25:  .ASCII  "%AERROR IN ROM E%02%A, "
3346  013530  051117  044440  020116
3347  013536  047522  020115  022505
3348  013544  031117  040445  020054
3349  013552  044123  052517  042114          .ASCIZ  "SHOULD BE ROM NO.:  %T%A, NO. READ IS: %T"
3350  013560  041040  020105  047522
3351  013566  020115  047516  035056
3352  013574  020040  052045  040445
3353  013602  020054  047516  020056
3354  013610  042522  042101  044440
3355  013616  035123  022440  000124
3356  013624  047045  052045  047045  DFMT4:  .ASCIZ  /%N%T%N%T%N/
3357  013632  052045  047045     000
3358  013637     045  031517  051445  DFMT5:  .ASCIZ  /%03%S5%03%S5%03%S5%03%N/
3359  013644  C22465  031517  051445
```

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3360  013652  022465  031517  051445
3361  013660  022465  031517  047045
3362  013666     000
3363  013667     045  032123  047445  DFMT6:  .ASCIZ  /%S4%03%S5%03%S5%03%S5%03%N/
3364  013674  022463  032523  047445
3365  013702  022463  032523  047445
3366  013710  022463  032523  047445
3367  013716  022463  000116
3368  013722  052045  047045     000  DFMT9:  .ASCIZ  /%T%N/
3369  013727     045  022516  020101  ROMMSG: .ASCIZ  "%N%A UNIT NUMBER: %D5%A ROM NUMBER IS: %T%A  REV. NO. IS: %T"
3370  013734  047125  052111  047040
3371  013742  046525  042502  035122
3372  013750  022440  032504  040445
3373  013756  051040  046517  047040
3374  013764  046525  042502  020122
3375  013772  051511  020072  052045
3376  014000  040445  020040  042522
3377  014006  027126  047040  027117
3378  014014  044440  035123  022440
3379  014022  000124
3380                          .EVEN
3381  014024     000     000  ROMNO:  .BYTE   0,0
3382  014026     000     000  REVNO:  .BYTE   0,0
3383                          .EVEN
```

```
                                .SBTTL  REPORT CODING SECTION


                                ;+*********************************************************************
                                ; THE REPORT CODING SECTION CONTAINS THE
                                ; "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
                                ;--

014030                          L$RPT::

                                        .WORD   J$JMP
014030  000167                  .WORD   L10024-2-.

014034                          L10024:
                                        TRAP    C$RPT
014034  104425
```

```
                                .SBTTL  INITIALIZE SECTION

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

014036                          L$INIT::
014036  010637  002322                  MOV     SP,PSTACK       ;SAVE BASE-LEVEL STACK POINTER
014042  005037  002324                  CLR     SUBRPC          ;CLEAR SUBR CALL PC
014046  005037  002326                  CLR     ERROR1          ;CLEAR ERROR FLAGS
014052  005037  002376                  CLR     MODQ22          ;CLEAR DMV Q22 FORMAT FLAG.
014056  005037  002400                  CLR     EXLOOP          ;CLEAR DMV EXTERNAL LOOP FLAG
014062  005737  002330                  TST     FRSTIM          ;SEE IF FIRST TIME THROUGH AFTER LOAD
014066  001007                          BNE     6$              ;BR IF NOT
014070  013737  000004  002316          MOV     @#4,SAVE4       ;SAVE ERROR TRAP VECTOR
014076  013737  000006  002320          MOV     @#6,SAVE6
014104  000406                          BR      9$
014106  013737  002316  000004  6$:     MOV     SAVE4,@#4       ;RESTORE ERROR TRAP VECTOR
014114  013737  002320  000006          MOV     SAVE6,@#6
014122  012737  000001  002330  9$:     MOV     #1,FRSTIM       ;MARK FLAG FOR NEXT TIME THROUGH
                                ;SEE IF PROGRAM JUST STARTED, BR IF YES
014130  012700  000040                  MOV     #EF.START,R0
014134  104447                          TRAP    C$REFG
014136  103415                          BCS     STARST
                                ;SEE IF PROGRAM JUST RESTARTED, BR IF YES
014140  012700  000037                  MOV     #EF.RESTART,R0
014144  104447                          TRAP    C$REFG
014146  103411                          BCS     STARST
                                ;SEE IF THIS IS A NEW PASS, BR IF YES
014150  012700  000035                  MOV     #EF.NEW,R0
014154  104447                          TRAP    C$REFG
014156  103411                          BCS     NEWST
                                ;SEE IF PROGRAM WAS JUST CONTINUED
014160  012700  000036                  MOV     #EF.CONTINUE,R0
014164  104447                          TRAP    C$REFG
014166  103540                          BCS     ENDIT
014170  000416                          BR      GETPRM
014172                          STARST:
014172  005037  002346                  CLR     STARES          ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
                                ;CLEAR DEVICE MAP
014176  005037  002350                  CLR     DEVMAP
014202                          NEWST:
014202  012737  177777  002332          MOV     #-1,LOGDEV      ;RESET LOGICAL DEVICE TO -1
014210  005237  002354                  INC     FRSPAS          ;INCREMENT NO. OF PASSES AFTER LOAD
014214  005237  002346                  INC     STARES          ;INCREMENT NO. OF PASSES SINCE STA OR RES
014220  012737  000001  002352          MOV     #BIT0,DEVPTR    ;INIT DEVICE MAP BIT POINTER
                                ; GET UNIBUS ADDRESS, VECTOR, PRIORITY LEVEL, SWITCH PACKS, TEST
                                ;   CONNECTOR INFORMATION FOR THIS LOGICAL DEVICE
014226                          GETPRM:
014226  005237  002332                  INC     LOGDEV          ;INCREMENT LOGICAL DEVICE NUMBER
014232  023737  002332  002012          CMP     LOGDEV,L$UNIT   ;SEE IF MAXIMUM UNIT NO. EXCEEDED
014240  002360                          BGE     NEWST           ;BR IF YES....
014242  013700  002332                  MOV     LOGDEV,R0
014246  104442                          TRAP    C$GPHRD
014250  010001                          MOV     R0,R1
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3462  014252  103403                          BCS     10$
3463  014254  006337  002352                  ASL     DEVPTR          ;SHIFT DEVICE MAP BIT POINTER
3464  014260  000762                          BR      GETPRM          ;SKIP THIS DEVICE
3465  014262                          10$:
3466  014262  053737  002352  002350          BIS     DEVPTR,DEVMAP   ;SHIFT DEVICE MAP BIT POINTER
3467  014270  006337  002352                  ASL     DEVPTR          ;
3468  014274  012137  002472                  MOV     (R1)+,OPTYP     ;SET THE OPTION TYPE
3469  014300  011137  002440                  MOV     (R1),MPCSR      ;STORE POINTER TO M8200,4,7 CSR'S
3470  014304  011137  002442                  MOV     (R1),BSEL1
3471  014310  005237  002442                  INC     BSEL1           ;GET POINTER TO BSEL1 (MAINTENANCE REGISTER)
3472  014314  011137  002450                  MOV     (R1),SEL4
3473  014320  062737  000004  002450          ADD     #4,SEL4         ;GET POINTER TO SEL4
3474  014326  011137  002444                  MOV     (R1),SEL2
3475  014332  062737  000002  002444          ADD     #2,SEL2
3476  014340  011137  002446                  MOV     (R1),BSEL3
3477  014344  062737  000003  002446          ADD     #3,BSEL3
3478  014352  011137  002452                  MOV     (R1),BSEL5
3479  014356  062737  000005  002452          ADD     #5,BSEL5
3480  014364  011137  002456                  MOV     (R1),BSEL7
3481  014370  062737  000007  002456          ADD     #7,BSEL7
3482  014376  011137  002460                  MOV     (R1),BSEL10     ;FOR DMV
3483  014402  062737  000010  002460          ADD     #10,BSEL10
3484  014410  012137  002454                  MOV     (R1)+,SEL6
3485  014414  062737  000006  002454          ADD     #6,SEL6         ;STORE POINTER TO SEL6
3486  014422  011137  002462                  MOV     (R1),MPIVEC     ;GET M8200,4,7 INPUT INTRPT VECTOR
3487  014426  012137  002464                  MOV     (R1)+,MPOVEC
3488  014432  062737  000004  002464          ADD     #4,MPOVEC       ;GET M8200,4,7 OUTPUT INTRPT VECTOR
3489  014440  012137  002470                  MOV     (R1)+,MPRIOR    ;GET M8200,4,7 DEVICE PRIORITY
3490  014444  062701  000010                  ADD     #10,R1          ;POINT TO TEST CON
3491  014450  012137  002476                  MOV     (R1)+,TSTCON    ;GET TEST CONNECTOR INDICATOR
3492  014454  012137  002466                  MOV     (R1)+,SPEEDM    ;GET SPEED
3493  014460  012137  002474                  MOV     (R1)+,IFTYP
3494  014464  012137  002474                  MOV     (R1)+,IFTYP     ;FIRST TIME SKIP RUN WORD;THEN LOAD
3495                                                                  ;INTERFACE TYPE
3496  014470                          ENDIT:
3497  014470                          L10025:
3498  014470  104411                          TRAP    C$INIT
3499
3500  014472                          L$AUTO::
3501  014472  004737  004456                  JSR     PC,MINITR       ;INITIALIZE
3502  014476  005037  002342                  CLR     COUNT           ;+COUNTER
3503
3504  014502  004737  004244          1$:     JSR     PC,WAIT50       ;STALL
3505  014506  005777  165726                  TST     @SEL0           ;HAS IT STARTED?
3506  014512  100406                          BMI     4$
3507  014514  105337  002342                  DECB    COUNT           ;TIME UP?
3508  014520  001370                          BNE     1$              ;NO LOOP
3509  014522  013700  002332                  MOV     LOGDEV,R0
3510  014526  104451                          TRAP    C$DODU
3511
3512  014530                          4$:
3513  014530  104433                          TRAP    C$RESET
3514  014532                          L10026:
3515  014532  104461                          TRAP    C$AUTO
3516
```

```
3517                                    .SBTTL  CLEANUP CODING SECTION
3518
3519                                    ;////////////////////////////////////////////////////////////////////////
3520                                    ;/ THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
3521                                    ;/ AT THE END OF THE TEST SEQUENCE ON A PARTICULAR UNIT.
3522                                    ;////////////////////////////////////////////////////////////////////////
3523
3524  014534                            L$CLEAN::
3525  014534  104433                            TRAP    C$RESET
3526
3527  014536                            L10027:
3528  014536  104412                            TRAP    C$CLEAN
3529
3530
3531
3532
3533
```

```
                                .SBTTL  DROP UNIT SECTION

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

014540                          L$DU::
                                ;ISSUE UNIBUS RESET TO CLEAN UP
014540  104433                          TRAP    C$RESET
014542                          L10030:
014542  104453                          TRAP    C$DU
```

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

014544                          L$AU::
014544                          L10031:
014544  104452                          TRAP    C$AU
```

```
                                .SBTTL  HARDWARE TESTS
                                .SBTTL  ;********************************  TEST 1  ********************************
                                .SBTTL  * ADDRES TEST-VERIFY THAT ALL MCPU ADDRESSES RESPOND
014546                          ZZ
                                ;*ECB
                                ;*
                                ;* THIS IS THE VERY FIRST TEST IN NORMAL SEQUENCE
                                ;* IT IS USED TO VERIFY THAT DMP OR DMV-11 UNDER TEST, RESPONDS
                                ;* TO THE ADDRESS THAT YOU THINK IT IS AT. ON DMP FAILURE CHECK
                                ;* ADDRESS SWITCHES ON THE M8207 MICRO-CPU. WITH LITTLE
                                ;* DOUBT, THIS FAILURE CAN ONLY BE ATTRIBUTED TO THE M8207 BOARD.
                                ;* NOTE:8207 IS DMP ONLY.....
                                ;*
                                ;*-
                                .SBTTL  ;********************************  TEST 1  ********************************
014546                          T1::
014546  012746  000340                  MOV     #PRIO7,-(SP)
014552  012746  014660                  MOV     #ECBINT,-(SP)
014556  012746  000004                  MOV     #4,-(SP)
014562  012746  000003                  MOV     #3,-(SP)
014566  104437                          TRAP    C$SVEC
014570  062706  000010                  ADD     #10,SP
014574  005037  014656                  CLR     JMO                     ;CLEAR FLAG
014600  005001                          CLR     R1
014602  005777  165632                  TST     @SEL0           ;TEST CSR 0
014606  012701  000002                  MOV     #2,R1           ;SAVE OFFSET FOR NEXT CSR
014612  005777  165626                  TST     @SEL2           ;TEST CSR 2
014616  012701  000004                  MOV     #4,R1           ;SAVE OFFSET
014622  005777  165622                  TST     @SEL4           ;TEST CSR 4
014626  012701  000006                  MOV     #6,R1           ;SAVE OFFSET
014632  005777  165616                  TST     @SEL6           ;TEST CSR 6
014636  005737  014656                  TST     JMO             ;WAS THERE A NXM TRAP
014642  001401                          BEQ     10$             ;IF NOT EXIT CLEANLY
014644  104444                          TRAP    C$DCLN
014646                          10$:
014646  012700  000004                  MOV     #4,R0
014652  104436                          TRAP    C$CVEC
014654                          L10032:
014654  104401                          TRAP    C$ETST
014656  000000                  JMO:    .WORD   0               ;FLAG FOR O'CONNOR CODE
014660                          ECBINT::
014660  005737  014656                  TST     JMO             ;HAVE WE HAD AT LEAST 1 TRAP
014664  001006                          BNE     10$
014666  104455                          TRAP    C$ERDF
014670  000023                          .WORD   19
014672  011010                          .WORD   EMT0
014674  007412                          .WORD   ERR1
014676  005237  014656                  INC     JMO             ;SET FLAG
```

```
                        ;********************************  TEST 1  ********************************

3620  014702                    10$:
3621  014702  010146                    MOV     R1,-(SP)
3622  014704  012746  011036              MOV     #FMT0,-(SP)
3623  014710  012746  000002              MOV     #2,-(SP)
3624  014714  010600                      MOV     SP,R0
3625  014716  104415                      TRAP    C$PNTX
3626  014720  062706  000006              ADD     #6,SP
3627  014724                    L10033:
3628  014724  000002                      RTI
3629
3630
3631
```

```
                                ;********************************  TEST 2  ********************************

                                .SBTTL  ;********************************  TEST 2  ********************************
                                .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 3
014726                          ZZ
                                ;* THIS TEST DONE FOR DMP ONLY
                                ;*
                                ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  3
                                ;*
                                .SBTTL  ;********************************  TEST 2  ********************************
                                                                        ;-CROMT-
014726                          T2::
014726  022737  000000  002472          CMP     #0,OPTYP                ;IS THIS AN 8207 DMP
014734  001150                          BNE     60$                     ;IF NOT END.....
014736  012737  000003  002366          MOV     #3,ROMN         ;ROM NUMBER
014744  012737  000000  002404          MOV     #0,CADDR                ;GET STARTING ADDR.

014752  012737  177777  002374          MOV     #-1,CWORD               ;INIT CRC WORD.

014760  004737  004274          10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
014764  117737  165464  002372          MOVB    @SEL6,WORDT             ;STORE FIRST BYTE.
014772  005237  002404                  INC     CADDR                   ;UPDATE ADDR.
014776  004737  004274                  JSR     PC,GWORD                ;GET NEXT BYTE.
015002  117737  165446  002373          MOVB    @SEL6,WORDT+1   ;STORE IN HIGH BYTE OF WORDT
015010  005237  002404                  INC     CADDR           ;UPDATE ADDR.
015014  023727  002404  004000          CMP     CADDR,#3777+1           ;AT END?
015022  001403                          BEQ     20$             ;YES,EXIT LOOP.

015024  004737  004376                  JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
015030  000753                          BR      10$                     ;LOOP.

015032  005137  002374          20$:    COM     CWORD                   ;STORED CRC WORD IS COMPLEMENT.
015036  023737  002374  002372          CMP     CWORD,WORDT             ;EQUAL?
015044  001404                          BEQ     30$

                                                                        ;ROM CRC WORD BAD.
015046  104455                          TRAP    C$ERDF
015050  000024                          .WORD   20
015052  000000                          .WORD   0
015054  010224                          .WORD   ERR24
015056  012737  003775  002404  30$:    MOV     #3777-2,CADDR           ;SET ROM NUMBER ADDRESS
015064  012737  000060  002370          MOV     #60,ROMN1               ;ROM NUMBER
015072  004737  004274                  JSR     PC,GWORD                ;READ ROM NUMBER
015076  117737  165352  002372          MOVB    @SEL6,WORDT             ;STORE BYTE
015104  123737  002370  002372          CMPB    ROMN1,WORDT             ;GOOD?
015112  001404                          BEQ     40$
015114  104455                          TRAP    C$ERDF
015116  000025                          .WORD   21
015120  000000                          .WORD   0
015122  010266                          .WORD   ERR25
015124                          40$:
015124  022737  000001  002346          CMP     #1,STARES               ;IS THIS FIRST PASS
015132  001031                          BNE     50$                     ;IF NOT THEN GO TO 50
015134  113737  002372  014024          MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
015142  012737  003774  002404          MOV     #3777-3,CADDR
015150  004737  004274                  JSR     PC,GWORD                ;READ REV NO.
015154  117737  165274  014026          MOVB    @SEL6,REVNO             ;STORE BYTE
015162  012746  014026                  MOV     #REVNO,-(SP)
```

```
                        ;****************************  TEST 2  ****************************

 3688  015166  012746  014024                    MOV     #ROMNO,-(SP)
 3689  015172  013746  002332                    MOV     LOGDEV,-(SP)
 3690  015176  012746  013727                    MOV     #ROMMSG,-(SP)
 3691  015202  012746  000004                    MOV     #4,-(SP)
 3692  015206  010600                            MOV     SP,R0
 3693  015210  104417                            TRAP    C$PNTF
 3694  015212  062706  000012                    ADD     #12,SP
 3695  015216  012737  003773  002404  50$:     MOV     #3777-4,CADDR           ;GET VERSION
 3696  015224  004737  004274                    JSR     PC,GWORD                ;READ IT
 3697  015230  117737  165220  002372            MOVB    @SEL6,WORDT
 3698  015236  122737  000131  002372            CMPB    #131,WORDT
 3699  015244  001404                            BEQ     60$
 3700  015246  104455                            TRAP    C$ERDF
 3701  015250  000026                            .WORD   22
 3702  015252  012602                            .WORD   MEF31
 3703  015254  010464                            .WORD   ERR32
 3704  015256                            60$:
 3705  015256                            L10034:
 3706  015256  104401                            TRAP    C$ETST
```

```
                                        .SBTTL  ;********************************  TEST 3  ******************************
                                        .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 2
015260                                          ZZ
                                                ;* THIS TEST DONE FOR DMP ONLY
                                                ;*
                                                ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  2
                                                ;*
                                        .SBTTL  ;********************************  TEST 3  ******************************
                                                                                ;-CROMT-
015260                                  T3::
015260  022737  000000  002472                  CMP     #0,OPTYP                ;IS THIS AN 8207 DMP
015266  001150                                  BNE     60$                     ;IF NOT END.....
015270  012737  000002  002366                  MOV     #2,ROMN         ;ROM NUMBER
015276  012737  000000  002404                  MOV     #0,CADDR                ;GET STARTING ADDR.

015304  012737  177777  002374                  MOV     #-1,CWORD               ;INIT CRC WORD.

015312  004737  004274                  10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
015316  117737  165134  002372                  MOVB    @BSEL7,WORDT            ;STORE FIRST BYTE.
015324  005237  002404                          INC     CADDR                   ;UPDATE ADDR.
015330  004737  004274                          JSR     PC,GWORD                ;GET NEXT BYTE.
015334  117737  165116  002373                  MOVB    @BSEL7,WORDT+1          ;STORE IN HIGH BYTE OF WORDT.
015342  005237  002404                          INC     CADDR           ;UPDATE ADDR.
015346  023727  002404  004000                  CMP     CADDR,#3777+1           ;AT END?
015354  001403                                  BEQ     20$             ;YES,EXIT LOOP.

015356  004737  004376                          JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
015362  000753                                  BR      10$                     ;LOOP.

015364  005137  002374                  20$:    COM     CWORD                   ;STORED CRC WORD IS COMPLEMENT.
015370  023737  002374  002372                  CMP     CWORD,WORDT             ;EQUAL?
015376  001404                                  BEQ     30$

                                                                                ;ROM CRC WORD BAD.
015400  104455                                  TRAP    C$ERDF
015402  000024                                  .WORD   20
015404  000000                                  .WORD   0
015406  010224                                  .WORD   ERR24
015410  012737  003775  002404          30$:    MOV     #3777-2,CADDR           ;SET ROM NUMBER ADDRESS
015416  012737  000061  002370                  MOV     #61,ROMN1               ;ROM NUMBER
015424  004737  004274                          JSR     PC,GWORD                ;READ ROM NUMBER
015430  117737  165022  002372                  MOVB    @BSEL7,WORDT            ;STORE BYTE
015436  123737  002370  002372                  CMPB    ROMN1,WORDT             ;GOOD?
015444  001404                                  BEQ     40$
015446  104455                                  TRAP    C$ERDF
015450  000025                                  .WORD   21
015452  000000                                  .WORD   0
015454  010266                                  .WORD   ERR25
015456                                  40$:
015456  022737  000001  002346                  CMP     #1,STARES               ;IS THIS FIRST PASS
015464  001031                                  BNE     50$                     ;IF NOT THEN GO TO 50
015466  113737  002372  014024                  MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
015474  012737  003774  002404                  MOV     #3777-3,CADDR
015502  004737  004274                          JSR     PC,GWORD                ;READ REV NO.
015506  117737  164744  014026                  MOVB    @BSEL7,REVNO            ;STORE BYTE
015514  012746  014026                          MOV     #REVNO,-(SP)
```

```
                        ;********************************  TEST 3  ********************************

 3763  015520  012746  014024                    MOV     #ROMNO,-(SP)
 3764  015524  013746  002332                    MOV     LOGDEV,-(SP)
 3765  015530  012746  013727                    MOV     #ROMMSG,-(SP)
 3766  015534  012746  000004                    MOV     #4,-(SP)
 3767  015540  010600                            MOV     SP,R0
 3768  015542  104417                            TRAP    C$PNTF
 3769  015544  062706  000012                    ADD     #12,SP
 3770  015550  012737  003773  002404  50$:      MOV     #3777-4,CADDR           ;GET VERSION
 3771  015556  004737  004274                    JSR     PC,GWORD                ;READ IT
 3772  015562  117737  164670  002372            MOVB    @BSEL7,WORDT
 3773  015570  122737  000131  002372            CMPB    #131,WORDT
 3774  015576  001404                            BEQ     60$
 3775  015600  104455                            TRAP    C$ERDF
 3776  015602  000026                            .WORD   22
 3777  015604  012602                            .WORD   MEF31
 3778  015606  010464                            .WORD   ERR32
 3779  015610                          60$:
 3780  015610                          L10035:
 3781  015610  104401                            TRAP    C$ETST
```

```
                                        ;********************************  TEST 4  ********************************

                                        .SBTTL  ;********************************  TEST 4  ********************************
                                        .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 4
015612                                  ZZ
                                        ;* THIS TEST DONE FOR DMP ONLY
                                        ;*
                                        ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  4
                                        ;*
                                        .SBTTL  ;********************************  TEST 4  ********************************
                                                                                ;-CROMT-
015612                                  T4::
015612  022737  000000  002472                  CMP     #0,OPTYP                ;IS THIS AN 8207 DMP
015620  001150                                BNE     60$                     ;IF NOT END.....
015622  012737  000004  002366                MOV     #4,ROMN         ;ROM NUMBER
015630  012737  004000  002404                MOV     #4000,CADDR             ;GET STARTING ADDR.

015636  012737  177777  002374                MOV     #-1,CWORD               ;INIT CRC WORD.

015644  004737  004274          10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
015650  117737  164600  002372                MOVB    @SEL6,WORDT             ;STORE FIRST BYTE.
015656  005237  002404                INC     CADDR                   ;UPDATE ADDR.
015662  004737  004274                JSR     PC,GWORD                ;GET NEXT BYTE.
015666  117737  164562  002373                MOVB    @SEL6,WORDT+1   ;STORE IN HIGH BYTE OF WORDT
015674  005237  002404                INC     CADDR           ;UPDATE ADDR.
015700  023727  002404  010000                CMP     CADDR,#7777+1           ;AT END?
015706  001403                                BEQ     20$             ;YES,EXIT LOOP.

015710  004737  004376                JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
015714  000753                                BR      10$                     ;LOOP.

015716  005137  002374          20$:    COM     CWORD                   ;STORED CRC WORD IS COMPLEMENT.
015722  023737  002374  002372                CMP     CWORD,WORDT             ;EQUAL?
015730  001404                                BEQ     30$

                                                                        ;ROM CRC WORD BAD.
015732  104455                                TRAP    C$ERDF
015734  000024                                .WORD   20
015736  000000                                .WORD   0
015740  010224                                .WORD   ERR24
015742  012737  007775  002404  30$:    MOV     #7777-2,CADDR           ;SET ROM NUMBER ADDRESS
015750  012737  000062  002370                MOV     #62,ROMN1               ;ROM NUMBER
015756  004737  004274                JSR     PC,GWORD                ;READ ROM NUMBER
015762  117737  164466  002372                MOVB    @SEL6,WORDT             ;STORE BYTE
015770  123737  002370  002372                CMPB    ROMN1,WORDT             ;GOOD?
015776  001404                                BEQ     40$
016000  104455                                TRAP    C$ERDF
016002  000025                                .WORD   21
016004  000000                                .WORD   0
016006  010266                                .WORD   ERR25
016010                          40$:
016010  022737  000001  002346                CMP     #1,STARES               ;IS THIS FIRST PASS
016016  001031                                BNE     50$                     ;IF NOT THEN GO TO 50
016020  113737  002372  014024                MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
016026  012737  007774  002404                MOV     #7777-3,CADDR
016034  004737  004274                JSR     PC,GWORD                ;READ REV NO.
016040  117737  164410  014026                MOVB    @SEL6,REVNO             ;STORE BYTE
016046  012746  014026                MOV     #REVNO,-(SP)
```

```
                        ;******************************  TEST 4  ******************************

 3838  016052  012746  014024                MOV     #ROMNO,-(SP)
 3839  016056  013746  002332                MOV     LOGDEV,-(SP)
 3840  016062  012746  013727                MOV     #ROMMSG,-(SP)
 3841  016066  012746  000004                MOV     #4,-(SP)
 3842  016072  010600                        MOV     SP,R0
 3843  016074  104417                        TRAP    C$PNTF
 3844  016076  062706  000012                ADD     #12,SP
 3845  016102  012737  007773  002404  50$:  MOV     #7777-4,CADDR           ;GET VERSION
 3846  016110  004737  004274                JSR     PC,GWORD                ;READ IT
 3847  016114  117737  164334  002372        MOVB    @SEL6,WORDT
 3848  016122  122737  000131  002372        CMPB    #131,WORDT
 3849  016130  001404                        BEQ     60$
 3850  016132  104455                        TRAP    C$ERDF
 3851  016134  000026                        .WORD   22
 3852  016136  012602                        .WORD   MEF31
 3853  016140  010464                        .WORD   ERR32
 3854  016142                        60$:
 3855  016142                        L10036:
 3856  016142  104401                        TRAP    C$ETST
```

```
                                        ;********************************  TEST 5  ********************************

                                        .SBTTL  ;********************************  TEST 5  ********************************
                                        .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 1
016144                                  ZZ
                                        ;* THIS TEST DONE FOR DMP ONLY
                                        ;*
                                        ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  1
                                        ;*
                                        .SBTTL  ;********************************  TEST 5  ********************************
                                                                                ;-CROMT-
016144                                  T5::
016144  022737  000000  002472                  CMP     #0,OPTYP                ;IS THIS AN 8207 DMP
016152  001150                                  BNE     60$                     ;IF NOT END.....
016154  012737  000001  002366                  MOV     #1,ROMN         ;ROM NUMBER
016162  012737  004000  002404                  MOV     #4000,CADDR             ;GET STARTING ADDR.

016170  012737  177777  002374                  MOV     #-1,CWORD               ;INIT CRC WORD.

016176  004737  004274          10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
016202  117737  164250  002372                  MOVB    @#SEL7,WORDT            ;STORE FIRST BYTE.
016210  005237  002404                  INC     CADDR                   ;UPDATE ADDR.
016214  004737  004274                  JSR     PC,GWORD                ;GET NEXT BYTE.
016220  117737  164232  002373                  MOVB    @#SEL7,WORDT+1          ;STORE IN HIGH BYTE OF WORDT.
016226  005237  002404                  INC     CADDR           ;UPDATE ADDR.
016232  023727  002404  010000                  CMP     CADDR,#7777+1           ;AT END?
016240  001403                                  BEQ     20$             ;YES,EXIT LOOP.

016242  004737  004376                  JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
016246  000753                                  BR      10$                     ;LOOP.

016250  005137  002374          20$:    COM     CWORD                   ;STORED CRC WORD IS COMPLEMENT.
016254  023737  002374  002372                  CMP     CWORD,WORDT             ;EQUAL?
016262  001404                                  BEQ     30$

                                                                        ;ROM CRC WORD BAD.
016264  104455                                  TRAP    C$ERDF
016266  000024                                  .WORD   20
016270  000000                                  .WORD   0
016272  010224                                  .WORD   ERR24
016274  012737  007775  002404  30$:    MOV     #7777-2,CADDR           ;SET ROM NUMBER ADDRESS
016302  012737  000063  002370                  MOV     #63,ROMN1               ;ROM NUMBER
016310  004737  004274                  JSR     PC,GWORD                ;READ ROM NUMBER
016314  117737  164136  002372                  MOVB    @#SEL7,WORDT            ;STORE BYTE
016322  123737  002370  002372                  CMPB    ROMN1,WORDT             ;GOOD?
016330  001404                                  BEQ     40$
016332  104455                                  TRAP    C$ERDF
016334  000025                                  .WORD   21
016336  000000                                  .WORD   0
016340  010266                                  .WORD   ERR25
016342                          40$:
016342  022737  000001  002346                  CMP     #1,STARES               ;IS THIS FIRST PASS
016350  001031                                  BNE     50$                     ;IF NOT THEN GO TO 50
016352  113737  002372  014024                  MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
016360  012737  007774  002404                  MOV     #7777-3,CADDR
016366  004737  004274                  JSR     PC,GWORD                ;READ REV NO.
016372  117737  164060  014026                  MOVB    @#SEL7,REVNO            ;STORE BYTE
016400  012746  014026                  MOV     #REVNO,-(SP)
```

```
                        ;********************************  TEST 5  ********************************

 3913  016404  012746  014024                    MOV     #ROMNO,-(SP)
 3914  016410  013746  002332                    MOV     LOGDEV,-(SP)
 3915  016414  012746  013727                    MOV     #ROMMSG,-(SP)
 3916  016420  012746  000004                    MOV     #4,-(SP)
 3917  016424  010600                            MOV     SP,R0
 3918  016426  104417                            TRAP    C$PNTF
 3919  016430  062706  000012                    ADD     #12,SP
 3920  016434  012737  007773  002404  50$:      MOV     #7777-4,CADDR           ;GET VERSION
 3921  016442  004737  004274                    JSR     PC,GWORD                ;READ IT
 3922  016446  117737  164004  002372            MOVB    @#SEL7,WORDT
 3923  016454  122737  000131  002372            CMPB    #131,WORDT
 3924  016462  001404                            BEQ     60$
 3925  016464  104455                            TRAP    C$ERDF
 3926  016466  000026                            .WORD   22
 3927  016470  012602                            .WORD   MEF31
 3928  016472  010464                            .WORD   ERR32
 3929  016474                            60$:
 3930  016474                            L10037:
 3931  016474  104401                            TRAP    C$ETST
```

```
                                        ;********************************  TEST 6  ********************************

                                .SBTTL  ;********************************  TEST 6  ********************************
                                .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 5
016476                                  ZZ
                                        ;* THIS TEST DONE FOR DMP ONLY
                                        ;*
                                        ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  5
                                        ;*
                                .SBTTL  ;********************************  TEST 6  ********************************
                                                                        ;-CROMT-
016476                          T6::
016476  022737  000000  002472          CMP     #0,OPTYP                ;IS THIS AN 8207 DMP
016504  001150                          BNE     60$                     ;IF NOT END.....
016506  012737  000005  002366          MOV     #5,ROMN         ;ROM NUMBER
016514  012737  010000  002404          MOV     #10000,CADDR            ;GET STARTING ADDR.

016522  012737  177777  002374          MOV     #-1,CWORD               ;INIT CRC WORD.

016530  004737  004274          10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
016534  117737  163714  002372          MOVB    @SEL6,WORDT             ;STORE FIRST BYTE.
016542  005237  002404                  INC     CADDR                   ;UPDATE ADDR.
016546  004737  004274                  JSR     PC,GWORD                ;GET NEXT BYTE.
016552  117737  163676  002373          MOVB    @SEL6,WORDT+1   ;STORE IN HIGH BYTE OF WORDT
016560  005237  002404                  INC     CADDR           ;UPDATE ADDR.
016564  023727  002404  014000          CMP     CADDR,#13777+1          ;AT END?
016572  001403                          BEQ     20$             ;YES,EXIT LOOP.

016574  004737  004376                  JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
016600  000753                          BR      10$                     ;LOOP.

016602  005137  002374          20$:    COM     CWORD                   ;STORED CRC WORD IS CUMPLEMENT.
016606  023737  002374  002372          CMP     CWORD,WORDT             ;EQUAL?
016614  001404                          BEQ     30$

                                                                        ;ROM CRC WORD BAD.
016616  104455                          TRAP    C$ERDF
016620  000024                          .WORD   20
016622  000000                          .WORD   0
016624  010224                          .WORD   ERR24
016626  012737  013775  002404  30$:    MOV     #13777-2,CADDR          ;SET ROM NUMBER ADDRESS
016634  012737  000064  002370          MOV     #64,ROMN1               ;ROM NUMBER
016642  004737  004274                  JSR     PC,GWORD                ;READ ROM NUMBER
016646  117737  163602  002372          MOVB    @SEL6,WORDT             ;STORE BYTE
016654  123737  002370  002372          CMPB    ROMN1,WORDT             ;GOOD?
016662  001404                          BEQ     40$
016664  104455                          TRAP    C$ERDF
016666  000025                          .WORD   21
016670  000000                          .WORD   0
016672  010266                          .WORD   ERR25
016674                          40$:
016674  022737  000001  002346          CMP     #1,STARES               ;IS THIS FIRST PASS
016702  001031                          BNE     50$                     ;IF NOT THEN GO TO 50
016704  113737  002372  014024          MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
016712  012737  013774  002404          MOV     #13777-3,CADDR
016720  004737  004274                  JSR     PC,GWORD                ;READ REV NO.
016724  117737  163524  014026          MOVB    @SEL6,REVNO             ;STORE BYTE
016732  012746  014026                  MOV     #REVNO,-(SP)
```

```
                        ;********************************  TEST 6  ********************************

 3988  016736  012746  014024                    MOV     #ROMNO,-(SP)
 3989  016742  013746  002332                    MOV     LOGDEV,-(SP)
 3990  016746  012746  013727                    MOV     #ROMMSG,-(SP)
 3991  016752  012746  000004                    MOV     #4,-(SP)
 3992  016756  010600                            MOV     SP,R0
 3993  016760  104417                            TRAP    C$PNTF
 3994  016762  062706  000012                    ADD     #12,SP
 3995  016766  012737  013773  002404  50$:      MOV     #13777-4,CADDR          ;GET VERSION
 3996  016774  004737  004274                    JSR     PC,GWORD                ;READ IT
 3997  017000  117737  163450  002372            MOVB    @SEL6,WORDT
 3998  017006  122737  000131  002372            CMPB    #131,WORDT
 3999  017014  001404                            BEQ     60$
 4000  017016  104455                            TRAP    C$ERDF
 4001  017020  000026                            .WORD   22
 4002  017022  012602                            .WORD   MEF31
 4003  017024  010464                            .WORD   ERR32
 4004  017026                          60$:
 4005  017026                          L10040:
 4006  017026  104401                            TRAP    C$ETST
```

```
                                        ;********************************  TEST 7  ********************************

                                .SBTTL  ;********************************  TEST 7  ********************************
                                .SBTTL  *DMP ONLY VERIFY CONTENTS OF ROM 14
017030                                  ZZ
                                        ;* THIS TEST DONE FOR DMP ONLY
                                        ;*
                                        ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM  14
                                        ;*
                                .SBTTL  ;********************************  TEST 7  ********************************
                                                                        ;-CROMT-
017030                          T7::
017030  022737  000000  002472          CMP     #0,OPTYP                ;IS THIS AN 6207 DMP
017036  001150                          BNE     60$                     ;IF NOT END.....
017040  012737  000014  002366          MOV     #14,ROMN                ;ROM NUMBER
017046  012737  010000  002404          MOV     #10000,CADDR            ;GET STARTING ADDR.

017054  012737  177777  002374          MOV     #-1,CWORD               ;INIT CRC WORD.

017062  004737  004274          10$:    JSR     PC,GWORD                ;GET FIRST BYTE.
017066  117737  163364  002372          MOVB    @#SEL7,WORDT            ;STORE FIRST BYTE.
017074  005237  002404                  INC     CADDR                   ;UPDATE ADDR.
017100  004737  004274                  JSR     PC,GWORD                ;GET NEXT BYTE.
017104  117737  163346  002373          MOVB    @#SEL7,WORDT+1          ;STORE IN HIGH BYTE OF WORDT.
017112  005237  002404                  INC     CADDR           ;UPDATE ADDR.
017116  023727  002404  014000          CMP     CADDR,#13777+1          ;AT END?
017124  001403                          BEQ     20$             ;YES,EXIT LOOP.

017126  004737  004376                  JSR     PC,CRCR                 ;NO-CALCULATE CRC ON THIS WORD.
017132  000753                          BR      10$                     ;LOOP.

017134  005137  002374          20$:    COM     CWORD                   ;STORED CRC WORD IS COMPLEMENT.
017140  023737  002374  002372          CMP     CWORD,WORDT             ;EQUAL?
017146  001404                          BEQ     30$

                                                                        ;ROM CRC WORD BAD.
017150  104455                          TRAP    C$ERDF
017152  000024                          .WORD   20
017154  000000                          .WORD   0
017156  010224                          .WORD   ERR24
017160  012737  013775  002404  30$:    MOV     #13777-2,CADDR          ;SET ROM NUMBER ADDRESS
017166  012737  000065  002370          MOV     #65,ROMN1               ;ROM NUMBER
017174  004737  004274                  JSR     PC,GWORD                ;READ ROM NUMBER
017200  117737  163252  002372          MOVB    @#SEL7,WORDT            ;STORE BYTE
017206  123737  002370  002372          CMPB    ROMN1,WORDT             ;GOOD?
017214  001404                          BEQ     40$
017216  104455                          TRAP    C$ERDF
017220  000025                          .WORD   21
017222  000000                          .WORD   0
017224  010266                          .WORD   ERR25
017226                          40$:
017226  022737  000001  002346          CMP     #1,STARES               ;IS THIS FIRST PASS
017234  001031                          BNE     50$                     ;IF NOT THEN GO TO 50
017236  113737  002372  014024          MOVB    WORDT,ROMNO             ;PUT ROM NO IN PRINT CONDITION
017244  012737  013774  002404          MOV     #13777-3,CADDR
017252  004737  004274                  JSR     PC,GWORD                ;READ REV NO.
017256  117737  163174  014026          MOVB    @#SEL7,REVNO            ;STORE BYTE
017264  012746  014026                  MOV     #REVNO,-(SP)
```

```
                        ;********************************  TEST 7  ********************************

 4063  017270  012746  014024                    MOV     #ROMNO,-(SP)
 4064  017274  013746  002332                    MOV     LOGDEV,-(SP)
 4065  017300  012746  013727                    MOV     #ROMMSG,-(SP)
 4066  017304  012746  000004                    MOV     #4,-(SP)
 4067  017310  010600                            MOV     SP,R0
 4068  017312  104417                            TRAP    C$PNTF
 4069  017314  062706  000012                    ADD     #12,SP
 4070  017320  012737  013773  002404  50$:      MOV     #13777-4,CADDR          ;GET VERSION
 4071  017326  004737  004274                    JSR     PC,GWORD                ;READ IT
 4072  017332  117737  163120  002372            MOVB    @#SEL7,WORDT
 4073  017340  122737  000131  002372            CMPB    #131,WORDT
 4074  017346  001404                            BEQ     60$
 4075  017350  104455                            TRAP    C$ERDF
 4076  017352  000026                            .WORD   22
 4077  017354  012602                            .WORD   MEF31
 4078  017356  010464                            .WORD   ERR32
 4079  017360                          60$:
 4080  017360                          L10041:
 4081  017360  104401                            TRAP    C$ETST
```

```
                                        ;********************************  TEST 8  ******************************
                                .SBTTL  ;********************************  TEST 8  ******************************
                                .SBTTL  * ROM VERIFY ROM 1 DMV
017362                                  ZZ
                                        ;*
                                        ;*
                                        ;*
                                        ;* THIS TEST IS USED TO VERIFY THE CONTENTS OF ROM 1
                                        ;*      THIS TEST IS NOT DONE FOR DMP
                                        ;*-
                                .SBTTL  ;********************************  TEST 8  ******************************
017362                          T8::
017362  032737  000003  002472          BIT     #3,OPTYP        ;IS THIS DMV
017370  001453                          BEQ     RDVEX           ;IF NOT EXIT
017372  012737  000001  002366          MOV     #1,ROMN
017400  012737  000060  002370          MOV     #60,ROMN1       ;SET UP ROM NUMBER(ASCII 0)
017406  012737  140000  002436          MOV     #140000,ROMADD  ;SET UP 1ST ROM ADDRESS
017414  004537  005472                  JSR     R5,RMVRT        ;GO CHECK ROM CRC
017420  005037  002402                  CLR     ERRWRD
017424  104410                          TRAP    C$ESCAPE
017426  000072                          .WORD   L10042-.
017430  022737  000001  002346          CMP     #1,STARES       ;IS IT FIRST PASS
017436  001030                          BNE     RDVEX           ;IF NOT EXIT
                                        
017440  023737  014024  002370          CMP     ROMNO,ROMN1     ;COMPARE ROM NUMBER
017446  001406                          BEQ     10$
017450  104455                          TRAP    C$ERDF
017452  000027                          .WORD   23
017454  000000                          .WORD   0
017456  010266                          .WORD   ERR25
                                        
017460  104410                          TRAP    C$ESCAPE
017462  000036                          .WORD   L10042-.
017464                          10$:
017464  012746  014026                  MOV     #REVNO,-(SP)
017470  012746  014024                  MOV     #ROMNO,-(SP)
017474  013746  002332                  MOV     LOGDEV,-(SP)
017500  012746  013727                  MOV     #ROMMSG,-(SP)
017504  012746  000004                  MOV     #4,-(SP)
017510  010600                          MOV     SP,R0
017512  104417                          TRAP    C$PNTF
017514  062706  000012                  ADD     #12,SP
                                        
                                        
017520                          RDVEX:
017520                          L10042:
017520  104401                          TRAP    C$ETST
```

```
                                        ;********************************  TEST 9  ********************************

                                .SBTTL  ;********************************  TEST 9  ********************************
                                .SBTTL  * ROM VERIFY ROM 2 DMV ONLY
017522                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS IS THE TEST THAT VERIFIES THE CONTENTS OF ROM 2
                                        ;* OF THE DMV OPTION. THIS TEST IS NOT RUN FOR DMP
                                        ;*
                                .SBTTL  ;********************************  TEST 9  ********************************
017522                          T9::
017522  032737  000003  002472          BIT     #3,OPTYP        ;IS THIS DMV
017530  001453                          BEQ     RDVEX2          ;IF NOT EXIT
017532  012737  000002  002366          MOV     #2,ROMN
017540  012737  000061  002370          MOV     #61,ROMN1       ;SETUP ROM NUMBER(ASCII 1)
017546  012737  160000  002436          MOV     #160000,ROMADD  ;SETUP 1ST ROM ADDRESS
017554  004537  005472                  JSR     R5,RMVRT        ;GO CHECK ROM CRC
017560  005037  002402                  CLR     ERRWRD
017564  104410                          TRAP    C$ESCAPE
017566  000072                          .WORD   L10043-.
017570  022737  000001  002346          CMP     #1,STARES
017576  001030                          BNE     RDVEX2          ;IF NOT FIRST PASS EXIT

017600  123737  014024  002370          CMPB    ROMNO,ROMN1     ;CHECK ROM #
017606  001406                          BEQ     10$
017610  104455                          TRAP    C$ERDF
017612  000030                          .WORD   24
017614  000000                          .WORD   0
017616  010266                          .WORD   ERR25
017620  104410                          TRAP    C$ESCAPE
017622  000036                          .WORD   L10043-.
017624                          10$:
017624  012746  014026                  MOV     #REVNO,-(SP)
017630  012746  014024                  MOV     #ROMNO,-(SP)
017634  013746  002332                  MOV     LOGDEV,-(SP)
017640  012746  013727                  MOV     #ROMMSG,-(SP)
017644  012746  000004                  MOV     #4,-(SP)
017650  010600                          MOV     SP,R0
017652  104417                          TRAP    C$PNTF
017654  062706  000012                  ADD     #12,SP

017660                          RDVEX2:
017660                          L10043:
017660  104401                          TRAP    C$ETST
```

```
                                ;********************************  TEST 10  ********************************

                                .SBTTL  ;********************************  TEST 10  ********************************
                                .SBTTL  *INITIALIZATION TEST (INTERNAL DIAGNOSTICS)
017662                          ZZ
                                ;*
                                ;* IN THIS TEST WE'LL START OUT BY SETTING THE MASTER CLEAR BIT (BIT 14 OF SEL0)
                                ;* THE LOGIC CLEARS AND STARTS THE MICRO DIAGNOSTICS. IF THE MICRO-DIAGNOSTICS
                                ;* PASS, THE RUN BIT (BIT15 OF SEL0) WILL SET.
                                ;* IF THE RUN BIT FAILS TO SET WITHIN 300 MILLI-SEC, IT
                                ;* PROBABLY MEANS THAT MICRO DIAGNOSTICS HAVE DETECTED AN
                                ;* ERROR AND THE TEST CODE IS IN BSEL6
                                ;*                       DMP
                                ;*
                                ;*      TEST CODE                TEST ENTERED
                                ;*
                                ;*      143                      BRANCH TEST
                                ;*      135                      BRANCH EXTENDED TESTS
                                ;*      125,252,0                IBUS/OBUS TESTS
                                ;*      123                      SCRATCH PAD TEST
                                ;*      151                      ALU TESTS
                                ;*      222                      MAIN MEMORY DATA TEST
                                ;*      132                      MAIN MEMORY DUAL ADDRESS TEST
                                ;*      264                      LINE UNIT TESTS
                                ;*      305                      TESTS COMPLETE
                                ;*              DMV TEST
                                ;*      101                      BRANCH TEST
                                ;*      102                      INTERNAL REG TEST
                                ;*      103                      LOAD AND STORE INSTR.
                                ;*      104                      COMPARE INSTR. TEST
                                ;*      105                      INC/DEC INSTR.
                                ;*      106                      SHIFT AND ROTATE INSTR.
                                ;*      107                      LOGIC INSTR.
                                ;*      110                      ADC,SBC,SED,CLD INSTRU.
                                ;*      111                      STACK PUSH,PULL INSTR.
                                ;*      112                      SUBROUTINE INSTR.
                                ;*      113                      SCRATCH PAD,CSR,AND NPR
                                ;*      114                        "       "
                                ;*      115                      FALSE INT TEST
                                ;*      116                      RAM DATA AND ADDRESS
                                ;*      117                      RAM ALTERNATING TEST
                                ;*      120                      INDEX INDIRECT TEST
                                ;*      121                      LINE UNIT TEST
                                ;*
                                ;* NOTE THE RUN BIT WILL BE SET EVEN IF THE LINE UNIT
                                ;* TEST FAILS. TEST CODE MUST BE CHECKED TO FIND ERROR.
                                ;* THESE CODES ARE SET UPON ENTRY OF EACH TEST
                                ;* ONE SHOULD NOT BE DEPENDENT ON A BAD DMP-DMV MODULE
                                ;* TO PASS A CORRECT TEST CODE. IF THIS TEST FAILS, YOU
                                ;* SHOULD RUN THE REPAIR LEVEL DIAGNOSTIC
                                ;*                         NOTE
                                ;* IF THIS TEST FAILS, CHECK SW7 OF SP#1 TO SEE IF RUN IS ENABLED.
                                ;*
                        .SBTTL  ;********************************  TEST 10  ********************************
017662                  T10::

017662  012737  000000  002342        MOV     #0,COUNT                ;CLEAR COUNTER
017670  004737  004456                JSR     PC,MINITR
```

```
                                ;********************************  TEST 10  ********************************

 4230  017674                   10$:
 4231  017674  004737  004244           JSR     PC,WAIT50
 4232  017700  005777  162534           TST     @SEL0           ;TEST DONE?
 4233  017704  100411                   BMI     20$             ;YES TEST FOR ERROR
 4234  017706  005337  002342           DEC     COUNT           ;UPDATE COUNT IF NOT TOO LONG
 4235  017712  001370                   BNE     10$             ;IN THIS WAIT LOOP, GO BACK
 4236
 4237                                   ;INTERNAL DIAG FAILED
 4238
 4239  017714  104455                   TRAP    C$ERDF
 4240  017716  000031                   .WORD   25
 4241  017720  011105                   .WORD   MEF3A
 4242  017722  007440                   .WORD   ERR3
 4243  017724  104410                   TRAP    C$ESCAPE
 4244  017726  000116                   .WORD   L10044-.
 4245  017730  122777  000305  162516  20$:    CMPB    #305,@#SEL6     ;LEGAL TEST COMPLETE CODE?
 4246  017736  001420                   BEQ     40$
 4247  017740  122777  000264  162506         CMPB    #264,@#SEL6     ;LINE UNIT TEST FAILURE?
 4248  017746  001406                   BEQ     30$
 4249
 4250  017750  104455                   TRAP    C$ERDF
 4251  017752  000032                   .WORD   26
 4252  017754  011105                   .WORD   MEF3A
 4253  017756  007440                   .WORD   ERR3
 4254                                                   ;UNKNOWN ERROR WHILE INITIALLING
 4255                                                   ;DMP-11
 4256  017760  104410                   TRAP    C$ESCAPE
 4257  017762  000062                   .WORD   L10044-.
 4258
 4259  017764                   30$:
 4260  017764  104455                   TRAP    C$ERDF
 4261  017766  000033                   .WORD   27
 4262  017770  011167                   .WORD   MEF4
 4263  017772  010464                   .WORD   ERR32
 4264  017774  104410                   TRAP    C$ESCAPE
 4265  017776  000046                   .WORD   L10044-.
 4266                                                   ;MODULE FAULT
 4267  020000                   40$:
 4268  020000  112777  000200  162432         MOVB    #RQI,@#SEL0     ;SET RQI AND THEN WAIT FOR RDI TO SET.
 4269  020006  012737  020030  002406         MOV     #ERLB1,ERRADD   ;SET UP ERROR ADD.
 4270  020014                   TLB1:
 4271  020014  004537  005070           JSR     R5,TOUT
 4272  020020  005037  002402           CLR     ERRWRD
 4273  020024  104410                   TRAP    C$ESCAPE
 4274  020026  000016                   .WORD   L10044-.
 4275  020030                   ERLB1:
 4276                                   ;;;;;;;;;
 4277                                   ; TIME OUT ERROR REPORTS THIS ADDRESS
 4278                                   ;;;;;;;;;
 4279  020030  032777  000020  162406  47$:    BIT     #RDI,@#SEL2     ;DID RDI SET?
 4280  020036  001766                   BEQ     TLB1
 4281  020040                   50$:
 4282  020040  104410                   TRAP    C$ESCAPE
 4283  020042  000002                   .WORD   L10044-.
 4284  020044                   L10044:
 4285  020044  104401                   TRAP    C$ETST
```

```



                                    .SBTTL  ;****************************** TEST 11 ******************************
                                    .SBTTL  * MICRO-DIAGNOSTIC-INTERFACE TESTING DMP ONLY
 020046                                     ZZ
                                            ;* DMP ONLY THIS TEST...
                                            ;* THIS TEST WILL EXERCISE THE MICRO-CPU'S INTERFACE TO THE PDP-11
                                            ;* WE FIRST START THE MCPU. NEXT WE GIVE THE COMMAND THAT
                                            ;* TAKES US TO THE INTERFACE DIAGNOSTIC CODE. ONCE THIS CODE IS
                                            ;* STARTED, WE MUST GO THROUGH ALL TESTS. THEREFORE, YOU WILL NOTICE
                                            ;* FIVE DISTINCT TESTS PREFORMED
                                            ;* AT THE END OF THIS TEST, THE MICRO-CODE IS LISTED.
                                            ;* VARIOUS SCOPE POINTS DO EXIST IF YOU NEED THEM. IT IS NOT
                                            ;* COMMON PRACTICE TO USE THEM, HOWEVER, WHERE SOME USE OF THEM
                                            ;* COULD BE MADE, THEY ARE NOTED.
                                            ;*
                                    .SBTTL  ;****************************** TEST 11 ******************************


 020046                             T11::

 020046  032737  000003  002472             BIT     #3,OPTYP            ;IS THIS DMV
 020054  001402                             BEQ     10$                 ;IF NOT GO TO 10;ELSE
 020056  000137  021176                     JMP     EXMDT               ;EXIT TEST
 020062                             10$:
 020062                             T9BG:
 020062  004737  004522                     JSR     PC,MINITS
                                            ;****
                                            ; JUMP TO END OF TEST IF ERROR
                                            ;;;;
 020066  005037  002402                     CLR     ERRWRD
 020072  104410                             TRAP    C$ESCAPE
 020074  001102                             .WORD   L10045-.
 020076  105077  162354                     CLRB    @BSEL7
 020102  112777  000200  162330             MOVB    #DRUN,@BSEL0        ;REQUEST INTERFACE DIAGNOSTICS
 020110                             25$:
 020110  004537  002732                     JSR     R5,WRDI             ;WAIT FOR RDI TO SET

 020114  005037  002402                     CLR     ERRWRD              ;CLEAR ERROR
 020120  104410                             TRAP    C$ESCAPE
 020122  001054                             .WORD   L10045-.
                                            ;;;;;;;;;
                                            ; TIME OUT OR READY ERROR REPORTS THIS
                                            ; ADDRESS AS FAILING PC
                                            ;;;;;;;;;
 020124  105077  162310                     CLRB    @BSEL0              ;NO MORE REQUESTS.
 020130  112777  000022  162316             MOVB    #22,@BSEL6          ;DIAGNOSTIC CODE.
 020136  105077  162314                     CLRB    @BSEL7              ;CLEAR BSEL7
 020142  112777  000001  162274             MOVB    #1,@BSEL2           ;START.!

 020150                             TLB2:
 020150  012737  020172  002406             MOV     #ERLB2,ERRADD       ;SET UP ERROR ADDRESS
 020156  004537  005070                     JSR     R5,TOUT
 020162  005037  002402                     CLR     ERRWRD
 020166  104410                             TRAP    C$ESCAPE
 020170  001006                             .WORD   L10045-.
```

```
                        ;********************************  TEST 11  ********************************

4342  020172                        ERLB2:
4343                                        ;;;;;;;;;;;
4344                                        ; TIME OUT ERROR REPORTS THIS ADDRESS
4345                                        ;;;;;;;;;;;
4346  020172  122777  000377  162256  26$:  CMPB    #377,@BSEL7     ;LOOK FOR SYNC OF CODE 377 IN LAST REG
4347  020200  001363                       BNE     TLB2            ;IF "HANG" OCCURS HERE THEN ITS POSSIBLE
4348                                                                ;THAT EITHER THE DATA PATHS ARE BAD OR
4349                                                                ;THAT THE MCPU FAILED TO START
4350
4351  020202  012737  000377  002336        MOV     #377,$GDDAT     ;EXPECT 377 BACK FROM ALL REGS
4352  020210  013701  002440               MOV     BSEL0,R1        ;EXCEPT REG 1 (MAINTENANCE)
4353  020214  012737  000000  002344        MOV     #0, REG
4354  020222  111137  002340        4$:    MOVB    (R1),$BDDAT     ;READ REG, EXPECT 377
4355  020226  123737  002340  002336        CMPB    $BDDAT,$GDDAT   ;OK?
4356  020234  001412                       BEQ     5$              ;YES-CONTINUE
4357  020236  022737  000001  002344        CMP     #1,REG          ;NO ERROR? (EXCEPT REG 1)
4358  020244  001406                       BEQ     5$              ;IF REG 1, SKIP
4359
4360  020246  104455                       TRAP    C$ERDF
4361  020250  000034                       .WORD   28
4362  020252  011242                       .WORD   MEFC
4363  020254  007472                       .WORD   ERR5
4364  020256  104410                       TRAP    C$ESCAPE
4365  020260  000716                       .WORD   L10045-.
4366  020262  005237  002344        5$:    INC     REG             ;UPDATE REGISTER #
4367  020266  005201                       INC     R1              ;AND ADDRESS
4368  020270  023727  002344  000010       CMP     REG, #10        ;DONE ALL REGS?
4369  020276  001351                       BNE     4$
4370  020300  105077  162134               CLRB    @BSEL0          ;CAUSES MCPU TO EXIT TSTA
4371
4372
4373                                        ;TEST   B
4374
4375
4376  020304                        TLB3:
4377  020304  012737  020326  002406        MOV     #ERLB3,ERRADD   ;SET ERROR ADDRESS
4378  020312  004537  005070               JSR     R5,TOUT
4379  020316  005037  002402               CLR     ERRWRD
4380  020322  104410                       TRAP    C$ESCAPE
4381  020324  000652                       .WORD   L10045-.
4382  020326                        ERLB3:
4383                                        ;;;;;;;
4384                                        ; TIME OUT ERROR REPORTS THIS ADDRESS
4385                                        ;;;;;;;
4386  020326  105777  162124        27$:    TSTB    @BSEL7          ;LOOK FOR A ZERO IN BSEL7
4387  020332  001364                       BNE     TLB3
4388
4389  020334  005037  002336               CLR     $GDDAT          ;EXPECT ALL ZEROS EXCEPT SBEL1
4390  020340  013701  002440               MOV     BSEL0,R1        ;GET ADDR OF MCPU.
4391  020344  012737  000000  002344        MOV     #0,REG
4392  020352  005037  002340               CLR     $BDDAT
4393  020356  111137  002340        7$:    MOVB    (R1),$BDDAT     ;READ REG
4394  020362  001412                       BEQ     8$              ;IF ZERO-CONTINUE
4395  020364  022737  000001  002344        CMP     #1,REG          ;IF REG #1 CONTINUE
4396  020372  001406                       BEQ     8$
4397
```

```
4398  020374  104455                          TRAP    C$ERDF
4399  020376  000035                          .WORD   29
4400  020400  011242                          .WORD   MEFC
4401  020402  007472                          .WORD   ERR5
4402  020404  104410                          TRAP    C$ESCAPE
4403  020406  000570                          .WORD   L10045-.
4404  020410  005237  002344          8$:     INC     REG             ;UPDATE REGISTER #
4405  020414  005201                          INC     R1              ;AND ADDRESS
4406  020416  122737  000010  002344          CMPB    #10,REG         ;DONE ALL REGS (0-7)?
4407  020424  001354                          BNE     7$              ;NO-DO NEXT ONE
4408
4409  020426  000404                          BR      9$              ;REPLACE THIS INSTRUCTION WITH CODE 240
4410                                                                  ;(NOP) IF YOU WITH TO COOP IN
4411                                                                  ;TESTS A&B
4412  020430  112777  000200  162002          MOVB    #200,@BSEL0     ;ALL MICRO-CODE TO LOOP
4413  020436  000611                          BR      T98G            ;LOOP
4414
4415  020440  112777  000377  161772  9$:     MOVB    #377,@BSEL0     ;TELL MICRO-CODE TO EXIT TEST B,
4416                                                                  ;PROCEED TO TEST C.
4417
4418
4419                                          ;TEST   C
4420                                                                  ;; WAS @KMRLVL                  VRG021582
4421  020446  013746  002470                  MOV     KMRLVL,-(SP)
4422  020452  012746  021106                  MOV     #INTC0,-(SP)
4423  020456  013746  002462                  MOV     KMRVEC,-(SP)
4424  020462  012746  000003                  MOV     #3,-(SP)
4425  020466  104437                          TRAP    C$SVEC
4426  020470  062706  000010                  ADD     #10,SP
4427                                                                  ;INTERRUPT VECTOR
4428
4429                                                                  ;; WAS @KMTLVL                  VRG021582
4430  020474  013746  002470                  MOV     KMTLVL,-(SP)
4431  020500  012746  021122                  MOV     #INTC4,-(SP)
4432  020504  013746  002464                  MOV     KMTVEC,-(SP)
4433  020510  012746  000003                  MOV     #3,-(SP)
4434  020514  104437                          TRAP    C$SVEC
4435  020516  062706  000010                  ADD     #10,SP
4436                                                                  ;ILLEGAL INTERRUPT TO WRONG VECTOR
4437
4438  020522  005037  002334                  CLR     IFLAG
4439  020526  112777  000377  161712          MOVB    #377,@BSEL3     ;TELL MICRO-CODE TO FORCE INTERRUPT
4440  020534  012700  000000                  MOV     #0,R0
4441  020540  104441                          TRAP    C$SPRI
4442
4443  020542                          TLB4:
4444  020542  012737  020564  002406          MOV     #ERLB4,ERRADD   ;SET UP ERROR ADDRESS
4445  020550  004537  005070                  JSR     R5,TOUT
4446  020554  005037  002402                  CLR     ERRWRD
4447  020560  104410                          TRAP    C$ESCAPE
4448  020562  000414                          .WORD   L10045-.
4449  020564                          ERLB4:
4450                                          ;;;;;;;;;
4451                                          ; TIME OUT REPORTS THIS ADDRESS
4452                                          ;;;;;;;;;
4453  020564  005737  002334          28$:    TST     IFLAG           ;IFLAG=1 SET BY INTERRUPT SERVICE ROUTINE
```

```
                        ;********************************  TEST 11  ********************************

4454  020570  001764                      BEQ     TLB4            ;LOOP UNIT DONE
4455                                                              ;NOTE; IF HANGS HERE, MCPU FAILS TO
4456                                                              ;GENERATE INTERRUPT TO PDP-11.
4457
4458
4459                                      ;TEST   D
4460
4461  020572  013746  002470              MOV     KMRLVL,-(SP)
4462  020576  012746  021142              MOV     #INTD0,-(SP)
4463  020602  013746  002462              MOV     KMRVEC,-(SP)
4464  020606  012746  000003              MOV     #3,-(SP)
4465  020612  104437                      TRAP    C$SVEC
4466  020614  062706  000010              ADD     #10,SP
4467  020620  013746  002470              MOV     KMTLVL,-(SP)
4468  020624  012746  021162              MOV     #INTD4,-(SP)
4469  020630  013746  002464              MOV     KMTVEC,-(SP)
4470  020634  012746  000003              MOV     #3,-(SP)
4471  020640  104437                      TRAP    C$SVEC
4472  020642  062706  000010              ADD     #10,SP
4473
4474  020646  005037  002334              CLR     IFLAG           ;NO INTERRUPT INDICATOR
4475  020652  012700  000000              MOV     #0,R0
4476  020656  104441                      TRAP    C$SPRI
4477  020660  105077  161562              CLRB    @BSEL3          ;TELL MCPU TO INTERRUPT
4478
4479  020664                      TLB5:
4480  020664  012737  020706  002406      MOV     #ERLB5,ERRADD   ;SET UP ERROR ADDRESS
4481  020672  004537  005070              JSR     R5,TOUT
4482  020676  005037  002402              CLR     ERRWRD
4483  020702  104410                      TRAP    C$ESCAPE
4484  020704  000272                      .WORD   L10045-.
4485  020706                      ERLB5:
4486                                      ;;;;;;;;
4487                                      ; TIME OUT REPORTS THIS ADDRESS
4488                                      ;;;;;;;;
4489  020706  005737  002334      29$:    TST     IFLAG           ;DID MCPU INTERRUPT (IFLAG NOT 0)?
4490  020712  001764                      BEQ     TLB5            ;NO - LOOP
4491                                                              ;NOTE:  IF PROGRAM "HANGS" HERE, MCPU
4492                                                              ;FAILED TO INTERRUPT TO VECTOR XX4
4493                                                              ;WE KNOW MCPU IS ABLE TO INTERRUPT
4494                                                              ;TO XX0 (TEST C)
4495
4496  020714  013700  002462              MOV     KMRVEC,R0
4497  020720  104436                      TRAP    C$CVEC
4498  020722  013700  002464              MOV     KMTVEC,R0
4499  020726  104436                      TRAP    C$CVEC
4500
4501
4502                                      ;TEST E NPR TEST
4503
4504
4505  020730  012701  033774              MOV     #DATLST,R1      ;GET DATA LIST
4506  020734  152777  000010  161500      BISB    #BIT3,@BSEL1    ;SET INDICATOR THAT WE ARE STILL IN TEST.
4507
4508  020742  011137  002336      TLB6A:  MOV     (R1),$GDDAT     ;GET NEXT PATTERN
4509  020746  010177  161476              MOV     R1,@BSEL4       ;SET NPR IN ADDR
```

```
                        ;********************************  TEST 11  ********************************
 4510  020752  012777  002340  161474          MOV     #$BDDAT,@BSEL6  ;SET NPR OUT ADDR
 4511  020760  105077  161454                  CLRB    @BSEL0          ;TELL MCPU TO DO NPRS
 4512
 4513  020764                        TLB6:
 4514  020764  012737  021006  002406          MOV     #ERLB6,ERRADD   ;SET ERROR ADDRESS
 4515  020772  004537  005070                  JSR     R5,TOUT
 4516  020776  005037  002402                  CLR     ERRWRD
 4517  021002  104410                          TRAP    C$ESCAPE
 4518  021004  000172                          .WORD   L10045-.
 4519  021006                        ERLB6:
 4520                                          ;;;;;;;;
 4521                                          ; TIME OUT ERROR REPORTS THIS ADDRESS
 4522                                          ;;;;;;;;
 4523  021006  132777  000010  161426  30$:     BITB    #BIT3,@BSEL1    ;DID WE ACCIDENTILY ESCAPE THIS TEST???
 4524  021014  001006                          BNE     135$
 4525  021016  104455                          TRAP    C$ERDF
 4526  021020  000036                          .WORD   30
 4527  021022  011456                          .WORD   MEF7
 4528  021024  010464                          .WORD   ERR32
 4529                                                                  ;UNKNOWN MCPU ERROR CAUSED ABORT OF TEST.
 4530  021026  104410                          TRAP    C$ESCAPE
 4531  021030  000146                          .WORD   L10045-.
 4532  021032                        135$:
 4533
 4534  021032  122777  000377  161400          CMPB    #377,@BSEL0     ;WHEN MCPU DONE, IT PUTS 377 INTO BSEL0
 4535  021040  001351                          BNE     TLB6            ;IF WE "HANG" HERE, MCPU FAILS TO DO
 4536                                                                  ;EITHER NPR IN OR NPR OUT
 4537
 4538  021042  023737  002336  002340          CMP     $GDDAT,$BDDAT   ;NPRED FRO PATTERN LIST TO $BDDAT
 4539                                                                  ;DID XFER OCCUR SUCCESSFULLY?
 4540  021050  001405                          BEQ     14$             ;
 4541
 4542  021052  104455                          TRAP    C$ERDF
 4543  021054  000037                          .WORD   31
 4544  021056  011242                          .WORD   MEFC
 4545  021060  007530                          .WORD   ERR6
 4546  021062  104410                          TRAP    C$ESCAPE
 4547  021064  000112                          .WORD   L10045-.
 4548  021066  022721  000562          14$:     CMP     #562,(R1)+      ;IS IT THE LAST PATTERN (562) IS TERM)?
 4549  021072  001323                          BNE     TLB6A
 4550  021074  112777  000200  161336          MOVB    #200,@BSEL0     ;TELL MCPU TO EXIT TEST
 4551  021102  104432                          TRAP    C$EXIT
 4552  021104  000072                          .WORD   L10045-.
 4553
 4554  021106                        INTC0::
 4555  021106  013700  000006                  MOV     6,R0
 4556  021112  104441                          TRAP    C$SPRI
 4557  021114  005237  002334                  INC     IFLAG
 4558  021120                        L10046:
 4559  021120  000002                          RTI
 4560
 4561  021122                        INTC4::
 4562  021122  013700  000006                  MOV     6,R0
 4563  021126  104441                          TRAP    C$SPRI
 4564  021130  104455                          TRAP    C$ERDF
 4565  021132  000040                          .WORD   32
```

```
4566  021134  011510                        .WORD   MEF8
4567  021136  010464                        .WORD   ERR32
4568  021140                        L10047:
4569  021140  000002                        RTI
4570
4571  021142                        INTD0::
4572  021142  013700  000006                MOV     6,R0
4573  021146  104441                        TRAP    C$SPRI
4574  021150  104455                        TRAP    C$ERDF
4575  021152  000041                        .WORD   33
4576  021154  011510                        .WORD   MEF8
4577  021156  010464                        .WORD   ERR32
4578  021160                        L10050:
4579  021160  000002                        RTI
4580
4581  021162                        INTD4::
4582  021162  013700  000006                MOV     6,R0
4583  021166  104441                        TRAP    C$SPRI
4584  021170  005237  002334                INC     IFLAG           ;CORRECT VECTOR (XX4)
4585  021174                        L10051:
4586  021174  000002                        RTI
4587
4588  021176                        EXMDT:
4589
4590  021176                        L10045:
4591  021176  104401                        TRAP    C$ETST
4592
4593
```

```
                                        ;******************************  TEST 12  ******************************

                                .SBTTL  ;******************************  TEST 12  ******************************
                                .SBTTL  RDI REMAINS SET TEST
021200                                  ZZ
                                        ;*
                                        ;*ROM FUNCTION TEST      IN THIS TEST, WE'RE GOING TO SET RQI, GET A
                                        ;*                      RDI, DO A CONTROL IN COMMAND WITH A REQUEST
                                        ;*                      KEY OF 00 (NO REQUEST). NEXT WE'LL WAIT
                                        ;*                      FOR RDI TO SET AGAIN SINCE RQI WAS
                                        ;*                      LEFT SET
                                        ;*
                                .SBTTL  ;******************************  TEST 12  ******************************
021200                          T12::
021200  004737  004522                  JSR     PC,MINITS       ;INITIALIZE & START MCPU

021204  005037  002402                  CLR     ERRWRD
021210  104410                          TRAP    C$ESCAPE
021212  000076                          .WORD   L10052-.
                                        ;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;
021214                          7$:
021214  052777  000200  161216          BIS     #RQI,@BSEL0     ;SET RQI
021222                          10$:
021222  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET

021226  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR
021232  104410                          TRAP    C$ESCAPE
021234  000054                          .WORD   L10052-.
                                        ;;;;;;;;;;
                                        ; TIME OUT - OR READY ERROR REPORTS
                                        ;            THIS ADDRESS
                                        ;;;;;;;;;

021236  005077  161212          20$:    CLR     @BSEL6          ;CLEAR RDI, ISSUE REQUEST OF NO REQUEST
                                                                ;THIS SHOULD CAUSE RDI TO SET AGAIN
                                                                ;SINCE RQI HAD REMAINED SET
021242  112777  000001  161174          MOVB    #1,@BSEL2       ;START

021250  004737  004244                  JSR     PC,WAIT50       ;WAIT THIS SHORT TIME SO THAT THE
021254  004737  004244                  JSR     PC,WAIT50       ;DMP MICRO-CODE MAY RESET "RDI" IF
021260  004737  004244                  JSR     PC,WAIT50
021264  004737  004244                  JSR     PC,WAIT50
                                                                        ;IT IS GOING TO
021270  032777  000020  161146          BIT     #RDI,@BSEL2     ;IS RDI SET?
021276  001004                          BNE     30$

021300  104455                          TRAP    C$ERDF
021302  000042                          .WORD   34
021304  011672                          .WORD   MRFT
021306  007566                          .WORD   ERR9
                                                                ;COMPLETING A "NO REQUEST" CONTROL
                                                                ;IN COMMAND
021310                          30$:
021310                          L10052:
021310  104401                          TRAP    C$ETST
```

```
                        ;********************************  TEST 12  ********************************

4649
4650                    .SBTTL  ;********************************  TEST 13  ********************************
4651                    .SBTTL  *ROM FUNC TEST. VERIFY RDO SETS
4652    021312                  ZZ
4653                            ;*ROM FUNC      IN THIS TEST WE'LL DO A CONTROL IN WITH
4654                            ;*                      READ MODEM AS THE REQUEST KEY. WE'LL MAKE
4655                            ;*                      SURE THAT RDO SETS. WE SHOULD GET A
4656                            ;*                      RETURN KEY OF 10 "RETURN MODEM"
4657                            ;*
4658                    .SBTTL  ;********************************  TEST 13  ********************************
4659    021312          T13::
4660
4661    021312  004737  004522          JSR     PC,MINITS       ;INIT & START MCPU
4662
4663    021316  005037  002402          CLR     ERRWRD
4664    021322  104410                  TRAP    C$ESCAPE
4665    021324  000174                  .WORD   L10053-.
4666                                    ;;;;;;;;
4667                                    ; JUMP TO END OF TEST IF ERROR
4668                                    ;;;;;;;;
4669
4670    021326  052777  000200  161104  BIS     @RQI,@BSEL0     ;SET REQUEST IN
4671    021334  004537  002732          JSR     R5,WRDI         ;WAIT FOR RDI TO SET
4672
4673    021340  005037  002402          CLR     ERRWRD          ;CLEAR ERROR
4674    021344  104410                  TRAP    C$ESCAPE
4675    021346  000152                  .WORD   L10053-.
4676                                    ;;;;;;;;;;;
4677                                    ; TIME OUT OR READY ERROR REPORTS
4678                                    ; THIS ADDRESS AS FAILING PC
4679                                    ;;;;;;
4680    021350  042777  000200  161062  20$:    BIC     @RQI,@BSEL0     ;DROP REQUEST
4681    021356  012777  000020  161070          MOV     @20,@BSEL6      ;READ MODEM
4682    021364  112777  000001  161052          MOVB    @1,@BSEL2
4683
4684    021372  004737  004244          JSR     PC,WAIT50       ;STALL
4685    021376  004737  004244          JSR     PC,WAIT50
4686
4687    021402  032777  000200  161034          BIT     @RDO,@BSEL2     ;DID "RDO" SET?
4688    021410  001006                  BNE     30$
4689
4690    021412  104455                  TRAP    C$ERDF
4691    021414  000043                  .WORD   35
4692    021416  011672                  .WORD   MRFT
4693    021420  007614                  .WORD   ERR10
4694                                                            ;REQUEST FOR READ MODEM
4695    021422  104410                  TRAP    C$ESCAPE
4696    021424  000074                  .WORD   L10053-.
4697
4698    021426  117737  161012  002340  30$:    MOVB    @BSEL2, $BDDAT  ;NOW GET CSR AND
4699    021434  042737  177770  002340          BIC     @^C<7>, $BDDAT  ;STRIP FOR
4700    021442  012737  000002  002336          MOV     @2,     $GDDAT  ;TYPE CODE OF INFORMATION OUT
4701    021450  023737  002336  002340          CMP     $GDDAT, $BDDAT
4702    021456  001411                  BEQ     40$
4703    021460  012737  012051  002430          MOV     @M128F,CODEW
4704    021466  104455                  TRAP    C$ERDF
```

```
                        ;********************************  TEST 13  ********************************

 4705  021470  000044                        .WORD   36
 4706  021472  011550                        .WORD   EROIC
 4707  021474  010366                        .WORD   ERR27
 4708                                                          ;IN RDO
 4709  021476  104410                        TRAP    C$ESCAPE
 4710  021500  000020                        .WORD   L10053-.
 4711
 4712  021502                        40$:
 4713  021502  112737  000010  002336        MOVB    #10,    $GDDAT  ;SHOULD=10 "RETURN MODEM"
 4714  021510  004537  003372               JSR     R5,GETRKY       ;GO GET AND CHECK RETURN KEY
 4715
 4716  021514  005037  002402               CLR     ERRWRD
 4717  021520                        L10053:
 4718  021520  104401                        TRAP    C$ETST
```

```
                                .SBTTL  ;********************************  TEST 14  ********************************
                                .SBTTL  ; NON-MODE DEF AFTER MC PROCEDURE ERR CHECK
021522                                  ZZ
                                        ;*
                                        ;*
                                        ;*  THIS TEST CHECKS FOR PROCEDURE ERROR WHEN
                                        ;*  NON-MODE DEFINITION IS DONE AFTER MC
                                        ;*
                                        ;*-
                                .SBTTL  ;********************************  TEST 14  ********************************
021522                          T14::

021522  112777  000100  160712        MOVB    #100,@BSEL1     ;MASTER CLEAR
021530  022737  000004  002472        CMP     #4,OPTYP                ;8206
021536  001003                      BNE     TLB10           ;IF NOT GO TO TLB10
021540  112777  000200  160674        MOVB    #200,@BSEL1     ;SET RUN 8206

021546                          TLB10:
021546  004537  005070                JSR     R5,TOUT
021552  005037  002402                CLR     ERRWRD
021556  104410                      TRAP    C$ESCAPE
021560  000204                      .WORD   L10054-.

021562                          ERLB10:
021562  005777  160652                TST     @BSEL0
021566  100367                      BPL     TLB10           ;LOOP IF NOT RUN
021570  052777  000200  160642        BIS     #RQI,@BSEL0     ;SET REQUEST
021576  004537  002732                JSR     R5,WRDI         ;WAIT FOR RDI TO SET

021602  005037  002402                CLR     ERRWRD          ;CLEAR ERROR
021606  104410                      TRAP    C$ESCAPE
021610  000154                      .WORD   L10054-.
021612  105077  160622                CLRB    @BSEL0          ;CLEAR REQUEST
021616  105077  160624                CLRB    @BSEL3          ;MAKE TRIB ADD 0
021622  112777  000052  160624        MOVB    #52,@BSEL6      ;READ TSS
021630  112777  000001  160606        MOVB    #01,@BSEL2      ; EXECUTE CONTROL IN
021636  004537  002646                JSR     R5,WRDO         ;WAIT FOR RDO
021642  005037  002402                CLR     ERRWRD
021646  104410                      TRAP    C$ESCAPE
021650  000114                      .WORD   L10054-.
021652  117737  160566  002340        MOVB    @BSEL2,$BDDAT
021660  042737  177770  002340        BIC     #^C<7>,$BDDAT   ;STRIP TO COMMAND CODE
021666  022737  000002  002340        CMP     #2,$BDDAT       ;IS IT INFO OUT
021674  001433                      BEQ     T14EX           ;IF YES EXIT TEST
021676  022737  000001  002340        CMP     #01,$BDDAT      ;IF NOT IS IT CONTROL OUT
021704  001411                      BEQ     T14A            ;
021706  012737  012042  002430        MOV     #M18F,CODEW
021714  104455                      TRAP    C$ERDF
021716  000045                      .WORD   37
021720  011550                      .WORD   EROIC
021722  010366                      .WORD   ERR27
021724  104410                      TRAP    C$ESCAPE
021726  000036                      .WORD   L10054-.
021730                          T14A:
021730  117737  160520  002340        MOVB    @BSEL6,$BDDAT
021736  022737  000100  002340        CMP     #100,$BDDAT     ;IS IT 100
```

```
                        ;********************************  TEST 14  ********************************

 4775  021744  001407                        BEQ     T14EX           ;IF SO END TEST ELSE ERROR
 4776  021746  012737  012024  002430        MOV     #M13F,CODEW
 4777  021754  104455                        TRAP    C$ERDF
 4778  021756  000046                        .WORD   38
 4779  021760  011550                        .WORD   EROIC
 4780  021762  010366                        .WORD   ERR27
 4781  021764                        T14EX:
 4782  021764                        L10054:
 4783  021764  104401                        TRAP    C$ETST
 4784
```

```
                        ;********************************  TEST 14  ********************************

                        .SBTTL  ;********************************  TEST 15  ********************************
                        .SBTTL  * MODE DEF,MODE DEF PROCEDURE ERROR
021766                  ZZ
                        ;*
                        ;*
                        ;*
                        ;* THIS TEST CHECKS THAT AFTER THE SEQUENCE OF
                        ;* MASTER CLEAR MODE DEF FOLLOWED BY MODE DEF
                        ;* DIFFERENT TYPE PRODUCES A PROCEDURE ERROR OF
                        ;* OCTAL 104
                        ;*
                        ;*-
                        .SBTTL  ;********************************  TEST 15  ********************************
021766                  T15::

021766  004737  004522          JSR     PC,MINITS       ;DO MC,MODE DEF(CONT STA/FD)

021772  005037  002402          CLR     ERRWRD
021776  104410                  TRAP    C$ESCAPE
022000  000174                  .WORD   L10055-.
                        ;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;
022002  004737  004244          JSR     PC,WAIT50       ;WAIT A WHILE TO BE SURE MODEM READY
                                                        ;IS SET
022006  004737  004244          JSR     PC,WAIT50
022012  142777  000010  160422  BICB    #BIT3,@BSEL1    ;CLEAR LU LOOP
022020  022737  000004  002476  CMP     #4,TSTCON       ;IS THIS NO LOOPBACK
022026  001027                  BNE     20$             ;IF LOOPBACK GO TO 20
022030  032777  000200  160406  BIT     #RDO,@BSEL2     ;IS RDO SET?
022036  001423                  BEQ     20$             ;IF NOT GO TO 20
022040  012737  000304  002336  MOV     #304,$GDDAT
022046  117737  160402  002340  MOVB    @BSEL6,$BDDAT   ;IF YES.IS IT 304
022054  023737  002340  002336  CMP     $BDDAT,$GDDAT
022062  001406                  BEQ     25$             ;IF EQUAL GO TO 25
022064  104455                  TRAP    C$ERDF
022066  000047                  .WORD   39
022070  012560                  .WORD   MEF30
022072  010464                  .WORD   ERR32
022074  104432                  TRAP    C$EXIT
022076  000076                  .WORD   L10055-.
022100                  25$:
022100  042777  000200  160336  BIC     #RDO,@BSEL2     ;CLEAR RDO
022106  052777  000200  160324  20$:    BIS     #RQI,@BSEL0     ;SET REQUEST
022114  004537  002732          JSR     R5,WRDI         ;WAIT FOR RDI TO SET

022120  005037  002402          CLR     ERRWRD          ;CLEAR ERROR
022124  104410                  TRAP    C$ESCAPE
022126  000046                  .WORD   L10055-.
022130  043777  000200  160302  BIC     RQI,@BSEL0      ; CLEAR REQUEST
022136  012777  000007  160310  MOV     #7,@BSEL6       ;SET MODE FOR TRIB/FD
022144  012777  000002  160272  MOV     #02,@BSEL2      ;DO MODE DEF
022152  012737  000104  002410  MOV     #104,PERR       ;SET PROCEDURE ERROR OF
                                                        ; 104 TO BE CHECKED
```

```
                        ;********************************  TEST 15  ********************************

 4841  022160  004537  003016                 JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
 4842
 4843  022164  005037  002402                 CLR     ERRWRD
 4844  022170  104410                         TRAP    C$ESCAPE
 4845  022172  000002                         .WORD   L10055-.
 4846                                          ;;;;;;;
 4847                                          ; ESCAPE TEST IF ERROR
 4848                                          ;;;;;;;
 4849                                                                  ; ERROR,OR TIME OUT.
 4850
 4851  022174                          L10055:
 4852  022174  104401                         TRAP    C$ETST
```

```
                                ;********************************  TEST 15  ********************************

                                .SBTTL  ;********************************  TEST 16  ********************************
                                .SBTTL  * MODE DEF ,MODE DEF CHANGE DUPLEX ONLY.
022176                          ZZ
                                ;*
                                ;*
                                ;* THIS CHECKS THAT YOU CAN CHANGE THE DUPLEX PORTION
                                ;* OF A MODE DEF
                                ;*
                                ;*-
                                .SBTTL  ;********************************  TEST 16  ********************************
022176                          T16::

022176  004737  004522          JSR     PC,MINITS       ;MC,MODE DEF(CONT/FD)
022202  004737  004244          JSR     PC,WAIT50       ;DELAY

022206  005037  002402          CLR     ERRWRD
022212  104410                  TRAP    C$ESCAPE
022214  000236                  .WORD   L10056-.

                                ; JUMP TO END OF TEST IF ERROR

022216  022737  000002  002476  CMP     #2,TSTCON       ;IS IT LOCAL MODEM              ****JPB
022224  001004                  BNE     1$              ;NO, BR AND TRY REMOTE          ****JPB
022226  012704  000110          MOV     #110,R4         ;YES, SET DTR AND MAINT1        ****JPB
022232  000137  022252          JMP     100$            ;SET IT                         ****JPB

022236  022737  000003  002476  1$:     CMP     #3,TSTCON       ;IS IT REMOTE MODEM
022244  001011                  BNE     2$              ;IF NOT THEN GO TO 2A
022246  012704  000104          MOV     #104,R4         ;SET DTR AND MAINT2
022252                          100$:
022252  012703  000021          MOV     #21,R3
022256  004537  003162          JSR     R5,CONTIN       ; WRITE MODEM WITH CORRECT
                                                        ; TYPE OF LOOP CODE
022262  005737  002402          TST     ERRWRD
022266  100471                  BMI     10$             ;EXIT IF ERROR

022270  004737  004244          2$:     JSR     PC,WAIT50       ;LET IT SETTLE.                 **JPB
022274  142777  000010  160140  BICB    #BIT3,@BSEL1    ;CLEAR LU LOOP

022302  004737  004244          JSR     PC,WAIT50       ;WAIT A WHILE
022306  004737  004244          JSR     PC,WAIT50
022312  022737  000004  002476  CMP     #4,TSTCON
022320  001020                  BNE     20$             ;IF LOOPBACK GO TO 20
022322  032777  000200  160114  BIT     #RDO,@BSEL2     ;ELSE SEE IF READY OUT
022330  001414                  BEQ     20$             ;IF NOT GO TO 20
022332  012737  000304  002410  MOV     #304,PERR       ;
022340  004537  003016          JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR

022344  005037  002402          CLR     ERRWRD
022350  104410                  TRAP    C$ESCAPE
022352  000100                  .WORD   L10056-.
                                ;;;;;;;
                                ; ESCAPE TEST IF ERROR
                                ;;;;;;;
022354  042777  000200  160062  BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
```

```
                        ;*******************************  TEST 16  *******************************
 4909  022362  052777  000200  160050  20$:    BIS     #RQI,@BSEL0     ;SET REQUEST
 4910  022370  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET
 4911
 4912  022374  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR
 4913  022400  104410                          TRAP    C$ESCAPE
 4914  022402  000050                          .WORD   L10056-.
 4915                                          ;;;;;;;;;
 4916                                          ; TIME OUT OR READY ERRORS REPORT THIS PC
 4917                                          ;;;;;;;;;
 4918  022404  043777  000200  160026          BIC     RQI,@BSEL0      ;NO MORE REQUESTS
 4919  022412  112777  000004  160034          MOVB    #04,@BSEL6      ;CONT/FD FOR MODE
 4920  022420  112777  000002  160016          MOVB    #02,@BSEL2      ;DO MODE DEF
 4921  022426  004737  004244                  JSR     PC,WAIT50       ;DELAY A WHILE
 4922  022432  032777  000200  160004          BIT     #RDO,@BSEL2     ;IS RDO SET
 4923  022440  001404                          BEQ     10$             ;BRANCH IF NOT
 4924  022442  104455                          TRAP    C$ERDF
 4925  022444  000050                          .WORD   40
 4926  022446  012560                          .WORD   MEF30
 4927  022450  010464                          .WORD   ERR32
 4928  022452                          10$:
 4929  022452                          L10056:
 4930  022452  104401                          TRAP    C$ETST
 4931
```

```
                                        ;******************************  TEST 17  ******************************
                                .SBTTL  ;******************************  TEST 17  ******************************
                                .SBTTL  *ROM FUNC. TEST. VERIFY THAT MAX TRIBS CAN BE ESTABLISHED
                                        ZZ
                                        ;*ROM FUNCTION TEST-ESTABLISHING TRIBS-
                                        ;*              THIS TEST WILL ESTABLISH MAX TRIBS
                                        ;*              THEN TRY TO ESTABLISH MAX+1 TRIBS
                                        ;*               AND CHECK FOR PROCEDURE ERROR.
                                        ;*               THE TEST ALSO CHECKS FOR PROCEDURE
                                        ;*               ERROR WHEN TRYING TO ESTABLISH AN
                                        ;*               ALREADY ESTABLISHED TRIB.
                                        ;*
                                .SBTTL  ;******************************  TEST 17  ******************************
022454                          T17::
022454  012737  000040  002362          MOV     #32.,TRIBMX             ;SET MAX TRIB TO 32
022462  032737  000003  002472          BIT     #3,OPTYP                ;IS THIS DMV
022470  001403                        BEQ     XX                      ;IF NOT BRANCH
022472  012737  000014  002362          MOV     #12.,TRIBMX             ;ELSE SET THE MAX TO 12
022500                          XX:
022500  112737  000161  002360          MOVB    #161,TRIBN              ;NUMBER OF TRIBUTARY,
022506  112737  000161  002364          MOVB    #161,TRIBH              ;START TRIB HIGH AT SAME AS TRIBN
022514  063737  002362  002364          ADD     TRIBMX,TRIBH            ;ADD MAX NUMBER OF TRIBS TO TRIBH
022522  004737  004522                  JSR     PC,MINITS       ;INITIALIZE
022526  005037  002402                  CLR     ERRWRD
022532  104410                          TRAP    C$ESCAPE
022534  000150                          .WORD   L10057-.
                                        ;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
022536                          30$:
022536  112703  000001                  MOVB    #01,R3                  ;SET ESTABLISH TRIB
022542  004537  003162                  JSR     R5,CONTIN               ;
                                        ;;;;;;;;;
                                        ; READY OR TIME OUT ERRORS REPORT THIS PC
                                        ;;;;;;;;
022546  005037  002402                  CLR     ERRWRD
022552  104410                          TRAP    C$ESCAPE
022554  000130                          .WORD   L10057-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
022556  005237  002360                  INC     TRIBN                   ;UPDATE TRIB#
022562  023737  002364  002360          CMP     TRIBH,  TRIBN           ;ONLY ALLOW MAX TRIBS TO BE SET
022570  001362                          BNE     30$
022572                          37$:
022572  112703  000001                  MOVB    #01, R3                 ;ESTABLISH MAX +1 TRIBS
022576  004537  003162                  JSR     R5,CONTIN               ; DO IT
                                        ;;;;;;;;
                                        ; READY OR TIME OUT ERRORS REPORT THIS PC
                                        ;;;;;;;
```

```
                        ;********************************  TEST 17  ********************************
 4988  022602  005037  002402                CLR     ERRWRD
 4989  022606  104410                        TRAP    C$ESCAPE
 4990  022610  000074                        .WORD   L10057-.
 4991                                        ;;;;;;;;
 4992                                        ; JUMP TO END OF TEST IF ERROR
 4993                                        ;;;;;;;;
 4994
 4995  022612  012737  000114  002410        MOV     #114,   PERR    ;SHOULD READ 114, PROCEDURE ERROR
 4996                                                                ;TRYING TO ESTABLISH MAX+1 TRIBUTARIES
 4997
 4998  022620  004537  003016                JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
 4999
 5000  022624  005037  002402                CLR     ERRWRD
 5001  022630  104410                        TRAP    C$ESCAPE
 5002  022632  000052                        .WORD   L10057-.
 5003                                        ;;;;;;;
 5004                                        ; ESCAPE TEST IF ERROR
 5005                                        ;;;;;;;
 5006  022634                        60$:
 5007  022634  042777  000200  157602        BIC     #RDO,@BSEL2     ;CLEAR RDO
 5008  022642  005337  002360                DEC     TRIBN           ;DEC TRIB NUMBER
 5009  022646  112703  000001                MOVB    #01,  R3        ;SET ESTABLISH TRIB
 5010  022652  004537  003162                JSR     R5,CONTIN       ;DO IT
 5011                                        ;;;;;;;;;
 5012                                        ;; READY OR TIME OUT ERRORS REPORT THIS PC
 5013                                        ;;;;;;;;;
 5014
 5015  022656  005037  002402                CLR     ERRWRD
 5016  022662  104410                        TRAP    C$ESCAPE
 5017  022664  000020                        .WORD   L10057-.
 5018                                        ;;;;;;;;;
 5019                                        ; JUMP TO END OF TEST IF ERROR
 5020                                        ;;;;;;
 5021
 5022  022666  112737  000116  002410        MOVB    #116,  PERR     ;SHOULD BE PROCEDURE ERROR
 5023                                                                ; OF 116 ESTABLISH ALREADY
 5024                                                                ;ESTABLISHED TRIB.
 5025  022674  004537  003016                JSR     R5,WFPE         ;GO CHECK FOR PROCEDURE ERROR
 5026  022700  005037  002402                CLR     ERRWRD
 5027  022704                        70$:
 5028  022704                        L10057:
 5029  022704  104401                        TRAP    C$ETST
 5030
```

```
                                ;******************************  TEST 18  ******************************

                                .SBTTL  ;******************************  TEST 18  ******************************
                                .SBTTL  * READ/WRITE TSS TEST
022706                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS THAT A TRIB STATUS SLOT CAN
                                        ;* BE WRITTEN AND READ
                                        ;*
                                        ;*-
                                .SBTTL  ;******************************  TEST 18  ******************************
022706                          T18::
022706  012737  000030  002412          MOV     #30,TSSADD      ;START ADD AT 30
022714  005002                  NEWSLT: CLR     R2              ;CLEAR R2

022716  004737  004522          NEWPAT: JSR     PC,MINITS       ;MASTER CLEAR MODE DEF

022722  005037  002402                  CLR     ERRWRD
022726  104410                          TRAP    C$ESCAPE
022730  000240                          .WORD   L10060-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

022732  012737  000055  002360          MOV     #55,TRIBN       ;PUT 55 IN TRIB NUMBER
022740  012703  000001                  MOV     #01,R3          ;THIS WILL ESTABLISH
022744  004537  003162                  JSR     R5,CONTIN       ; A TRIB
                                        ;;;;;;;;;;;;;;;;
                                        ; TIME OUT AND READY ERRORS REPORT THIS PC
                                        ;;;;;;;;;;;;;;;;

022750  005037  002402                  CLR     ERRWRD
022754  104410                          TRAP    C$ESCAPE
022756  000212                          .WORD   L10060-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

022760  016204  033774                  MOV     DATLST(R2),R4   ;PATTERN TO BE WRITTEN
022764  013703  002412                  MOV     TSSADD,R3       ;WRITE TO TSS
022770  052703  000200                  BIS     #BIT7,R3        ;SET THE WRITE BIT
022774  004537  003162                  JSR     R5,CONTIN       ; GO DO IT!!!
                                        ;;;;;;;;;;;;
                                        ; TIME OUT AND READY ERRORS REPORT THIS PC
                                        ;;;;;;;;;;;;

023000  005037  002402                  CLR     ERRWRD
023004  104410                          TRAP    C$ESCAPE
023006  000162                          .WORD   L10060-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;;

023010  013703  002412                  MOV     TSSADD,R3       ;SET UP TO READ SLOT
023014  052703  000040                  BIS     #BIT5,R3        ;SET THE READ BIT
023020  004537  003162                  JSR     R5,CONTIN       ;DO CONTROL IN
                                        ;;;;;;;;;;;;;;;;
```

```
5087                                        ; TIME OUT AND READY ERRORS REPORT THIS PC
5088                                        ;;;;;;;;;;;;;;;;
5089
5090  023024  005037  002402                CLR     ERRWRD
5091  023030  104410                       TRAP    C$ESCAPE
5092  023032  000136                       .WORD   L10060-.
5093                                        ;;;;;;;;;
5094                                        ; JUMP TO END OF TEST IF ERROR
5095                                        ;;;;;;;;
5096  023034  012737  000002  002336        MOV     #02,$GDDAT      ; COMPARE FOR A INFO OUT
5097  023042  004537  003242                JSR     R5,GETOUT       ; CHECK FOR INFO OUT AND
5098                                                                ;CORRECT TRIB NO. IF ERROR
5099                                                                ;REPORT THIS PC.
5100  023046  005037  002402                CLR     ERRWRD
5101  023052  104410                       TRAP    C$ESCAPE
5102  023054  000114                       .WORD   L10060-.
5103                                        ;;;;;;;
5104                                        ; JUMP TO END OF TEST IF ERROR
5105                                        ;;;;;;;
5106
5107  023056  013737  002412  002336        MOV     TSSADD,$GDDAT   ;MOVE EXPECTED ADDRESS TO GDDAT
5108  023064  052737  000040  002336        BIS     #BIT5,$GDDAT    ;SET THE READ TSS BIT IN EXPECTED
5109  023072  004537  003372                JSR     R5,GETRKY       ; GO CHECK FOR GOOD RETURN KEY
5110
5111  023076  005037  002402                CLR     ERRWRD
5112  023102  104410                       TRAP    C$ESCAPE
5113  023104  000064                       .WORD   L10060-.
5114                                        ;;;;;;;;
5115                                        ; JUMP TO END OF TEST IF ERROR
5116                                        ;;;;;;;;
5117
5118  023106  016237  033774  002336  30$:   MOV     DATLST(R2),$GDDAT       ;MOVE EXPECTED PATTERN
5119  023114  004537  003446                JSR     R5,GETDAT       ;GET DATA RETURNED.
5120                                                                ;IF ERROR REPORT THIS PC.
5121  023120  005037  002402                CLR     ERRWRD
5122  023124  104410                       TRAP    C$ESCAPE
5123  023126  000042                       .WORD   L10060-.
5124                                        ;;;;;;;;;;
5125                                        ; JUMP TO END OF TEST IF ERROR
5126                                        ;;;;;;;;;;
5127
5128  023130  022762  000562  033774        CMP     #562,DATLST(R2) ;ARE WE DONE WITH PATTERN
5129  023136  001404                       BEQ     50$             ;IF SO DO NEXT SLOT
5130  023140  062702  000002                ADD     #2,R2           ;BUMP LIST POINTER
5131  023144  000137  022716                JMP     NEWPAT          ;GO BACK FOR THIS PATTERN.
5132  023150  022737  000037  002412  50$:   CMP     #37,TSSADD      ;IS THIS THE LAST SLOT
5133  023156  001404                       BEQ     60$             ;IF SO END TEST
5134  023160  005237  002412                INC     TSSADD          ;ELSE BUMP ADD
5135  023164  000137  022714                JMP     NEWSLT          ; AND DO NEXT SLOT
5136  023170                          60$:
5137
5138  023170                          L10060:
5139  023170  104401                       TRAP    C$ETST
5140
```

```
                                      .SBTTL  ;*****************************  TEST 19  *****************************
                                      .SBTTL  *WRITE RESERVED AREA OF TSS. P.E. 132
        023172                                ZZ
                                              ;*
                                              ;*
                                              ;* THIS TEST CHECKS FOR PROCEDURE ERROR
                                              ;* ON WRITING TO ILLEGAL SLOT
                                              ;*
                                              ;*-
                                      .SBTTL  ;*****************************  TEST 19  *****************************

        023172                        T19::
        023172  004737  004522                JSR     PC,MINITS          ;MASTER CLEAR MODE DEF

        023176  005037  002402                CLR     ERRWRD
        023202  104410                        TRAP    C$ESCAPE
        023204  000072                        .WORD   L10061-.

                                              ;;;;;;;
                                              ; JUMP TO END OF TEST IF ERROR
                                              ;;;;;;;

        023206  012737  000022  002360        MOV     #22,TRIBN          ;SET TRIB NUMBER TO 22
        023214  012703  000001                MOV     #01,R3
        023220  004537  003162                JSR     R5,CONTIN          ;ESTABLISH TRIB

                                              ;;;;;;;;;;;;
                                              ; TIME OUT OR READY ERRORS REPORT THIS PC
                                              ;;;;;;;;;;

        023224  005037  002402                CLR     ERRWRD
        023230  104410                        TRAP    C$ESCAPE
        023232  000044                        .WORD   L10061-.

                                              ;;;;;;;
                                              ; JUMP TO END OF TEST IF ERROR
                                              ;;;;;;

        023234  012703  000204                MOV     #204,R3            ;SEL6=204
        023240  004537  003162                JSR     R5,CONTIN          ;WRITE TSS (ILLEGAL)

                                              ;;;;;;;;;;;
                                              ; TIME OUT OR READY ERROR REPORT THIS PC
                                              ;;;;;;;;;;;

        023244  005037  002402                CLR     ERRWRD
        023250  104410                        TRAP    C$ESCAPE
        023252  000024                        .WORD   L10061-.

                                              ;;;;;;;;
                                              ; JUMP TO END OF TEST IF ERROR
                                              ;;;;;;;;;

        023254  012737  000132  002410        MOV     #132,PERR                  ;CHECK FOR PROCEDURE ERROR

        023262  004537  003016                JSR     R5,WFPE            ;WAIT FOR PROCEDURE ERROR
```

```
                        ;********************************  TEST 19  ********************************

 5197
 5198  023266  005037  002402                CLR     ERRWRD
 5199  023272  104410                        TRAP    C$ESCAPE
 5200  023274  000002                        .WORD   L10061-.
 5201                                        ;;;;;;;
 5202                                        ; ESCAPE TEST IF ERROR
 5203                                        ;;;;;;;
 5204
 5205  023276                        L10061:
 5206  023276  104401                        TRAP    C$ETST
 5207
```

```
                                ;********************************  TEST 20  ********************************
                                .SBTTL  ;********************************  TEST 20  ********************************
                                .SBTTL  *READ CLEAR WRONG ADD P.E.132
                                ZZ
                                ;*
                                ;*
                                ;* THIS TEST CHECKS FOR PROCEDURE ERROR
                                ;* FOR RD/CLR TSS WRONG ADD(132)
                                ;*
                                ;*-
                                .SBTTL  ;********************************  TEST 20  ********************************
023300                          T20::
023300  004737  004522          JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
023304  005037  002402          CLR     ERRWRD
023310  104410                  TRAP    C$ESCAPE
023312  000072                  .WORD   L10062-.
                                ;;;;;;;;;
                                ; JUMP TO END OF TEST IF ERROR
                                ;;;;;;;;;

023314  012737  000077  002360  MOV     #77,TRIBN       ;MAKE TRIBN 77
023322  012703  000001          MOV     #01,R3          ;ESTABLISH TRIB
023326  004537  003162          JSR     R5,CONTIN
                                ;;;;;;;;;;
                                ; TIME OUT OR READY ERROR REPORTS THIS PC
                                ;;;;;;;;;

023332  005037  002402          CLR     ERRWRD
023336  104410                  TRAP    C$ESCAPE
023340  000044                  .WORD   L10062-.
                                ;;;;;;;;;
                                ; JUMP TO END OF TEST IF ERROR
                                ;;;;;;;;;

023342  012703  000106          MOV     #106,R3
023346  004537  003162          JSR     R5,CONTIN       ;READ/CLEAR ADD 6
                                ;;;;;;;;;;
                                ; TIME OUT OR READY ERRORS REPORT THIS PC
                                ;;;;;;;;;;

023352  005037  002402          CLR     ERRWRD
023356  104410                  TRAP    C$ESCAPE
023360  000024                  .WORD   L10062-.
                                ;;;;;;;;;
                                ; JUMP TO END OF TEST IF ERROR
                                ;;;;;;;;;

023362  012737  000132  002410  MOV     #132,PERR       ;SET PROCEDURE ERROR TO BE CHECKED TO 132
023370  004537  003016          JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR

023374  005037  002402          CLR     ERRWRD
023400  104410                  TRAP    C$ESCAPE
023402  000002                  .WORD   L10062-.
                                ;;;;;;;
                                ; ESCAPE TEST IF ERROR
                                ;;;;;;;
023404                  L10062:
023404  104401                  TRAP    C$ETST
```

```
                                ;********************************  TEST 20  ********************************

5264
5265                            .SBTTL  ;********************************  TEST 21  ********************************
5266                            .SBTTL  *READ/CLEAR TSS
5267  023406                            ZZ
5268                                    ;*
5269                                    ;*
5270                                    ;* THIS TEST THAT READ CLEAR WORKS
5271                                    ;*
5272                                    ;*-
5273                            .SBTTL  ;********************************  TEST 21  ********************************
5274
5275  023406                    T21::
5276  023406  004737  004522            JSR     PC,MINITS       ;MASTER CLEAR MODE-DEF
5277
5278  023412  005037  002402            CLR     ERRWRD
5279  023416  104410                    TRAP    C$ESCAPE
5280  023420  000100                    .WORD   L10063-.
5281
5282                                    ;;;;;;;;;
5283                                    ; JUMP TO END OF TEST IF ERROR
5284                                    ;;;;;;
5285
5286  023422  012737  000003  002360    MOV     #03,TRIBN       ;SET TRIB NUMBER
5287  023430  012703  000001            MOV     #01,R3
5288  023434  004537  003162            JSR     R5,CONTIN       ;ESTABLISH TRIB
5289
5290                                    ;;;;;;;;;
5291                                    ;; TIME OUT OR READY ERRORS REPORT THIS PC
5292                                    ;;;;;;;;;
5293
5294  023440  005037  002402            CLR     ERRWRD
5295  023444  104410                    TRAP    C$ESCAPE
5296  023446  000052                    .WORD   L10063-.
5297
5298                                    ;;;;;;;;;
5299                                    ; JUMP TO END OF TEST IF ERROR
5300                                    ;;;;;;;;;
5301
5302  023450  012703  000107            MOV     #107,R3
5303  023454  004537  003162            JSR     R5,CONTIN       ;READ/CLEAR ADD 7
5304
5305                                    ;;;;;;;;;;;;;
5306                                    ; TIME OUT OR READY ERRORS REPORT THIS PC
5307                                    ;;;;;;;;;;;;
5308
5309  023460  005037  002402            CLR     ERRWRD
5310  023464  104410                    TRAP    C$ESCAPE
5311  023466  000032                    .WORD   L10063-.
5312
5313                                    ;;;;;;;
5314                                    ; JUMP TO END OF TEST IF ERROR
5315                                    ;;;;;;;
5316
5317  023470  004737  004244            JSR     PC,WAIT50
5318  023474  004737  004244            JSR     PC,WAIT50       ;DELAY
5319
```

```
                        ;*******************************  TEST 21  ********************************

 5320  023500  032777  000200  156736          BIT     #RD0,@#SEL2
 5321  023506  001004                          BNE     10$             ;IF RD0 THEN END ELSE ERROR
 5322
 5323  023510  104455                          TRAP    C$ERDF
 5324  023512  000051                          .WORD   41
 5325  023514  011672                          .WORD   MRFT
 5326  023516  007614                          .WORD   ERR10
 5327  023520                          10$:
 5328  023520                          L10063:
 5329  023520  104401                          TRAP    C$ETST
```

```
                        ;********************************  TEST 22  ************************
                        .SBTTL  ;********************************  TEST 22  ************************************
                        .SBTTL  *GLOBAL STATUS SLOT TESTS
023522                  ZZ
                        ;*
                        ;*      THIS TEST CHECKS THAT GLOBAL STATUS
                        ;*      SLOTS RESPOND TO COMMANDS
                        ;*
                        ;*-
                        .SBTTL  ;********************************  TEST 22  ************************************
023522                  T22::

023522                  T22.1:
023522  104402                  TRAP    C$BSUB
                        ;;;;;;;;;;;;;;;;;;;;;;;;;
                        ; READ ALL SLOTS TEST   ;
                        ;;;;;;;;;;;;;;;;;;;;;;;;;

023524  005037  002412            CLR     TSSADD          ;CLEAR ADD
023530  005037  002360            CLR     TRIBN           ;MAKE TRIB #0(GLOBAL COMM)
023534                  5$:
023534  004737  004522            JSR     PC,MINITS       ;MASTER CLEAR INIT

023540  005037  002402            CLR     ERRWRD
023544  104410                    TRAP    C$ESCAPE
023546  000114                    .WORD   L10065-.
                        ;;;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;;;;

023550  013703  002412            MOV     TSSADD,R3
023554  052703  000040            BIS     #BIT5,R3        ;SET UP READ GSS COMMAND
023560  004537  003162            JSR     R5,CONTIN       ;GO DO IT

023564  005037  002402            CLR     ERRWRD
023570  104410                    TRAP    C$ESCAPE
023572  000070                    .WORD   L10065-.
                        ;;;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;;;;

023574  012737  000002  002336    MOV     #2,$GDDAT       ;
023602  004537  003242            JSR     R5,GETOUT       ;CHECK CORRECT TYPE AND
                                                        ; TRIB NO.

023606  005037  002402            CLR     ERRWRD
023612  104410                    TRAP    C$ESCAPE
023614  000046                    .WORD   L10065-.
                        ;;;;;;;;
                        ; ESCAPE SUB IF ERROR
                        ;;;;;;;;

023616                  10$:
023616  013737  002412  002336    MOV     TSSADD,$GDDAT
023624  052737  000040  002336    BIS     #BIT5,$GDDAT    ;SET THE READ TSS BIT
023632  004537  003372            JSR     R5,GETRKY       ;CHECK RETURN KEY
```

```
                        ;********************************  TEST 22  ********************************
 5386  023636  005037  002402                CLR     ERRWRD
 5387  023642  104410                        TRAP    C$ESCAPE
 5388  023644  000016                        .WORD   L10065-.
 5389                                        ;;;;;;;;
 5390                                        ; GO TO END OF SUB IF ERROR
 5391                                        ;;;;;;;
 5392
 5393
 5394  023646  005237  002412        30$:    INC     TSSADD          ;BUMP ADDRESS
 5395  023652  022737  000040  002412        CMP     #40,TSSADD      ; ARE WE ALL DONE
 5396  023660  001325                        BNE     5$              ; IF NOT GO BACK
 5397                                                                ;ELSE END SUBTEST
 5398  023662                        L10065:
 5399  023662  104403                        TRAP    C$ESUB
 5400  023664                        T22.2:
 5401  023664  104402                        TRAP    C$BSUB
 5402                                        ;;;;;;;;;;;;;;;;;;;;;;;
 5403                                        ; WRITE ALL SLOTS TEST ;
 5404                                        ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
 5405
 5406  023666  012737  000034  002412        MOV     #34,TSSADD      ;START WITH FIRST WRITABLE ADD
 5407  023674  005037  002360                CLR     TRIBN           ;AND TRIBN AT ZERO
 5408  023700  004737  004522        40$:    JSR     PC,MINITS       ;MASTER CLEAR INT
 5409
 5410  023704  005037  002402                CLR     ERRWRD
 5411  023710  104410                        TRAP    C$ESCAPE
 5412  023712  000226                        .WORD   L10066-.
 5413                                        ;;;;;;;;
 5414                                        ; JUMP TO END OF SUB IF ERROR
 5415                                        ;;;;;;;
 5416
 5417  023714  013703  002412        45$:    MOV     TSSADD,R3
 5418  023720  052703  000200                BIS     #BIT7,R3        ;WRITE TSS(GLOBAL BECAUSE TRIBN=0)
 5419  023724  013704  002412                MOV     TSSADD,R4       ;PUT IN ADD FOR DATA
 5420  023730  004537  003162                JSR     R5,CONTIN       ;DO IT
 5421
 5422  023734  005037  002402                CLR     ERRWRD
 5423  023740  104410                        TRAP    C$ESCAPE
 5424  023742  000176                        .WORD   L10066-.
 5425                                        ;;;;;;;;
 5426                                        ; JUMP TO END OF SUB IF ERROR
 5427                                        ;;;;;;
 5428
 5429  023744  005237  002412                INC     TSSADD          ;BUMP ADD
 5430  023750  022737  000040  002412        CMP     #40,TSSADD      ;DONE ALL
 5431  023756  001356                        BNE     45$             ;NO GO FINISH!!!
 5432  023760  012703  000227                MOV     #227,R3
 5433  023764  013704  002412                MOV     TSSADD,R4
 5434  023770  004537  003162                JSR     R5,CONTIN       ; TRY TO WRITE BAD ADDRESS
 5435
 5436  023774  005037  002402                CLR     ERRWRD
 5437  024000  104410                        TRAP    C$ESCAPE
 5438  024002  000136                        .WORD   L10066-.
 5439                                        ;;;;;;;
 5440                                        ; JUMP TO END OF SUB IF ERROR
 5441                                        ;;;;;;
```

```
5442  024004  012737  000132  002410          MOV     #132,PERR
5443  024012  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
5444
5445  024016  005037  002402                  CLR     ERRWRD
5446  024022  104410                          TRAP    C$ESCAPE
5447  024024  000222                          .WORD   L10064-.
5448                                          ;;;;;;;
5449                                          ; ESCAPE TEST IF ERROR
5450                                          ;;;;;;;
5451
5452  024026  042777  000200  156410  GSSREP: BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
5453  024034  005337  002412                  DEC     TSSADD          ;GET TSSADD BACK TO MAX
5454  024040  013703  002412                  MOV     TSSADD,R3
5455  024044  052703  000040                  BIS     #BIT5,R3        ;SET READ BIT
5456  024050  004537  003162                  JSR     R5,CONTIN       ;READ TSS
5457
5458  024054  005037  002402                  CLR     ERRWRD
5459  024060  104410                          TRAP    C$ESCAPE
5460  024062  000056                          .WORD   L10066-.
5461                                          ;;;;;;;
5462                                          ; JUMP  TO END OF SUB IF ERROR
5463                                          ;;;;;;;
5464
5465  024064  012737  000002  002336          MOV     #2,$GDDAT
5466  024072  004537  003242                  JSR     R5,GETOUT       ;CHECK FOR INFOR. OUT AND
5467
5468  024076  005037  002402                  CLR     ERRWRD
5469                                                                  ;CORRECT TRIBN.
5470  024102  104410                          TRAP    C$ESCAPE
5471  024104  000034                          .WORD   L10066-.
5472                                          ;;;;;
5473                                          ; JUMP TO END OF SUB IF ERROR
5474                                          ;;;;;;
5475  024106  013737  002412  002336  60$:    MOV     TSSADD,$GDDAT
5476  024114  004537  003446                  JSR     R5,GETDAT       ;CHECK FOR GOOD DATA
5477
5478  024120  005037  002402                  CLR     ERRWRD
5479  024124  104410                          TRAP    C$ESCAPE
5480  024126  000012                          .WORD   L10066-.
5481                                          ;;;;;;;
5482                                          ;JUMP TO END OF SUB IF ERROR
5483                                          ;;;;;;
5484
5485  024130  022737  000034  002412  70$:    CMP     #34,TSSADD      ;ARE WE ALL DONE
5486  024136  001333                          BNE     GSSREP          ;GO BACK IF NOT
5487
5488  024140                          L10066:
5489  024140  104403                          TRAP    C$ESUB
5490  024142                          T22.3:
5491  024142  104402                          TRAP    C$BSUB
5492                                          ;;;;;;;;;;;;;;;;;;;;;;
5493                                          ; READ CLEAR SLOT TEST :
5494                                          ;;;;;;;;;;;;;;;;;;;;;;;
5495
5496  024144  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
5497
```

```
024150  005037  002402                  CLR     ERRWRD
024154  104410                          TRAP    C$ESCAPE
024156  000066                          .WORD   L10067-.
                                        ;;;;;;;
                                        ;JUMP TO END OF SUB IF ERROR
                                        ;;;;;;;

024160  005037  002360                  CLR     TRIBN
024164  012703  000117                  MOV     #117,R3
024170  004537  003162                  JSR     R5,CONTIN       ;READ CLEAR SLOT

024174  005037  002402                  CLR     ERRWRD
024200  104410                          TRAP    C$ESCAPE
024202  000042                          .WORD   L10067-.
                                        ;;;;;;;;;
                                        ;JUMP TO END OF SUB IF ERROR
                                        ;;;;;;;;;

024204  012737  000002  002336          MOV     #02,$GDDAT
024212  004537  003242                  JSR     R5,GETOUT       ;CHECK FOR INFO OUT
                                                                ;AND CORRECT TRIBN.
024216  005037  002402                  CLR     ERRWRD
024222  104410                          TRAP    C$ESCAPE
024224  000020                          .WORD   L10067-.
                                        ;;;;;;;
                                        ;JUMP TO END OF SUB IF ERROR
                                        ;;;;;;;

024226  012737  000117  002336          MOV     #117,$GDDAT
024234  004537  003372                  JSR     R5,GETRKY       ;CHECK FOR CORRECT RETURN KEY

024240  005037  002402                  CLR     ERRWRD
024244                          L10067:
024244  104403                          TRAP    C$ESUB
024246                          L10064:
024246  104401                          TRAP    C$ETST
```

```
                                ;****************************** TEST 22 ******************************

                                .SBTTL  ;****************************** TEST 23 ******************************
                                .SBTTL  *HALT TRIB COMMAND TEST
024250                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS THE HALT TRIB COMMAND
                                        ;* AND THEN CHECKS THAN A 2ND HALT TRIB
                                        ;* DOES NOT CAUSE A CONTROL OUT.
                                        ;*-
                                .SBTTL  ;****************************** TEST 23 ******************************
024250                          T23::

024250  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR -MODE DEF
024254  005037  002402                  CLR     ERRWRD          ;IF ERROR GO TO END TEST
024260  104410                          TRAP    C$ESCAPE
024262  000412                          .WORD   L10070-.
024264  012737  000036  002360          MOV     #36,TRIBN       ;SET TRIBN
024272  012703  000001                  MOV     #01,R3
024276  004537  003162                  JSR     R5,CONTIN       ;ESTABLISH TRIB

                                        ;IF TIME OUT OR READY ERRORS THE PROGRAM WILL
                                        ;REPORT THIS PC AS FAILING PC

024302  005037  002402                  CLR     ERRWRD          ; JUMP TO END OF TEST IF ERROR
024306  104410                          TRAP    C$ESCAPE
024310  000364                          .WORD   L10070-.
024312  012703  000003                  MOV     #03,R3
024316  004537  003162                  JSR     R5,CONTIN       ;ISTRT TRIB

                                        ;IF TIME OUT OR READY ERRORS THE PROGRAM WILL
                                        ;REPORT THIS PC AS FAILING PC

024322  005037  002402                  CLR     ERRWRD          ; JUMP TO END OF TEST IF ERROR
024326  104410                          TRAP    C$ESCAPE
024330  000344                          .WORD   L10070-.
024332  012737  000001  002336          MOV     #01,$GDDAT      ;CHECK
024340  004537  003242                  JSR     R5,GETOUT       ;FOR CONTROL OUT AND
                                                                ;CORRECT TRIBN
                                                                ;IF ERROR REPORT
                                                                ;THIS PC AND ESCAPE TEST
024344  005037  002402                  CLR     ERRWRD          ; JUMP TO END OF TEST IF ERROR
024350  104410                          TRAP    C$ESCAPE
024352  000322                          .WORD   L10070-.
024354  012737  000024  002336          MOV     #24,$GDDAT
024362  004537  003670                  JSR     R5,GETOC        ;CHECK FOR GOOD OUTPUT CODE
024366  005037  002402                  CLR     ERRWRD          ; JUMP TO END OF TEST IF ERROR
024372  104410                          TRAP    C$ESCAPE
024374  000300                          .WORD   L10070-.

                                        ; QUE REC BUFFER WITH 100 DECIMAL LOCATIONS

024376  042777  000200  156040  20$:    BIC     #RDO,@BSEL2     ;CLEAR READY OUT
024404  052777  000200  156026          BIS     #RQI,@BSEL0     ;SET REQUEST IN
                                                                ;WAIT FOR READY IN
024412  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET
```

```
024416  005037  002402                  CLR     ERRWRD                  ;CLEAR ERROR
024422  104410                          TRAP    C$ESCAPE
024424  000250                          .WORD   L10070-.
024426  042777  000200  156004          BIC     #RQI,@BSEL0             ;CLEAR REQUEST IN
024434  012777  034014  156006          MOV     #RECBU1,@BSEL4          ;
024442  012777  000144  156004          MOV     #100.,@BSEL6
024450  113777  002360  155770          MOVB    TRIBN,@BSEL3
024456  105077  155762                  CLRB    @BSEL2                  ;QUE UP BUFF
024462  012703  000005                  MOV     #05,R3
024466  004537  003162                  JSR     R5,CONTIN               ;HALT TRIB
                                        ;IF TIME OUT OR READY ERRORS THE PROGRAM WILL
                                        ;REPORT THIS PC AS FAILING PC

024472  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024476  104410                          TRAP    C$ESCAPE
024500  000174                          .WORD   L10070-.
024502  012737  000003  002336          MOV     #03,$GDDAT
024510  004537  003242                  JSR     R5,GETOUT               ;CHECK FOR BUFFER UNUSED
                                                                        ;AND CORRECT TRIBN.
024514  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024520  104410                          TRAP    C$ESCAPE
024522  000152                          .WORD   L10070-.
024524  012737  000144  002336          MOV     #100.,$GDDAT
024532  004537  003514                  JSR     R5,GETCC                ;CHECK FOR GOOD CHAR.COUNT
024536  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024542  104410                          TRAP    C$ESCAPE
024544  000130                          .WORD   L10070-.
024546  012737  034014  002336          MOV     #RECBU1,$GDDAT
024554  004537  003576                  JSR     R5,GETBA                ;CHECK FOR GOOD BUFF. ADD.
024560  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024564  104410                          TRAP    C$ESCAPE
024566  000106                          .WORD   L10070-.
024570  042777  000200  155646  23$:    BIC     #RDO,@BSEL2             ;CLEAR OUTPUT AND LOOK FOR NEXT
024576  012737  000002  002336          MOV     #2,$GDDAT
024604  004537  003242                  JSR     R5,GETOUT               ;NEXT GET INFO OUT
024610  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024614  104410                          TRAP    C$ESCAPE
024616  000056                          .WORD   L10070-.
024620  012737  000020  002336          MOV     #20,$GDDAT
024626  004537  003372                  JSR     R5,GETRKY               ;CHECK FOR GOOD RETURN KEY
                                                                        ; BUFFER RETURN COMPLETE
024632  005037  002402                  CLR     ERRWRD                  ; JUMP TO END OF TEST IF ERROR
024636  104410                          TRAP    C$ESCAPE
024640  000034                          .WORD   L10070-.
024642  042777  000200  155574  25$:    BIC     #RDO,@BSEL2             ;CLEAR OUTPUT
024650  004737  004244                  JSR     PC,WAIT50
024654  004737  004244                  JSR     PC,WAIT50               ;WAIT A WHILE
024660  012703  000000                  MOV     #0,R3                   ;DO A NO REQUEST
024664  004537  003162                  JSR     R5,CONTIN
024670  005037  002402                  CLR     ERRWRD                  ;IF ERROR OCCURS THE SECOND
                                                                        ;HALT TRIB CAUSED AN OUTPUT
                                                                        ;AND SHOULD NOT HAVE.
024674                          L10070:
024674  104401                          TRAP    C$ETST
```

```
                                ;********************************  TEST 23  ********************************

                                .SBTTL  ;********************************  TEST 24  ********************************
                                .SBTTL  *KILL TRIB TESTS
024676                                  ZZ
                                        ;*
                                        ;* THIS TEST CHECKS THE KILL TRIB FUNCTIONS
                                        ;*-
                                .SBTTL  ;********************************  TEST 24  ********************************
024676                          T24::

024676  004737  004522                  JSR     PC,MINITS

024702  005037  002402                  CLR     ERRWRD
024706  104410                          TRAP    C$ESCAPE
024710  000412                          .WORD   L10071-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

024712  012737  000143  002360          MOV     #143,TRIBN      ;SET TRIB NUMBER
024720  012703  000001                  MOV     #01,R3
024724  004537  003162                  JSR     R5,CONTIN       ;ESTABLISH TRIB
                                        ;;;;;;;;;;
                                        ; TIME OUT OR READY ERRORS REPORT THIS P
                                        ;;;;;;;;;

024730  005037  002402                  CLR     ERRWRD
024734  104410                          TRAP    C$ESCAPE
024736  000364                          .WORD   L10071-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

024740  012703  000041                  MOV     #41,R3
024744  004537  003162                  JSR     R5,CONTIN       ;READ TRIB STATUS SLOT 1
                                        ;;;;;;;;
                                        ; TIME OUT OR READY ERRORS REPORT THIS PC
                                        ;;;;;;;;

024750  005037  002402                  CLR     ERRWRD
024754  104410                          TRAP    C$ESCAPE
024756  000344                          .WORD   L10071-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

024760  012737  000002  002336          MOV     #02,$GDDAT      ;SET TYPE FOR INFO OUT
024766  004537  003242                  JSR     R5,GETOUT       ;CHECK FOR INFO OUT AND
                                                                ;CORRECT TRIBN.

024772  005037  002402                  CLR     ERRWRD
024776  104410                          TRAP    C$ESCAPE
025000  000322                          .WORD   L10071-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
```

```
5701
5702  025002  000377  155442          20$:    SWAB    @BSEL4          ;SWAB BYTES
5703  025006  117737  155436  002340          MOVB    @BSEL4,$BDDAT   ;MOVE TRIB ADD TO BDDAT
5704  025014  113737  002360  002336          MOVB    TRIBN,$GDDAT    ;MOVE TRIB NUMBER TO GDDAT
5705  025022  123737  002336  002340          CMPB    $GDDAT,$BDDAT   ;COMPARE
5706  025030  001407                          BEQ     30$             ;IF OK GO TO 30
5707                                                                  ;ELSE ERROR
5708  025032  012737  012056  002430          MOV     #M30F,CODEW
5709  025040  104455                          TRAP    C$ERDF
5710  025042  000052                          .WORD   42
5711  025044  011550                          .WORD   EROIC
5712  025046  010366                          .WORD   ERR27
5713
5714  025050  042777  000200  155366  30$:    BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
5715  025056  012703  000004                  MOV     #04,R3
5716  025062  004537  003162                  JSR     R5,CONTIN       ;MAINT STATE TRIB
5717                                          ;;;;;;;;;;
5718                                          ;TIME OUT OR READY ERRORS REPORT THIS PC
5719                                          ;;;;;;;;;;
5720
5721  025066  005037  002402                  CLR     ERRWRD
5722  025072  104410                          TRAP    C$ESCAPE
5723  025074  000226                          .WORD   L10071-.
5724                                          ;;;;;;;;
5725                                          ; JUMP TO END OF TEST IF ERROR
5726                                          ;;;;;;;;
5727
5728  025076  012703  000002                  MOV     #02,R3
5729  025102  004537  003162                  JSR     R5,CONTIN       ;KILL TRIB
5730                                          ;;;;;;;;;;
5731                                          ; TIME OUT OR READY ERRORS REPORT THIS PC
5732                                          ;;;;;;;;;;
5733
5734  025106  005037  002402                  CLR     ERRWRD
5735  025112  104410                          TRAP    C$ESCAPE
5736  025114  000206                          .WORD   L10071-.
5737                                          ;;;;;;;;
5738                                          ; JUMP TO END OF TEST IF ERROR
5739                                          ;;;;;;;;
5740
5741  025116  012737  000112  002410          MOV     #112,PERR       ;CHECK FOR KILL TO UNHALTED
5742  025124  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
5743
5744  025130  005037  002402                  CLR     ERRWRD
5745  025134  104410                          TRAP    C$ESCAPE
5746  025136  000164                          .WORD   L10071-.
5747                                          ;;;;;;;
5748                                          ; ESCAPE TEST IF ERROR
5749                                          ;;;;;;;
5750  025140  042777  000200  155276          BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
5751  025146  012703  000005                  MOV     #05,R3
5752  025152  004537  003162                  JSR     R5,CONTIN       ;HALT TRIB
5753                                          ;;;;;;;;;;
5754                                          ; TIME OUT OR READY ERRORS REPORT THIS PC
5755                                          ;;;;;;;;;;
5756
```

```
                        ;********************************  TEST 24  ********************************

5757  025156  005037  002402                CLR     ERRWRD
5758  025162  104410                        TRAP    C$ESCAPE
5759  025164  000136                        .WORD   L10071-.
5760                                          ;;;;;;;;
5761                                          ; JUMP TO END OF TEST IF ERROR
5762                                          ;;;;;;;;
5763
5764  025166  012737  000002  002336        MOV     #2,$GDDAT
5765  025174  004537  003242                JSR     R5,GETOUT       ;CHECK FOR INFO OUT
5766                                                                  ;AND CORRECT PC
5767
5768  025200  005037  002402                CLR     ERRWRD
5769  025204  104410                        TRAP    C$ESCAPE
5770  025206  000114                        .WORD   L10071-.
5771                                          ;;;;;;;;
5772                                          ; JUMP TO END OF TEST IF ERROR
5773                                          ;;;;;;;;
5774
5775  025210  012737  000020  002336        MOV     #20,$GDDAT
5776  025216  004537  003372                JSR     R5,GETRKY       ;CHECK FOR GOOD RETURN KEY
5777
5778
5779  025222  005037  002402                CLR     ERRWRD
5780  025226  104410                        TRAP    C$ESCAPE
5781  025230  000072                        .WORD   L10071-.
5782                                          ;;;;;;;;
5783                                          ; JUMP TO END OF TEST IF ERROR
5784                                          ;;;;;;;;
5785
5786  025232  042777  000200  155204  2$:   BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
5787  025240  012703  000002                MOV     #02,R3          ;KILL TRIB
5788  025244  004537  003162                JSR     R5,CONTIN
5789                                          ;;;;;;;;;;
5790                                          ; TIME OUT OR READY ERRORS REPORT THIS PC
5791                                          ;;;;;;;;;;
5792
5793  025250  005037  002402                CLR     ERRWRD
5794  025254  104410                        TRAP    C$ESCAPE
5795  025256  000044                        .WORD   L10071-.
5796                                          ;;;;;;;;
5797                                          ; JUMP TO END OF TEST IF ERROR
5798                                          ;;;;;;;;
5799
5800  025260  012703  000041                MOV     #41,R3          ;READ SLOT 1
5801  025264  004537  003162                JSR     R5,CONTIN
5802                                          ;;;;;;;;;;
5803                                          ; TIME OUT OR READY ERRORS REPORT THIS PC
5804                                          ;;;;;;;;;;
5805
5806  025270  005037  002402                CLR     ERRWRD
5807  025274  104410                        TRAP    C$ESCAPE
5808  025276  000024                        .WORD   L10071-.
5809                                          ;;;;;;;;
5810                                          ; JUMP TO END OF TEST IF ERROR
5811                                          ;;;;;;;;
5812
```

```
                        ;********************************  TEST 24  ********************************

 5813  025300  012737  000106  002410          MOV     #106,PERR       ;CHECK FOR PROCEDURE 106 ERROR
 5814  025306  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
 5815
 5816  025312  005037  002402                  CLR     ERRWRD
 5817  025316  104410                          TRAP    C$ESCAPE
 5818  025320  000002                          .WORD   L10071-.
 5819                                          ;;;;;;;
 5820                                          ; ESCAPE TEST IF ERROR
 5821                                          ;;;;;;;
 5822
 5823  025322                          L10071:
 5824  025322  104401                          TRAP    C$ETST
 5825
 5826
```

```
                                        .SBTTL  ;********************************  TEST 25  ********************************
                                        .SBTTL  *CHECK FOR PROCEDURE ERROR 102
025324                                          ZZ
                                                ;*
                                                ;*
                                                ;*      THIS TEST CHECKS THAT ILLEGAL TYPE CODES
                                                ;*      ON INPUT COMMANDS WILL PRODUCE PROCEDURE
                                                ;*      ERRORS.
                                                ;*
                                                ;*-
                                        .SBTTL  ;********************************  TEST 25  ********************************
025324                                  T25::
025324  012702  002414                          MOV     #TYLST,R2               ;SET R2 TO START OF LIST

025330  004737  004522                  10$:    JSR     PC,MINITS               ;MASTER CLEAR-MODE DEF

025334  005037  002402                          CLR     ERRWRD
025340  104410                                  TRAP    C$ESCAPE
025342  000074                                  .WORD   L10072-.
                                                ;;;;;;;;
                                                ; JUMP TO END OF TEST IF ERROR
                                                ;;;;;;;;

025344  052777  000200  155066                  BIS     #RQI,@BSEL0             ;SET REQUEST
025352  004537  002732                          JSR     R5,WRDI                 ;WAIT FOR RDI TO SET

025356  005037  002402                          CLR     ERRWRD                  ;CLEAR ERROR
025362  104410                                  TRAP    C$ESCAPE
025364  000052                                  .WORD   L10072-.
025366  042777  000200  155044                  BIC     #RQI,@BSEL0             ;CLEAR REQUEST
025374  112277  155044                          MOVB    (R2)+,@BSEL2            ;DO FIRST BAD CODE
025400  012737  000102  002410                  MOV     #102,PERR               ;
025406  004537  003016                          JSR     R5,WFPE                 ;WAIT FOR PROCEDURE ERROR

025412  005037  002402                          CLR     ERRWRD
025416  104410                                  TRAP    C$ESCAPE
025420  000016                                  .WORD   L10072-.
                                                ;;;;;;;
                                                ; ESCAPE TEST IF ERROR
                                                ;;;;;;;
025422  042777  000200  155014                  BIC     #RDO,@BSEL2             ;CLEAR READY OUT
025430  022702  002420                          CMP     #TYEND,R2               ;IS IT END
025434  001335                                  BNE     10$                     ;IF NOT GO BACK


025436                                  L10072:
025436  104401                                  TRAP    C$ETST
```

```
                                ;********************************  TEST 25  ********************************

5876
5877                            .SBTTL  ;********************************  TEST 26  ********************************
5878                            .SBTTL  * CHECK FOR PROCEDURE ERROR 110
5879  025440                            ZZ:
5880                                    ;*
5881                                    ;*
5882                                    ;*      THIS TEST CHECKS FOR THE PROCEDURE ERROR
5883                                    ;*      NON-GLOBAL COMMAND TO TRIB ADDRESS OF 0
5884                                    ;*
5885                                    ;*-
5886                            .SBTTL  ;********************************  TEST 26  ********************************
5887  025440                    T26::
5888
5889  025440  004737  004522            JSR     PC,MINITS       ;MASTER CLEAR -MODE-DEF
5890
5891  025444  005037  002402            CLR     ERRWRD
5892  025450  104410                    TRAP    C$ESCAPE
5893  025452  000050                    .WORD   L10073-.
5894                                    ;;;;;;;;
5895                                    ; JUMP TO END OF TEST IF ERROR
5896                                    ;;;;;;;;
5897
5898  025454  005037  002360            CLR     TRIBN           ;MAKE TRIB ADDRESS 0
5899  025460  012703  000001            MOV     #01,R3
5900  025464  004537  003162            JSR     R5,CONTIN       ;TRY TO DO ISTRT
5901
5902  025470  005037  002402            CLR     ERRWRD
5903  025474  104410                    TRAP    C$ESCAPE
5904  025476  000024                    .WORD   L10073-.
5905                                    ;;;;;;;;
5906                                    ; JUMP TO END OF TEST IF ERROR
5907                                    ;;;;;;;;
5908
5909  025500  012737  000110  002410    MOV     #110,PERR       ;CHECK FOR PE OF 110
5910  025506  004537  003016            JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
5911
5912  025512  005037  002402            CLR     ERRWRD
5913  025516  104410                    TRAP    C$ESCAPE
5914  025520  000002                    .WORD   L10073-.
5915                                    ;;;;;;;
5916                                    ; ESCAPE TEST IF ERROR
5917                                    ;;;;;;;
5918
5919  025522                    L10073:
5920  025522  104401                    TRAP    C$ETST
```

```
                                        ;********************************  TEST 26  ********************************

5921
5922
5923                                    .SBTTL  ;********************************  TEST 27  ********************************
5924                                    .SBTTL  * CHECKS FOR PROCEDURE ERROR 120
5925  025524                                    ZZ
5926                                            ;*
5927                                            ;*
5928                                            ;*      THIS TEST ISSUES A CONTROL IN WITH A REQUEST
5929                                            ;*      KEY OF 7 AND LOOKS FOR A PROCEDURE ERROR OF
5930                                            ;*      ILLEGAL REQUEST KEY ON CONTROL IN (120)
5931                                            ;*
5932                                            ;*-
5933                                    .SBTTL  ;********************************  TEST 27  ********************************
5934  025524                            T27::
5935
5936  025524  004737  004522                    JSR     PC,MINITS       ;MASTER CLEAR - MODE DEF
5937
5938  025530  005037  002402                    CLR     ERRWRD
5939  025534  104410                            TRAP    C$ESCAPE
5940  025536  000212                            .WORD   L10074-.
5941                                            ;;;;;;;;
5942                                            ; JUMP TO END OF TEST IF ERROR
5943                                            ;;;;;;;;
5944
5945  025540  012737  000003  002360            MOV     #3,TRIBN
5946  025546  012703  000001                    MOV     #01,R3
5947  025552  004537  003162                    JSR     R5,CONTIN       ;ESTABLISH TRIB
5948                                            ;;;;;;;;;
5949                                            ;TIME OUT OR READY ERRORS REPORT HERE
5950                                            ;;;;;;;;
5951
5952  025556  005037  002402                    CLR     ERRWRD
5953  025562  104410                            TRAP    C$ESCAPE
5954  025564  000164                            .WORD   L10074-.
5955                                            ;;;;;;;;
5956                                            ; JUMP TO END OF TEST IF ERROR
5957                                            ;;;;;;;;
5958
5959  025566  012703  000007                    MOV     #07,R3
5960  025572  004537  003162                    JSR     R5,CONTIN       ;DO CONTROL IN WITH KEY OF 07
5961
5962  025576  005037  002402                    CLR     ERRWRD
5963  025602  104410                            TRAP    C$ESCAPE
5964  025604  000144                            .WORD   L10074-.
5965                                            ;;;;;;;;
5966                                            ; JUMP TO END OF TEST IF ERROR
5967                                            ;;;;;;;;
5968
5969  025606  012737  000120  002410            MOV     #120,PERR       ;LOOK FOR ERROR
5970  025614  004537  003016                    JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
5971
5972  025620  005037  002402                    CLR     ERRWRD
5973  025624  104410                            TRAP    C$ESCAPE
5974  025626  000122                            .WORD   L10074-.
5975                                            ;;;;;;;;
5976                                            ; ESCAPE TEST IF ERROR
```

```
5977                                        ;;;;;;;
5978  025630  042777  000200  154606        BIC     #RDO,@BSEL2     ;CLEAR RDO
5979  025636  012703  000017                MOV     #17,R3          ;MOV 17 TO KEY WORD
5980  025642  004537  003162                JSR     R5,CONTIN       ;DO CONTROL IN WITH KEY OF 17
5981
5982  025646  005037  002402                CLR     ERRWRD
5983  025652  104410                        TRAP    C$ESCAPE
5984  025654  000074                        .WORD   L10074-.
5985                                        ;;;;;;;;
5986                                        ; JUMP TO END OF TEST IF ERROR
5987                                        ;;;;;;;;
5988
5989  025656  012737  000120  002410        MOV     #120,PERR       ;LOOK FOR ERROR
5990  025664  004537  003016                JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
5991
5992  025670  005037  002402                CLR     ERRWRD
5993  025674  104410                        TRAP    C$ESCAPE
5994  025676  000052                        .WORD   L10074-.
5995                                        ;;;;;;;
5996                                        ; ESCAPE TEST IF ERROR
5997                                        ;;;;;;;
5998  025700  042777  000200  154536        BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
5999  025706  005003                        CLR     R3
6000  025710  004537  003162                JSR     R5,CONTIN       ;DO A NO REQUEST
6001
6002  025714  005037  002402                CLR     ERRWRD
6003  025720  104410                        TRAP    C$ESCAPE
6004  025722  000026                        .WORD   L10074-.
6005                                        ;;;;;;;;
6006                                        ; JUMP TO END OF TEST IF ERROR
6007                                        ;;;;;;;;
6008
6009  025724  004737  004244                JSR     PC,WAIT50       ;THEN DELAY
6010  025730  032777  000200  154506        BIT     #RDO,@BSEL2
6011  025736  001404                        BEQ     10$             ;IF NOT SET THEN END
6012                                                                ;ELSE ERROR
6013  025740  104455                        TRAP    C$ERDF
6014  025742  000053                        .WORD   43
6015  025744  012560                        .WORD   MEF30
6016  025746  010464                        .WORD   ERR32
6017  025750                          10$:
6018  025750                          L10074:
6019  025750  104401                        TRAP    C$ETST
6020
```

```
                                ;********************************  TEST 28  ********************************

 6021                           .SBTTL  ;********************************  TEST 28  ********************************
 6022                           .SBTTL  * CHECK FOR PROCEDURE ERROR 134
 6023  025752                           ZZ
 6024                                   ;*
 6025                                   ;*
 6026                                   ;*      THIS TEST CHECKS FOR PROCEDURE ERROR OF USING
 6027                                   ;*      RESERVED BITS IN BSEL7 ON CONTROL IN
 6028                                   ;*
 6029                                   ;*-
 6030                           .SBTTL  ;********************************  TEST 28  ********************************
 6031  025752                   T28::
 6032
 6033  025752  004737  004522           JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
 6034
 6035  025756  005037  002402           CLR     ERRWRD
 6036  025762  104410                   TRAP    C$ESCAPE
 6037  025764  000212                   .WORD   L10075-.
 6038                                   ;;;;;;;;
 6039                                   ; JUMP TO END OF TEST IF ERROR
 6040                                   ;;;;;;;;
 6041
 6042  025766  012737  000005  002360   MOV     #5,TRIBN
 6043  025774  012703  000001           MOV     #1,R3
 6044  026000  004537  003162           JSR     R5,CONTIN       ;ESTABLISH TRIB
 6045                                   ;;;;;;;;;;
 6046                                   ;TIME OUT OR READY ERRORS REPORT THIS PC
 6047                                   ;;;;;;;;
 6048
 6049  026004  005037  002402           CLR     ERRWRD
 6050  026010  104410                   TRAP    C$ESCAPE
 6051  026012  000164                   .WORD   L10075-.
 6052                                   ;;;;;;;;
 6053                                   ; JUMP TO END OF TEST IF ERROR
 6054                                   ;;;;;;;;
 6055
 6056  026014  012703  100000           MOV     #100000,R3      ;SET BIT 7
 6057  026020  004537  003162           JSR     R5,CONTIN
 6058
 6059  026024  005037  002402           CLR     ERRWRD
 6060  026030  104410                   TRAP    C$ESCAPE
 6061  026032  000144                   .WORD   L10075-.
 6062                                   ;;;;;;;;
 6063                                   ; JUMP TO END OF TEST IF ERROR
 6064                                   ;;;;;;;;
 6065
 6066  026034  012737  000134  002410   MOV     #134,PERR
 6067  026042  004537  003016           JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
 6068
 6069  026046  005037  002402           CLR     ERRWRD
 6070  026052  104410                   TRAP    C$ESCAPE
 6071  026054  000122                   .WORD   L10075-.
 6072                                   ;;;;;;;
 6073                                   ; ESCAPE TEST IF ERROR
 6074                                   ;;;;;;;
 6075  026056  042777  000200  154360   BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
 6076  026064  012703  046000           MOV     #46000,R3       ;SET 6 3 AND2
```

```
                        ;********************************  TEST 28  ********************************

6077  026070  004537  003162            JSR     R5,CONTIN       ;DO CONTROL IN
6078
6079  026074  005037  002402            CLR     ERRWRD
6080  026100  104410                    TRAP    C$ESCAPE
6081  026102  000074                    .WORD   L10075-.
6082                                    ;;;;;;;;
6083                                    ; JUMP TO END OF TEST IF ERROR
6084                                    ;;;;;;;;
6085
6086  026104  012737  000134  002410    MOV     #134,PERR
6087  026112  004537  003016            JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
6088
6089  026116  005037  002402            CLR     ERRWRD
6090  026122  104410                    TRAP    C$ESCAPE
6091  026124  000052                    .WORD   L10075-.
6092                                    ;;;;;;;
6093                                    ; ESCAPE TEST IF ERROR
6094                                    ;;;;;;;
6095  026126  005003                    CLR     R3
6096  026130  042777  000200  154306    BIC     #RDO,@BSEL2     ;CLEAR OUTPUT
6097  026136  004537  003162            JSR     R5,CONTIN       ;DO CONTROL IN
6098
6099  026142  005037  002402            CLR     ERRWRD
6100  026146  104410                    TRAP    C$ESCAPE
6101  026150  000026                    .WORD   L10075-.
6102                                    ;;;;;;;;
6103                                    ; JUMP TO END OF TEST IF ERROR
6104                                    ;;;;;;;;
6105
6106  026152  004737  004244            JSR     PC,WAIT50       ;WAIT A WHILE
6107  026156  032777  000200  154260    BIT     #RDO,@BSEL2     ;IS RDO SET NOW
6108  026164  001404                    BEQ     10$             ;IF NOT THEN GO ON
6109                                                            ;ELSE ERROR
6110  026166  104455                    TRAP    C$ERDF
6111  026170  000054                    .WORD   44
6112  026172  012560                    .WORD   MEF30
6113  026174  010464                    .WORD   ERR32
6114  026176                    10$:
6115  026176                    L10075:
6116  026176  104401                    TRAP    C$ETST
6117
```

```
                        ;********************************  TEST 29  ********************************
                .SBTTL  ;********************************  TEST 29  ********************************
                .SBTTL  *LATCH - UNLATCH POLL CHECK
026200                  ZZ
                        ;*
                        ;*
                        ;* THIS TEST CHECKS THE LATCH - UNLATCH POLL
                        ;* COMMANDS. FIRST LATCH TRIB IN DEAD STATE
                        ;* MAKE SURE ITS DEAD. THEN UNLATCH AND MAKE
                        ;* SURE THAT IT GOES ACTIVE.
                        ;*
                        ;*_
                .SBTTL  ;********************************  TEST 29  ********************************
026200                  T29::

026200  004737  004522          JSR     PC,MINITS       ;MASTER CLEAR MODE DEF

026204  005037  002402          CLR     ERRWRD
026210  104410                  TRAP    C$ESCAPE
026212  000312                  .WORD   L10076-.
                        ;;;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;;;;

026214  012737  000027  002360  MOV     #27,TRIBN
026222  012703  000001          MOV     #01,R3          ;ESTABLISH TRIB
026226  004537  003162          JSR     R5,CONTIN
                        ;;;;;;;;;;
                        ;TIME OUT OR READY ERROR REPORT THIS PC
                        ;;;;;;;;;

026232  005037  002402          CLR     ERRWRD
026236  104410                  TRAP    C$ESCAPE
026240  000264                  .WORD   L10076-.
                        ;;;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;;;;

026242  012704  000003          MOV     #3,R4
026246  012703  020000          MOV     #20000,R3       ;LATCH POLL DEAD
026252  004537  003162          JSR     R5,CONTIN
                        ;;;;;;;;;;
                        ; TIME OUT OR READY ERRORS REPORT THIS PC
                        ;;;;;;;;;

026256  005037  002402          CLR     ERRWRD
026262  104410                  TRAP    C$ESCAPE
026264  000240                  .WORD   L10076-.
                        ;;;;;;;;
                        ; JUMP TO END OF TEST IF ERROR
                        ;;;;;;;;

026266  012703  000042          MOV     #42,R3
026272  C04537  003162          JSR     R5,CONTIN       ;READ SLOT 2 TSS
                        ;;;;;;;;;;
                        ; TIME OUT OR READY ERRORS REPORT THIS PC
                        ;;;;;;;;;;
```

```
6174
6175  026276  005037  002402                CLR     ERRWRD
6176  026302  104410                        TRAP    C$ESCAPE
6177  026304  000220                        .WORD   L10076-.
6178                                        ;;;;;;;;
6179                                        ; JUMP TO END OF TEST IF ERROR
6180                                        ;;;;;;;;
6181
6182  026306  012737  000002  002336        MOV     #02,$GDDAT
6183  026314  004537  003242                JSR     R5,GETOUT
6184                                        ;;;;;;;;;;
6185                                        ; CHECK FOR INFO OUT AND CORRECT TRIBN
6186                                        ; IF ERROR REPORT THIS PC
6187                                        ;;;;;;;;;;
6188
6189  026320  005037  002402                CLR     ERRWRD
6190  026324  104410                        TRAP    C$ESCAPE
6191  026326  000176                        .WORD   L10076-.
6192                                        ;;;;;;;;
6193                                        ; JUMP TO END OF TEST IF ERROR
6194                                        ;;;;;;;;
6195
6196  026330  012737  000042  002336        MOV     #42,$GDDAT
6197  026336  004537  003372                JSR     R5,GETRKY
6198                                        ;;;;;;;;;
6199                                        ; CHECK FOR CORRECT RETURN KEY
6200                                        ;;;;;;;;;
6201
6202  026342  005037  002402                CLR     ERRWRD
6203  026346  104410                        TRAP    C$ESCAPE
6204  026350  000154                        .WORD   L10076-.
6205                                        ;;;;;;;;
6206                                        ; JUMP TO END OF TEST IF ERROR
6207                                        ;;;;;;;;
6208
6209  026352  012737  100220  002336        MOV     #100220,$GDDAT  ;
6210  026360  004537  003446                JSR     R5,GETDAT
6211                                        ;;;;;;;;;
6212                                        ; CHECK FOR DEAD STATE
6213                                        ;;;;;;;;
6214
6215  026364  005037  002402                CLR     ERRWRD
6216  026370  104410                        TRAP    C$ESCAPE
6217  026372  000132                        .WORD   L10076-.
6218                                        ;;;;;;;;
6219                                        ; JUMP TO END OF TEST IF ERROR
6220                                        ;;;;;;;;
6221
6222  026374  042777  000200  154042        BIC     #RD0,@BSEL2     ;CLEAR OUTPUT
6223  026402  012703  010000                MOV     #10000,R3
6224  026406  004537  003162                JSR     R5,CONTIN       ;UNLATCH POLL
6225                                        ;;;;;;;
6226                                        ;TIME OUT OR READY ERRORS REPORT THIS PC
6227                                        ;;;;;;;
6228
6229  026412  005037  002402                CLR     ERRWRD
```

```
026416  104410                          TRAP    C$ESCAPE
026420  000104                          .WORD   L10076-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;;

026422  012703  000042                  MOV     #42,R3
026426  004537  003162                  JSR     R5,CONTIN         ;READ TSS SLOT 2
                                        ;;;;;;;;;;;
                                        ;TIME OUT OR READY ERRORS REPORT THIS PC
                                        ;;;;;;;;;;

026432  005037  002402                  CLR     ERRWRD
026436  104410                          TRAP    C$ESCAPE
026440  000064                          .WORD   L10076-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;;

026442  012737  000002  002336          MOV     #02,$GDDAT        ;
026450  004537  003242                  JSR     R5,GETOUT
                                        ;;;;;;;;;;
                                        ;CHECK FOR INFORMATION OUT AND CORRECT TRIBN
                                        ;;;;;;;;;

026454  005037  002402                  CLR     ERRWRD
026460  104410                          TRAP    C$ESCAPE
026462  000042                          .WORD   L10076-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;;

026464  012737  000042  002336          MOV     #42,$GDDAT
026472  004537  003372                  JSR     R5,GETRKY
                                        ;;;;;;;;;
                                        ;CHECK FOR CORRECT RETURN KEY
                                        ;;;;;;;;;

026476  005037  002402                  CLR     ERRWRD
026502  104410                          TRAP    C$ESCAPE
026504  000020                          .WORD   L10076-.
                                        ;;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;;

026506  012737  000600  002336          MOV     #600,$GDDAT
026514  004537  003446                  JSR     R5,GETDAT
                                        ;;;;;;;;;
                                        ; CHECK FOR ACTIVE STATE
                                        ;;;;;;;;;
026520  005037  002402                  CLR     ERRWRD
026524                          L10076:
026524  104401                          TRAP    C$ETST
```

```
                                ;******************************  TEST 29  ******************************

6284
6285
6286                            .SBTTL  ;******************************  TEST 30  ******************************
6287                            .SBTTL  SHORT MESSAGE SENDING TEST, WITH INTERNAL LOOPBACK
6288  026526                            ZZ:
6289                                    ;*
6290                                    ;* THIS TEST SENDS A 4 BYTE MESSAGE FROM AN EVEN TRANSMIT
6291                                    ;* BUFFER TO AN EVEN REC BUFFER IN DDCMP FORMAT CONFIGURED
6292                                    ;* AS A MULTIPOINT CONTROL STATION FULL DUPLEX. THE TEST
6293                                    ;* CHECKS THAT REC BUFFERS ARE RETURNED AND THAT THE DATA
6294                                    ;* IS CORRECT. IT ALSO CHECKS THAT THE NEXT OUTPUT COMMAND
6295                                    ;* IS A TX BUFFER COMPLETE.
6296                            .SBTTL  ;******************************  TEST 30  ******************************
6297
6298  026526                    T30::
6299  026526  012737  001750  002424          MOV     #1000.,RXCC     ;SET UP RX CC
6300  026534  012737  034014  002422          MOV     #RECBU1,RXADD   ;SET UP RX ADD
6301  026542  012737  033534  002420          MOV     #MR1,TXADD      ;SET UP TX ADD
6302  026550  012737  000004  002426          MOV     #4,TXCC         ;SET UP TX COUNT
6303  026556  005037  002432                  CLR     GENWRD          ;CLEAR GEN WORD
6304  026562  012737  000003  002360          MOV     #3,TRIBN        ;SET TRIB ADDRESS
6305  026570  004737  004522                  JSR     PC,MINITS       ;INITIALIZE
6306
6307
6308  026574  005037  002402                  CLR     ERRWRD
6309  026600  104410                          TRAP    C$ESCAPE
6310  026602  000016                          .WORD   L10077-.
6311                                          ;;;;;;;;
6312                                          ; JUMP TO END OF TEST IF ERROR
6313                                          ;;;;;;;;
6314
6315  026604  004537  006410                  JSR     R5,TXRX3        ;TRANSMIT AND REC.
6316  026610  005037  002402                  CLR     ERRWRD
6317  026614  104410                          TRAP    C$ESCAPE
6318  026616  000002                          .WORD   L10077-.
6319  026620                          L10077:
6320  026620  104401                          TRAP    C$ETST
6321
```

```
                                        ;********************************  TEST 31  ********************************

                                .SBTTL  ;********************************  TEST 31  ********************************
                                .SBTTL  * PROCEDURE ERROR 122 CHECK
026622                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS FOR PROCEDURE ERROR 122
                                        ;* ESTABLISH BUFFER FOR UNESTABLISHED TRIB.
                                        ;*
                                .SBTTL  ;********************************  TEST 31  ********************************
026622                          T31::

026622  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MODE DEF

026626  005037  002402                  CLR     ERRWRD
026632  104410                          TRAP    C$ESCAPE
026634  000104                          .WORD   L10100-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

026636  052777  000200  153574          BIS     #RQI,@BSEL0     ;SET REQUEST FOR INPUT
026644  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET

026650  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR
026654  104410                          TRAP    C$ESCAPE
026656  000062                          .WORD   L10100-.
026660  042777  000200  153552          BIC     #RQI,@BSEL0     ;CLEAR REQUEST
026666  112777  000003  153552          MOVB    #03,@BSEL3
026674  012777  000010  153552          MOV     #10,@BSEL6      ;SET CC
026702  012777  034014  153540          MOV     #RECBU1,@BSEL4  ;SET BA
026710  112777  000000  153526          MOVB    #0,  @BSEL2     ;ESTABLISH BUFFER
026716  012737  000122  002410          MOV     #122,PERR               ;WAIT
026724  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR

026730  005037  002402                  CLR     ERRWRD
026734  104410                          TRAP    C$ESCAPE
026736  000002                          .WORD   L10100-.
                                        ;;;;;;;
                                        ; ESCAPE TEST IF ERROR
                                        ;;;;;;;
026740                          L10100:
026740  104401                          TRAP    C$ETST
```

```
                                        ;********************************  TEST 32  ********************************

                                .SBTTL  ;********************************  TEST 32  ********************************
                                .SBTTL  *PROCEDURE ERROR 124 CHECK
026742                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS FOR PROCEDURE ERROR 124
                                        ;* ESTABLISHING BUFFER FOR HALTED TRIB
                                        ;*
                                .SBTTL  ;********************************  TEST 32  ********************************
026742                          T32::
026742  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
026746  005037  002402                  CLR     ERRWRD
026752  104410                          TRAP    C$ESCAPE
026754  000132                          .WORD   L10101-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
026756  012737  000047  002360          MOV     #47,TRIBN
026764  012703  000001                  MOV     #01,R3
026770  004537  003162                  JSR     R5,CONTIN       ;ESTABLISH TRIB
                                        ;;;;;;;;
                                        ; TIME OUT AND READY ERRORS REPORT THIS PC
                                        ;;;;;;;;
026774  005037  002402                  CLR     ERRWRD
027000  104410                          TRAP    C$ESCAPE
027002  000104                          .WORD   L10101-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027004  052777  000200  153426          BIS     #RQI,@BSEL0     ;SET REQUEST
027012  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET

027016  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR
027022  104410                          TRAP    C$ESCAPE
027024  000062                          .WORD   L10101-.
027026  042777  000200  153404          BIC     #RQI,@BSEL0     ;CLEAR REQUEST
027034  012777  000010  153412          MOV     #10,@BSEL6      ;SET CC
027042  012777  034014  153400          MOV     #RECBU1,@BSEL4  ;SET BA
027050  113777  002360  153370          MOVB    TRIBN,@BSEL3    ;SET TRIB NO.
027056  112777  000000  153360          MOVB    #0,@BSEL2       ;ESTABLISH BUFFER
027064  012737  000124  002410          MOV     #124,PERR       ;WAIT FOR ERROR
027072  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR

027076  005037  002402                  CLR     ERRWRD
027102  104410                          TRAP    C$ESCAPE
027104  000002                          .WORD   L10101-.
                                        ;;;;;;;
                                        ; ESCAPE TEST IF ERROR
                                        ;;;;;;;
027106                          L10101:
027106  104401                          TRAP    C$ETST
```

```
                                ;********************************  TEST 33  ********************************

                                .SBTTL  ;********************************  TEST 33  ********************************
                                .SBTTL  *PROCEDURE ERROR #126 CHECK
                                ZZ
                                ;*
                                ;*
                                ;* THIS TEST CHECKS FOR A PROCEDURE ERROR OF #126
                                ;* ASSIGNING A BUFFER WITH A ZERO BYTE COUNT
                                ;*
                                ;*-
                                .SBTTL  ;********************************  TEST 33  ********************************
027110                          T33::

027110  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MODE DEF

027114  005037  002402                  CLR     ERRWRD
027120  104410                          TRAP    C$ESCAPE
027122  000152                          .WORD   L10102-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027124  012737  000074  002360          MOV     #74,TRIBN
027132  012703  000001                  MOV     #01,R3
027136  004537  003162                  JSR     R5,CONTIN       ; ESTABLISH TRIB

027142  005037  002402                  CLR     ERRWRD
027146  104410                          TRAP    C$ESCAPE
027150  000124                          .WORD   L10102-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027152  012703  000004                  MOV     #04,R3
027156  004537  003162                  JSR     R5,CONTIN       ;MAINT STATE

027162  005037  002402                  CLR     ERRWRD
027166  104410                          TRAP    C$ESCAPE
027170  000104                          .WORD   L10102-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027172  052777  000200  153240          BIS     #RQI,@BSEL0     ;SET REQUEST
027200  004537  002732                  JSR     R5,WRDI         ;WAIT FOR RDI TO SET

027204  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR
027210  104410                          TRAP    C$ESCAPE
027212  000062                          .WORD   L10102-.
027214  042777  000200  153216          BIC     #RQI,@BSEL0     ;CLEAR REQUEST
027222  012777  000000  153224          MOV     #0,@BSEL6       ;0 BYTES
027230  012777  034014  153212          MOV     #RECBU1,@BSEL4  ;BA
027236  113777  002360  153202          MOVB    TRIBN,@BSEL3    ;SET TRIBN
027244  112777  000000  153172          MOVB    #0,@BSEL2       ;SET BUFFER
027252  012737  000126  002410          MOV     #126,PERR       ;WAIT FOR ERROR
027260  004537  003016                  JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
```

```
                        ;********************************  TEST 33  ********************************

  6477  027264  005037  002402                CLR     ERRWRD
  6478  027270  104410                        TRAP    C$ESCAPE
  6479  027272  000002                        .WORD   L10102-.
  6480                                        ;;;;;;;
  6481                                        ; ESCAPE TEST IF ERROR
  6482                                        ;;;;;;;
  6483
  6484  027274                        L10102:
  6485  027274  104401                        TRAP    C$ETST
  6486
```

```
                                .SBTTL  ;********************************  TEST 34  ********************************
                                .SBTTL  *CHECK FOR PROCEDURE ERROR 130
027276                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS FOR A PROCEDURE ERROR OF 130
                                        ;* ASSIGNING TRANSMIT BUFFER FOR TRIB 0
                                        ;*
                                        ;*-
                                .SBTTL  ;********************************  TEST 34  ********************************
027276                          T34::
027276  004737  004522                JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
027302  005037  002402                CLR     ERRWRD
027306  104410                        TRAP    C$ESCAPE
027310  000102                        .WORD   L10103-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
027312  052777  000200  153120        BIS     #RQI,@BSEL0     ;SET REQUEST
                                                                ;WAIT FOR READY
027320  004537  002732                JSR     R5,WRDI         ;WAIT FOR RDI TO SET
027324  005037  002402                CLR     ERRWRD          ;CLEAR ERROR
027330  104410                        TRAP    C$ESCAPE
027332  000060                        .WORD   L10103-.
027334  042777  000200  153076        BIC     #RQI,@BSEL0     ;CLEAR REQUEST.
027342  105077  153100                CLRB    @BSEL3          ;MAKE TRIB NO. 0
027346  012777  000010  153100        MOV     #10,@BSEL6      ;MAKE CC 10
027354  012777  033534  153066        MOV     #MR1,@BSEL4     ;MAKE ADD MR1
027362  012777  000004  153054        MOV     #4,@BSEL2       ;CLEAR RDI AND ESTAB
                                                                ;TRANSMIT BUFFER
027370  012737  000130  002410        MOV     #130,PERR       ;WAIT FOR PROCEDURE ERROR
027376  004537  003016                JSR     R5,WFPE         ;WAIT FOR PROCEDURE ERROR
027402  005037  002402                CLR     ERRWRD
027406  104410                        TRAP    C$ESCAPE
027410  000002                        .WORD   L10103-.
                                        ;;;;;;;
                                        ; ESCAPE TEST IF ERROR
                                        ;;;;;;;
027412                          L10103:
027412  104401                        TRAP    C$ETST
```

```
                                        ;********************************  TEST 34  ********************************

                                        .SBTTL  ;********************************  TEST 35  ********************************
                                        .SBTTL  * TRANSMIT REC 256,PTP,DDCMP
027414                                  ZZ:
                                        ;*
                                        ;*
                                        ;* THIS TEST WILL TRANSMIT 256 BYTE MESSAGE
                                        ;* DDCMP PROTOCOL
                                        ;* THIS WILL BE DONE EXTERNAL LOOPBACK IF
                                        ;* IT EXISTS ELSE INTERNAL LOOPBACK WILL
                                        ;* BE USED
                                        ;*
                                        ;*-
                                        .SBTTL  ;********************************  TEST 35  ********************************
027414                                  T35::
027414  012737  000035  002370          MOV     #35,ROMN1       ;SET UP TEST NUMBER

027422  012737  001750  002424          MOV     #1000.,RXCC     ;SET REC BUFFER FOR 1000BYTES
027430  012737  034014  002422          MOV     #RECBU1,RXADD   ; SET UP BUFF ADD
027436  012737  000400  002426          MOV     #256.,TXCC      ;SET UP RX CHAR COUNT
027444  012737  033534  002420          MOV     #MR1,TXADD      ;AND ADDRESS
027452  005037  002432                  CLR     GENWRD          ;CLEAR GEN WORD
027456  012737  000001  002360          MOV     #01,TRIBN       ;SET THE TRIB TO 01
027464  022737  000004  002476          CMP     #4,TSTCON       ;CHECK FOR LOOPBACK CONNECTOR.
027472  001402                          BEQ     1$              ;
027474  005237  002400                  INC     EXLOOP          ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
027500  004737  004512          1$:     JSR     PC,MINIT1       ;MASTER CLEAR-MODE DEF
027504  005037  002400                  CLR     EXLOOP          ;CLEAR EXTERNAL LOOP FLAG
027510  005037  002402                  CLR     ERRWRD
027514  104410                          TRAP    C$ESCAPE
027516  000016                          .WORD   L10104-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027520  004537  005720                  JSR     R5,TXRXSR       ;GO TRANSMIT RX AND CHECK

027524  005037  002402                  CLR     ERRWRD
027530  104410                          TRAP    C$ESCAPE
027532  000002                          .WORD   L10104-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027534                          L10104:
027534  104401                          TRAP    C$ETST
```

```
                                            .SBTTL  ;******************************  TEST 36  ******************************
                                            .SBTTL  * DMV Q22 MODE TX AND RX,256 BYTES,DDCMP
 027536                                             ZZ
                                                    ;*
                                                    ;*              **** DMV ONLY ****
                                                    ;* THIS TEST WILL TRANSMIT A 256 BYTE MESSAGE DDCMP PROTOCOL
                                                    ;* USING THE "Q22" CSR MODE OF THE DMV-11
                                                    ;* THIS WILL BE DONE EXTERNAL LOOPBACK IF IT EXISTS ( ELSE
                                                    ;* INTERNAL LOOPBACK WILL BE USED).
                                                    ;*
                                                    ;*-
                                            .SBTTL  ;******************************  TEST 36  ******************************
 027536                                     T36::
 027536  032737  000003  002472                     BIT     #3,OPTYP            ;IS THIS A DMV ?
 027544  001454                                     BEQ     T36END              ;IF NOT: EXIT TEST

 027546  012737  000036  002370                     MOV     #36,ROMN1           ;SET UP TEST NUMBER
 027554  012737  001750  002424                     MOV     #1000.,RXCC         ;SET REC BUFFER FOR 1000BYTES
 027562  012737  034014  002422                     MOV     #RECBU1,RXADD       ; SET UP BUFF ADD
 027570  012737  000400  002426                     MOV     #256.,TXCC          ;SET UP RX CHAR COUNT
 027576  012737  033534  002420                     MOV     #MR1,TXADD          ;AND ADDRESS
 027604  005037  002432                             CLR     GENWRD              ;CLEAR GEN WORD
 027610  012737  000001  002360                     MOV     #01,TRIBN           ;SET THE TRIB TO 01
 027616  022737  000004  002476                     CMP     #4,TSTCON           ;CHECK FOR LOOPBACK CONNECTOR.
 027624  001402                                     BEQ     1$                  ;
 027626  005237  002400                             INC     EXLOOP              ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
 027632  004737  004512                     1$:     JSR     PC,MINIT1           ;MASTER CLEAR-MODE DEF
 027636  005037  002400                             CLR     EXLOOP              ;CLEAR NO TTLOOP FLAG
 027642  005037  002402                             CLR     ERRWRD
 027646  104410                                     TRAP    C$ESCAPE
 027650  000026                                     .WORD   L10105-.
                                                    ;;;;;;;;
                                                    ; JUMP TO END OF TEST IF ERROR
                                                    ;;;;;;;;
 027652  005237  002376                             INC     MODQ22              ;SET Q22 MODE FLAG (FOR TXRXSR)
 027656  004537  005720                             JSR     R5,TXRXSR           ;GO TRANSMIT RX AND CHECK
 027662  005037  002402                             CLR     ERRWRD
 027666  005037  002376                             CLR     MODQ22
 027672  104410                                     TRAP    C$ESCAPE
 027674  000002                                     .WORD   L10105-.
                                                    ;;;;;;;;
                                                    ; JUMP TO END OF TEST IF ERROR
                                                    ;;;;;;;;
 027676                                     T36END:
 027676                                     L10105:
 027676  104401                                     TRAP    C$ETST
```

```
                                    ;********************************  TEST 37  ********************************

                                .SBTTL  ;********************************  TEST 37  ********************************
                                .SBTTL  * TX AND RX,255 BYTES,EVEN TX,ODD RX,DDCMP,MULTIPOINT
                                ZZ
                                ;*
                                ;*
                                ;* THIS TEST WILL TRANSMIT A MESSAGE OF 255
                                ;* BYTES FROM AN EVEN TX START ADD TO AN ODD
                                ;* REC START ADD. IN DDCMP MODE MULTI POINT
                                ;* CONTROL STATION.
                                ;*
                                ;*-
                                .SBTTL  ;********************************  TEST 37  ********************************
027700                          T37::
027700  012737  000377  002426          MOV     #255.,TXCC      ;SET UP TRANSMIT CHAR COUNT
027706  012737  033534  002420          MOV     #MR1,TXADD      ;SET UP TRANSMIT ADD
027714  012737  000764  002424          MOV     #500.,RXCC      ;SET UP REC CHAR COUNT
027722  012737  034015  002422          MOV     #RECBU1+1,RXADD ;SET UP REC ADD
027730  012737  000075  002360          MOV     #75,TRIBN       ;SET UP TRIB NO.
027736  005037  002432                  CLR     GENWRD          ;CLEAR THE GENWRD
027742  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MODE DEF
                                                                ;MULTI POINT CONTROL

027746  005037  002402                  CLR     ERRWRD
027752  104410                          TRAP    C$ESCAPE
027754  000016                          .WORD   L10106-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027756  004537  006410          20$:    JSR     R5,TXRX3        ;GO TRANSMIT AND REC
                                                                ; AND CHECK DATA.

027762  005037  002402                  CLR     ERRWRD
027766  104410                          TRAP    C$ESCAPE
027770  000002                          .WORD   L10106-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

027772                          L10106:
027772  104401                          TRAP    C$ETST
```

```
                                        ;********************************  TEST 38  ********************************
                                .SBTTL  ;********************************  TEST 38  ********************************
                                .SBTTL  *READ/WRITE MODEM TESTS
027774                                  ZZ
                                        ;*
                                        ;*
                                        ;*  THIS TEST WILL SELECT EACH OF THE 4 MODEM
                                        ;*  INTERFACES AND WRITE AND READ THEM. THIS IS
                                        ;*  ONLY DONE IF CONNECTORS ARE PRESENT
                                        ;*      ( DMP ONLY ).
                                        ;*-
                                .SBTTL  ;********************************  TEST 38  ********************************
027774                          T38::

027774  032737  000003  002472          BIT     #3,OPTYP        ;IS THIS A DMV11 ?
030002  001402                          BEQ     1$              ; NO: GOOD, CONTINUE TEST
030004  104432                          TRAP    C$EXIT
030006  000412                          .WORD   L10107-.

030010  005002                  1$:     CLR     R2              ;CLEAR R2
030012  022737  000000  002476          CMP     #0,TSTCON       ;IS THIS WITH TEST CONN LOOPBACK
030020  001135                          BNE     MODEX           ;IF NOT GO TO END
030022  016237  030374  002506  MODEB:  MOV     DUPTYP(R2),AXNUM
030030  004737  004530                  JSR     PC,MINTR        ;MASTER CLEAR MODE DEF
030034  004737  004244                  JSR     PC,WAIT50       ;DELAY

030040  005037  002402                  CLR     ERRWRD
030044  104410                          TRAP    C$ESCAPE
030046  000352                          .WORD   L10107-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;

030050  022702  000010                  CMP     #10,R2
030054  101403                          BLOS    MODEA           ;DON'T TURN OFF LINE UINT LOOP
                                                                ;IF PAST THIS POINT IN TABLES
030056  142777  000010  152356          BICB    #BIT3,@BSEL1

030064  005037  002360          MODEA:  CLR     TRIBN           ;MAKE TRIB NO. = 0
030070  016204  030320                  MOV     MODTYP(R2),R4   ;SELECT TYPE OF INTERFACE
030074  012703  000023                  MOV     #23,R3          ;SELECT INTERFACE
030100  004537  003162                  JSR     R5,CONTIN
                                        ;;;;;;;;;;
                                        ; TIME OUT OR READY ERRORS REPORT THIS PC
                                        ;;;;;;;;;;

030104  005037  002402                  CLR     ERRWRD
030110  104410                          TRAP    C$ESCAPE
030112  000306                          .WORD   L10107-.
                                        ;;;;;;;;
                                        ; JUMP TO END OF TEST IF ERROR
                                        ;;;;;;;;
030114  012704  000100                  MOV     #100,R4
030120  012703  000021          MODED:  MOV     #21,R3          ;WRITE MODEM
030124  004537  003162                  JSR     R5,CONTIN
                                        ;;;;;;;;;
                                        ; TIME OUT OR READY ERRORS REPORT THIS PC
```

```
6729                                        ;;;;;;;;;
6730
6731  030130  005037  002402                CLR     ERRWRD
6732  030134  104410                        TRAP    C$ESCAPE
6733  030136  000262                        .WORD   L10107-.
6734                                        ;;;;;;;;;
6735                                        ; JUMP TO END OF TEST IF ERROR
6736                                        ;;;;;;;;;
6737
6738  030140  012703  000020                MOV     #20,R3
6739  030144  004537  003162                JSR     R5,CONTIN       ;READ MODEM
6740                                        ;;;;;;;;;;;;
6741                                        ; TIME OUT OR READY ERRORS REPORT THIS PC
6742                                        ;;;;;;;;;;
6743
6744  030150  005037  002402                CLR     ERRWRD
6745  030154  104410                        TRAP    C$ESCAPE
6746  030156  000242                        .WORD   L10107-.
6747                                        ;;;;;;;;;
6748                                        ; JUMP TO END OF TEST IF ERROR
6749                                        ;;;;;;;;;
6750
6751  030160  012737  000002  002336        MOV     #02,$GDDAT
6752  030166  004537  003242                JSR     R5,GETOUT
6753                                        ;;;;;;;;;
6754                                        ; CHECK FOR INFORMATION OUT AND CORRECT TRIBN
6755                                        ;;;;;;;;;
6756
6757  030172  005037  002402                CLR     ERRWRD
6758  030176  104410                        TRAP    C$ESCAPE
6759  030200  000220                        .WORD   L10107-.
6760                                        ;;;;;;;;;
6761                                        ; JUMP TO END OF TEST IF ERROR
6762                                        ;;;;;;;;;
6763
6764  030202  012737  000010  002336        MOV     #10,$GDDAT
6765  030210  004537  003372                JSR     R5,GETRKY
6766                                        ;;;;;;;;;
6767                                        ;CHECK FOR CORRECT RETURN KEY MODEM STATUS
6768                                        ;;;;;;;;;
6769
6770  030214  005037  002402                CLR     ERRWRD
6771  030220  104410                        TRAP    C$ESCAPE
6772  030222  000176                        .WORD   L10107-.
6773                                        ;;;;;;;;;
6774                                        ; JUMP TO END OF TEST IF ERROR
6775                                        ;;;;;;;;;
6776  030224  005037  002336                CLR     $GDDAT
6777  030230  005037  002340                CLR     $BDDAT
6778  030234  117737  152210  002340        MOVB    @BSEL4,$BDDAT
6779  030242  116237  030350  002336        MOVB    MODOUT(R2),$GDDAT
6780  030250  123737  002340  002336        CMPB    $BDDAT,$GDDAT
6781  030256  001411                        BEQ     10$
6782  030260  012737  012056  002430        MOV     #M13OF,CODEW
6783  030266  104455                        TRAP    C$ERDF
6784  030270  000055                        .WORD   45
```

```
6785  030272  011550                        .WORD   EROIC
6786  030274  010366                        .WORD   ERR27
6787  030276  104410                        TRAP    C$ESCAPE
6788  030300  000120                        .WORD   L10107-.
6789  030302  062702  000002        10$:    ADD     #2,R2
6790
6791  030306  022702  000024                CMP     #24,R2
6792  030312  001243                        BNE     MODEB           ;IF NOT DONE GO TO B
6793  030314                        MODEX:
6794  030314  104432                        TRAP    C$EXIT
6795  030316  000102                        .WORD   L10107-.
6796
6797  030320  000323                MODTYP: .WORD   323
6798  030322  000313                        .WORD   313
6799  030324  000233                        .WORD   233
6800  030326  000133                        .WORD   133
6801  030330  000133                        .WORD   133
6802  030332  000233                        .WORD   233
6803  030334  000323                        .WORD   323
6804  030336  000323                        .WORD   323
6805  030340  000323                        .WORD   323
6806  030342  000313                        .WORD   313
6807  030344  000377                MODIN:  .WORD   377
6808  030346  000100                        .WORD   100
6809
6810  030350  000310                MODOUT: .WORD   310
6811  030352  000310                        .WORD   310
6812  030354  000330                        .WORD   330
6813  030356  000330                        .WORD   330
6814  030360  000330                        .WORD   330
6815  030362  000330                        .WORD   330
6816  030364  000330                        .WORD   330
6817  030366  000330                        .WORD   330
6818  030370  000310                        .WORD   310
6819  030372  000310                        .WORD   310
6820
6821
6822
6823  030374  000005                DUPTYP: .WORD   5
6824  030376  000005                        .WORD   5
6825  030400  000004                        .WORD   4
6826  030402  000004                        .WORD   4
6827  030404  000004                        .WORD   4
6828  030406  000004                        .WORD   4
6829  030410  000004                        .WORD   4
6830  030412  000004                        .WORD   4
6831  030414  000005                        .WORD   5
6832  030416  000005                        .WORD   5
6833
6834  030420                        L10107:
6835  030420  104401                        TRAP    C$ETST
6836
6837
6838
6839
6840
```

```
                        ;********************************  TEST 39  ********************************
                        .SBTTL  ;********************************  TEST 39  ********************************
                        .SBTTL  TEST OF MEM EXTENSION BIT 16, ADDRESS 200000
030422                  ZZ
                        ;*
                        ;*
                        ;* THIS TEST WE'LL TRY TRANSMITTING A MESSAGE
                        ;* TO VIRTUAL ADDRESS 200000 (BIT 16 SET).
                        ;* IF MEMORY MANAGEMENT AND/OR SUFFICIENT MEMORY IS NOT
                        ;* AVAILABLE FOR MESSAGE STORAGE, WE WILL EXPECT THE PDP-11
                        ;* TO RETURN A NON-EXISTENT MEMORY ERROR FOR THE BUFFER.
                        ;* IF ENOUGH MEMORY EXISTS,WE'LL MAKE SURE THE TRANSFER TAKES
                        ;* PLACE PROPERLY.
                        ;*
                        ;*-
                        .SBTTL  ;********************************  TEST 39  ********************************
030422                  T39::
030422  012737  004222  000004        MOV     #META,4         ;SET UP TRAP FOR NO MEM
030430  005037  000006                CLR     6
030434  012737  000002  002542        MOV     #2,$TMP0
030442  012746  000002                MOV     #2,-(SP)        ;DUMMY MOVE TO STACK
030446  012705  030656                MOV     #RET16,R5       ;SET UP R5 FOR RETURN IF TRAP
                                                              ; TAKES U TO SR.
030452  005737  177572                TST     @#177572        ;DOES MEM MANAGEMENT EXIST
                                                              ;IF NOT TRAP TO META
                                                              ; ELSE CONTINUE
030456  062706  000002                ADD     #2,SP           ;FIX THE STACK  ;;(SP)          VRG021882
030462  012700  000000                MOV     #0,R0
030466  104441                        TRAP    C$SPRI
030470  012701  172300                MOV     #172300,R1      ;GET ADDRESS OF KERNEL PDR REQD/
030474  012702  000010                MOV     #8.,R2          ; DO 8 TIMES
030500                          10$:
030500  012721  077406                MOV     #77406,(R1)+
030504  005302                        DEC     R2
030506  001374                        BNE     10$
030510  012701  172340                MOV     #172340,R1
030514  005011                        CLR     (R1)
030516  012761  000200  000002        MOV     #200,2(R1)
030524  012761  000400  000004        MOV     #400,4(R1)
030532  012761  000600  000006        MOV     #600,6(R1)
030540  012761  001000  000010        MOV     #1000,10(R1)
030546  012761  177600  000016        MOV     #177600,16(R1)          ;;CHANGED FROM 7600 FOR
                                                                      ;;AN 11/24              VRG030482
030554  012761  002000  000012        MOV     #2000,12(R1)
030562  005037  002432                CLR     GEN@RD
030566  012737  000033  002360        MOV     #33,TRIBN       ;MAP MEM CLEAR GEN AND SET UP TRIB
030574  052737  040000  002432        BIS     #BIT14,GEN@RD   ;SET MM BIT
030602  012737  177776  002422        MOV     #177776,RXADD   ;SET UP RX ADD
030610  012737  001750  002424        MOV     #1750,RXCC      ;SET UP RX COUNT(1000 DEC)
030616  012737  033534  002420        MOV     #@R1,TXADD      ;SET UP TRANSMIT COUNT
030624  012737  001000  002426        MOV     #512.,TXCC      ;SET UP TRANSMIT COUNT
```

```
                        ;********************************  TEST 39  ********************************

 6892  030632  004737  004522                 JSR     PC,MINITS       ; MASTER CLEAR MODE DEF
 6893  030636  004537  006410                 JSR     R5,TXRX3        ;GO TRANSMIT AND RX
 6894  030642  005037  002402                 CLR     ERRWRD          ; IF ERROR GO TO END
 6895  030646  104410                         TRAP    C$ESCAPE
 6896  030650  000012                         .WORD   L10110-.
 6897  030652  004537  003744                 JSR     R5,MEMEX        ;CHECK MEM EXTENSION
 6898  030656  005037  002402         RET16:  CLR     ERRWRD          ;CLEAR ERROR WORD
 6899  030662                         L10110:
 6900  030662  104401                         TRAP    C$ETST
```

```
                                      .SBTTL  ;*****************************  TEST 40  *****************************
                                      .SBTTL  TEST OF MEM EXTENSION BIT 17, ADDRESS 400000
030664                                        ZZ
                                              ;*
                                              ;*
                                              ;* THIS TEST WE'LL TRY TRANSMITTING A MESSACE
                                              ;* TO VIRTUAL ADDRESS 400000 (BIT 17 SET).
                                              ;* IF MEMORY MANAGEMENT AND/OR SUFFICIENT MEMORY IS NOT
                                              ;* AVAILABLE FOR MESSAGE STORAGE, WE WILL EXPECT THE DMP-11
                                              ;* TO RETURN A NON-EXISTENT MEMORY ERROR FOR THE BUFFER.
                                              ;* IF ENOUGH MEMORY EXISTS,WE'LL MAKE SURE THE TRANSFER TAKES
                                              ;* PLACE PROPERLY.
                                              ;*
                                              ;*-
                                      .SBTTL  ;*****************************  TEST 40  *****************************
030664                                T40::
030664  012737  004222  000004                MOV     #META,4             ;SET UP TRAP FOR NO MEM
030672  005037  000006                        CLR     6
030676  012737  000004  002542                MOV     #4,$TMPO
030704  012746  000004                        MOV     #4,-(SP)            ;DUMMY MOVE ON STACK IF TRAP
030710  012705  031120                        MOV     #RET17,R5           ;SET UP R5 FOR RETURN IF TRAP IS
                                                                          ; TO SR.EXMEM.
030714  005737  177572                        TST     @#177572            ;DOES MEM MANAGEMENT EXIST
                                                                          ;IF NOT TRAP TO META
                                                                          ; ELSE CONTINUE
030720  062706  000002                        ADD     #2,SP               ;FIX THE STACK  ;;(SP)          VRG021882
030724  012700  000000                        MOV     #0,R0
030730  104441                                TRAP    C$SPRI
030732  012701  172300                        MOV     #172300,R1          ;GET ADDRESS OF KERNEL PDR REQD/
030736  012702  000010                        MOV     #8.,R2              ; DO 8 TIMES
030742                                10$:
030742  012721  077406                        MOV     #77406,(R1)+
030746  005302                                DEC     R2
030750  001374                                BNE     10$
030752  012701  172340                        MOV     #172340,R1
030756  005011                                CLR     (R1)
030760  012761  000200  000002                MOV     #200,2(R1)
030766  012761  000400  000004                MOV     #400,4(R1)
030774  012761  000600  000006                MOV     #600,6(R1)
031002  012761  001000  000010                MOV     #1000,10(R1)
031010  012761  177600  000016                MOV     #177600,16(R1)           ;;CHANGED FROM 7600 FOR
                                                                               ;;AN 11/24          VRG030482

031016  012761  004000  000012                MOV     #4000,12(R1)
031024  005037  002432                        CLR     GENWRD
031030  012737  000033  002360                MOV     #33,TRIBN           ;MAP MEM CLEAR GEN AND SET UP TRIB
031036  052737  040000  002432                BIS     #BIT14,GENWRD       ;SET MM BIT
031044  012737  177776  002422                MOV     #177776,RXADD       ;SET UP RX ADD
```

```
                        ;********************************  TEST 40  ********************************

 6950  031052  012737  041750  002424          MOV     #41750,RXCC     ;SET UP RX COUNT (1000 DEC)=BA16
 6951  031060  012737  033534  002420          MOV     #MR1,TXADD      ;SET UP TRANSMIT COUNT
 6952  031066  012737  001000  002426          MOV     #512.,TXCC      ;SET UP TRANSMIT COUNT
 6953  031074  004737  004522                  JSR     PC,MINITS       ; MASTER CLEAR MODE DEF
 6954  031100  004537  006410                  JSR     R5,TXRX3        ;GO TRANSMIT AND RX
 6955  031104  005037  002402                  CLR     ERRWRD          ; IF ERROR GO TO END
 6956  031110  104410                          TRAP    C$ESCAPE
 6957  031112  000012                          .WORD   L10111-.
 6958  031114  004537  003744                  JSR     R5,MEMEX        ;CHECK MEM EXTENSION
 6959  031120  005037  002402          RET17:  CLR     ERRWRD          ;CLEAR ERROR WORD
 6960  031124                          L10111:
 6961  031124  104401                          TRAP    C$ETST
 6962
```

```
                                        ;********************************  TEST 41  ********************************
                                .SBTTL  ;********************************  TEST 41  ********************************
                                .SBTTL  TEST OF MEM EXTENSION BIT 16 AND 17, ADDRESS 600000
031126                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST WE'LL TRY TRANSMITTING A MESSAGE
                                        ;* TO VIRTUAL ADDRESS 600000 (BIT 16 AND 17 SET).
                                        ;* IF MEMORY MANAGEMENT AND/OR SUFFICIENT MEMORY IS NOT
                                        ;* AVAILABLE FOR MESSAGE STORAGE, WE WILL EXPECT THE DMP-11
                                        ;* TO RETURN A NON-EXISTENT MEMORY ERROR FOR THE BUFFER.
                                        ;* IF ENOUGH MEMORY EXISTS,WE'LL MAKE SURE THE TRANSFER TAKES
                                        ;* PLACE PROPERLY.
                                        ;*
                                        ;*-
                                .SBTTL  ;********************************  TEST 41  ********************************
031126                          T41::

031126  012737  004222  000004          MOV     @#META,4        ;SET UP TRAP FOR NO MEM
031134  005037  000006                  CLR     6
031140  012737  000006  002542          MOV     #6,$TMP0
031146  012746  000006                  MOV     #6,-(SP)        ;DUMMY MOVE TO STACK IF
                                                                ;TRAP TAKES U TO SR.
031152  012705  031362                  MOV     #RET18,R5       ;SET UP R5 FOR RETURN

031156  005737  177572                  TST     @#177572        ;DOES MEM MANAGEMENT EXIST
                                                                ;IF NOT TRAP TO META
                                                                ; ELSE CONTINUE
031162  062706  000002                  ADD     #2,SP           ;FIX STACK      ;;(SP)          VRG021882
031166  012700  000000                  MOV     #0,R0
031172  104441                          TRAP    C$SPRI
031174  012701  172300                  MOV     #172300,R1      ;GET ADDRESS OF KERNEL PDR REQD/
031200  012702  000010                  MOV     #8.,R2          ; DO 8 TIMES
031204                          10$:
031204  012721  077406                  MOV     #77406,(R1)+
031210  005302                          DEC     R2
031212  001374                          BNE     10$
031214  012701  172340                  MOV     #172340,R1
031220  005011                          CLR     (R1)
031222  012761  000200  000002          MOV     #200,2(R1)
031230  012761  000400  000004          MOV     #400,4(R1)
031236  012761  000600  000006          MOV     #600,6(R1)
031244  012761  001000  000010          MOV     #1000,10(R1)
031252  012761  177600  000016          MOV     #177600,16(R1)          ;;CHANGED FROM 7600 FOR
                                                                        ;;AN 11/24              VRG030482

031260  012761  006000  000012          MOV     #6000,12(R1)
031266  005037  002432                  CLR     GEN&RD
031272  012737  000033  002360          MOV     #33,TRIBN       ;MAP MEM CLEAR GEN AND SET UP TRIB
031300  052737  040000  002432          BIS     #BIT14,GEN&RD   ;SET MM BIT
031306  012737  177776  002422          MOV     #177776,RXADD   ;SET UP RX ADD
031314  012737  101750  002424          MOV     #101750,RXCC    ;SET UP RX COUNT (1000 DEC)-BA17
```

```
                        ;********************************  TEST 41  ********************************

7014  031322  012737  033534  002420          MOV     @#R1,TXADD      ;SET UP TRANSMIT COUNT
7015  031330  012737  001000  002426          MOV     #512.,TXCC      ;SET UP TRANSMIT COUNT
7016  031336  004737  004522                  JSR     PC,MINITS       ; MASTER CLEAR MODE DEF
7017  031342  004537  006410                  JSR     R5,TXRX3        ;GO TRANSMIT AND RX
7018  031346  005037  002402                  CLR     ERRWRD          ; IF ERROR GO TO END
7019  031352  104410                          TRAP    C$ESCAPE
7020  031354  000012                          .WORD   L10112-.
7021  031356  004537  003744                  JSR     R5,MEMEX        ;CHECK MEM EXTENSION
7022  031362  005037  002402          RET18:  CLR     ERRWRD          ;CLEAR ERROR WORD
7023  031366                          L10112:
7024  031366  104401                          TRAP    C$ETST
7025
```

```
                        ;********************************  TEST 42  ********************************

                        .SBTTL  ;********************************  TEST 42  ********************************
                        .SBTTL  *TX AND RX 257 BYTES,ODD TX,ODD RX,DDCMP,POINT TO POINT
031370                  ZZ
                        ;*
                        ;*
                        ;* THIS TEST WILL TRANSMIT A MESSAGE OF 257 BYTES
                        ;* FROM A TX BUFFER STARTING WITH AN ODD BYTE TO
                        ;* A RECEIVE BUFFER STARTING WITH AN ODD BYTE IN
                        ;* DDCMP MODE,POINT TO POINT IF THERE IS EXTERNAL LOOP
                        ;* BACK THEN THE TEST WILL BE DONE OVER THAT LOOPBACK
                        ;* ELSE THE LOOPBACK WILL BE SET TO INTERNAL(TTL).
                        ;*
                        ;*-
                        .SBTTL  ;********************************  TEST 42  ********************************
031370                  T42::

031370  012737  000042  002370          MOV     #42,ROMN1       ;SET UP TEST NUMBER

031376  005037  002432                  CLR     GENWRD          ;CLEAR THE GEN WORD
031402  012737  000401  002426          MOV     #257.,TXCC      ;SET UP TRANSMIT CHAR COUNT
031410  012737  033535  002420          MOV     #MR1+1,TXADD    ;SET UP ADD FOR TX
031416  012737  034015  002422          MOV     #RECBU1+1,RXADD ;SET UP RX
031424  012737  001750  002424          MOV     #1000.,RXCC     ;SET UP RX COUNT 1000 DECIMAL
031432  012737  000001  002360          MOV     #01,TRIBN       ;SET TRIB # TO 1
031440  022737  000004  002476          CMP     #4,TSTCON       ;CHECK FOR LOOPBACK CONNECTOR
031446  001402                          BEQ     1$              ;
031450  005237  002400                  INC     EXLOOP          ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
031454  004737  004512          1$:     JSR     PC,MINIT1       ;MASTER CLEAR-MODE DEF
031460  005037  002400                  CLR     EXLOOP          ;CLEAR EXTERNAL LOOP FLAG
031464  005037  002402                  CLR     ERRWRD
031470  104410                          TRAP    C$ESCAPE
031472  000012                          .WORD   L10113-.
                                        ;;;;;;
                                        ;ESCAPE TEST IF ERROR
                                        ;;;;;;;
031474  004537  005720          20$:    JSR     R5,TXRXSR       ;GO DO IT
031500  005037  002402                  CLR     ERRWRD
031504                          L10113:
031504  104401                          TRAP    C$ETST
```

```
                                        ;********************************  TEST 43  ********************************

                                        .SBTTL  ;********************************  TEST 43  ********************************
                                        .SBTTL  *TX AND RX 1 BYTE,ODD TX,EVEN RX,MAINT,MULTIPOINT
031506                                  ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST TRANSMITS AND RECEIVES 1 BYTE MESSAGE
                                        ;* FROM AND ODD TRANSMIT BUFFER TO AN EVEN RX BUFFER
                                        ;* IN MAINTAINCE MODE,MULTIPOINT
                                        ;*
                                        ;*-
                                        .SBTTL  ;********************************  TEST 43  ********************************
031506                                  T43::

031506  012737  000001  002360          MOV     #01,TRIBN
031514  012737  000001  002426          MOV     #01,TXCC
031522  012737  033535  002420          MOV     #MR1+1,TXADD
031530  012737  000764  002424          MOV     #500.,RXCC
031536  012737  034014  002422          MOV     #RECBU1,RXADD
031544  005037  002432                  CLR     GENWRD
031550  052737  100000  002432          BIS     #BIT15,GENWRD   ;SET UP TX RX AND MAINT STATE
031556  004737  004522                  JSR     PC,MINITS       ;MASTER CLEAR MULTIPOINT
031562  005037  002402                  CLR     ERRWRD
031566  104410                          TRAP    C*ESCAPE
031570  000012                          .WORD   L10114-.
                                        ;;;;;;;;
                                        ; ESCAPE TEST IF ERROR
                                        ;;;;;;;;
031572  004537  006410          20$:    JSR     R5,TXRX3                ;GO DO IT
031576  005037  002402                  CLR     ERRWRD          ;CLEAR ERROR WORD
031602                          L10114:
031602  104401                          TRAP    C*ETST
```

```
                                ;********************************  TEST 44  ********************************

                                .SBTTL  ;********************************  TEST 44  ********************************
                                .SBTTL  POLLING STATE TESTS
                                        ZZ
                                        ;*
                                        ;*
                                        ;* THIS TEST CHECKS THE DEGRADING OF THE POLLING
                                        ;* STATES FROM ACTIVE TO INACTIVE TO POTEN. DEAD
                                        ;* TO DEAD.
                                        ;*
                                .SBTTL  ;********************************  TEST 44  ********************************
031604                          T44::

031604  005037  002432                  CLR     GENWRD          ;CLEAR FLAG WORD
031610  004737  004522          BEGPOL: JSR     PC,MINITS       ;MASTER CLEAR MODE DEF(FD/CS/MP)
031614  005037  002402                  CLR     ERRWRD
031620  104410                          TRAP    C$ESCAPE
031622  000774                          .WORD   L10115-.
                                        ;;;;;;;;;;;;
                                        ;SET POLL DELAY
                                        ;;;;;;;;;;
031624  005037  002360                  CLR     TRIBN
031630  012703  000237                  MOV     #237,R3
031634  012704  000100                  MOV     #100,R4
031640  004537  003162                  JSR     R5,CONTIN
031644  005037  002402                  CLR     ERRWRD
031650  104410                          TRAP    C$ESCAPE
031652  000744                          .WORD   L10115-.

                                        ;;;;;;;;;;;;
                                        ; ESTABLISH TRIB
                                        ;;;;;;;;;;;;
031654  012737  000034  002360          MOV     #34,TRIBN       ;SET TRIB NO.
031662  012703  000001                  MOV     #01,R3
031666  004537  003162                  JSR     R5,CONTIN
031672  005037  002402                  CLR     ERRWRD
031676  104410                          TRAP    C$ESCAPE
031700  000716                          .WORD   L10115-.
                                        ;;;;;;;;;;;;
                                        ; SET SELECTION TIMER TO 1 SEC
                                        ;;;;;;;;;;;;
031702  012703  000236                  MOV     #236,R3
031706  012704  002000                  MOV     #2000,R4
031712  032737  000003  002472          BIT     #3,OPTYP        ;* IS THIS A DMV ?
031720  001402                          BEQ     1$              ;*
031722  012704  000144                  MOV     #144,R4         ;* IF YES: ADJUST VALUE.
031726  004537  003162          1$:     JSR     R5,CONTIN
031732  005037  002402                  CLR     ERRWRD
031736  104410                          TRAP    C$ESCAPE
031740  000656                          .WORD   L10115-.
                                        ;;;;;;;;;;;;
                                        ; WRITE NDM > INACTIVE AND #TO > PDEAD
                                        ;;;;;;;;;;;;
031742  012704  002010                  MOV     #2010,R4
031746  012703  000234          10$:    MOV     #234,R3
031752  004537  003162                  JSR     R5,CONTIN       ;WRITE TSS SLOT
031756  005037  002402                  CLR     ERRWRD
```

```
031762  104410                                  TRAP    C$ESCAPE
031764  000632                                  .WORD   L10115-.
                                                ;;;;;;;;;;;
                                                ; ISTRT TRIB
                                                ;;;;;;;;;;;;;
031766  012703  000003                          MOV     #03,R3
031772  004537  003162                          JSR     R5,CONTIN
031776  005037  002402                          CLR     ERRWRD
032002  104410                                  TRAP    C$ESCAPE
032004  000612                                  .WORD   L10115-.
                                                ;;;;;;;;;;;;
                                                ; WAIT FOR RUN STATE
                                                ;;;;;;;;;;;;
032006  012737  000001  002336                  MOV     #01,$GDDAT
032014  004537  003242                          JSR     R5,GETOUT
032020  005037  002402                          CLR     ERRWRD
032024  104410                                  TRAP    C$ESCAPE
032026  000570                                  .WORD   L10115-.
032030  012737  000024  002336                  MOV     #24,$GDDAT
032036  004537  003670                          JSR     R5,GETOC
032042  005037  002402                          CLR     ERRWRD
032046  104410                                  TRAP    C$ESCAPE
032050  000546                                  .WORD   L10115-.
                                                ;;;;;;;;;;;;
                                                ; READ  TSS SLOT WITH POLL STATUS
                                                ;;;;;;;;;;;;
032052  042777  000200  150364  20$:            BIC     #RDO,@BSEL2        ;CLEAR RDO
032060  012703  000042                          MOV     #42,R3
032064  004537  003162                          JSR     R5,CONTIN          ;READ TSS SLOT 2
032070  005037  002402                          CLR     ERRWRD
032074  104410                                  TRAP    C$ESCAPE
032076  000520                                  .WORD   L10115-.
032100  012737  000002  002336                  MOV     #02,$GDDAT
032106  004537  003242                          JSR     R5,GETOUT          ;GET INFO OUT
032112  005037  002402                          CLR     ERRWRD
032116  104410                                  TRAP    C$ESCAPE
032120  000476                                  .WORD   L10115-.
032122  032777  001000  150320                  BIT     #BIT9,@BSEL4       ;IS IT INACTIVE
032130  001750                                  BEQ     20$                ;IF NOT GO BACK
                                                ;;;;;;;;;;;;;
                                                ; GET HERE WHEN STATE GOES TO INACTIVE
                                                ;;;;;;;;;;;;
032132  042777  000200  150304                  BIC     #RDO,@BSEL2        ;CLEAR OUTPUT
                                                ;;;;;;;;;;;
                                                ;READ # OF SELECTION INTERVALS
                                                ;;;;;;;;;;;
032140  012703  000051                          MOV     #51,R3
032144  004537  003162                          JSR     R5,CONTIN
032150  005037  002402                          CLR     ERRWRD
032154  104410                                  TRAP    C$ESCAPE
032156  000440                                  .WORD   L10115-.
032160  012737  000002  002336                  MOV     #02,$GDDAT
032166  004537  003242                          JSR     R5,GETOUT
                                                ;;;;;;;;;;;
                                                ; MAKE SURE #OF SELC. INTV IS CORRECT
                                                ;;;;;;;;;;;
```

```
032172  012737  000010  002336          MOV     #10,$GDDAT
032200  004537  003446                  JSR     R5,GETDAT
                                        ;;;;;;;;;;;;
                                        ; GET HERE IN INACTIVE STATE
                                        ;;;;;;;;;;;;
032204                          40$:
032204  042777  000200  150232          BIC     #RDO,@BSEL2         ;CLEAR OUTPUT
                                        ;;;;;;;;;;;
                                        ; CHANGE MODE TO HALF DUPLEX
                                        ;;;;;;;;;;;
032212  052777  000200  150220          BIS     #RQI,@BSEL0
032220  004537  002732                  JSR     R5,WRDI             ;WAIT FOR RDI TO SET

032224  005037  002402                  CLR     ERRWRD              ;CLEAR ERROR
032230  104410                          TRAP    C$ESCAPE
032232  000364                          .WORD   L10115-.
032234  042777  000200  150176          BIC     #RQI,@BSEL0
032242  012777  000004  150204          MOV     #04,@BSEL6
032250  112777  000002  150166          MOVB    #02,@BSEL2
032256  042777  000200  150160  50$:    BIC     #RDO,@BSEL2


                                        ;;;;;;;;;;;;;
                                        ; READ POLL STATUS SLOT
                                        ;;;;;;;;;;;;;
032264  012703  000042                  MOV     #42,R3
032270  004537  003162                  JSR     R5,CONTIN
032274  005037  002402                  CLR     ERRWRD
032300  104410                          TRAP    C$ESCAPE
032302  000314                          .WORD   L10115-.
032304  012737  000002  002336          MOV     #02,$GDDAT

032312  004537  003242                  JSR     R5,GETOUT

                                        ;;;;;;;;;;;;;
                                        ; IS THE STATE POTN. DEAD??
                                        ;;;;;;;;;;

032316  032777  010000  150124          BIT     #BIT12,@BSEL4
032324  001754                          BEQ     50$

                                        ;;;;;;;;;;
                                        ; IF NOT GO BACK TO 50
                                        ;;;;;;;;;;

                                        ;;;;;;;;;
                                        ; IF SO READ THE SELECTION TIMER
                                        ;;;;;;;;;;

032326  012703  000056                  MOV     #56,R3
032332  042777  000200  150104          BIC     #RDO,@BSEL2
032340  004537  003162                  JSR     R5,CONTIN
032344  005037  002402                  CLR     ERRWRD
032350  104410                          TRAP    C$ESCAPE
032352  000244                          .WORD   L10115-.
032354  012737  000002  002336          MOV     #02,$GDDAT
```

```
7265  032362  004537  003242          JSR     R5,GETOUT
7266  032366  005037  002402          CLR     ERRWRD
7267  032372  104410                  TRAP    C$ESCAPE
7268  032374  000222                  .WORD   L10115-.
7269
7270                                  ;;;;;;;;;;
7271                                  ; COMPARE SELECTION TIME OUTS WITH # WRITTEN
7272                                  ;
7273                                  ;;;;;;;;;
7274
7275  032376  012737  001004  002336  MOV     #1004,$GDDAT
7276  032404  004537  003446          JSR     R5,GETDAT
7277
7278                                  ;;;;;;;;;;
7279                                  ; WAIT FOR TRIB TO POST SELECT. THRESH. ERROR
7280                                  ;;;;;;;;;;
7281
7282  032410  042777  000200  150026  BIC     #RDO,@BSEL2     ;CLEAR OUTPUT CODE
7283
7284  032416  012737  000001  002336  MOV     #01,$GDDAT
7285  032424  004537  003242          JSR     R5,GETOUT
7286  032430  005037  002402          CLR     ERRWRD
7287  032434  104410                  TRAP    C$ESCAPE
7288  032436  000160                  .WORD   L10115-.
7289  032440  012737  000006  002336  MOV     #6,$GDDAT
7290  032446  004537  003670          JSR     R5,GETOC
7291  032452  005037  002402          CLR     ERRWRD
7292  032456  104410                  TRAP    C$ESCAPE
7293  032460  000136                  .WORD   L10115-.
7294  032462  042777  000200  147754  BIC     #RDO,@BSEL2
7295
7296                                  ;;;;;;;;;;;;
7297                                  ; NOW WAIT FOR TRIB TO POST DEAD STATUS
7298                                  ;;;;;;;;;;
7299
7300  032470  012737  000001  002336  MOV     #01,$GDDAT
7301  032476  004537  003242          JSR     R5,GETOUT
7302  032502  005037  002402          CLR     ERRWRD
7303  032506  104410                  TRAP    C$ESCAPE
7304  032510  000106                  .WORD   L10115-.
7305  032512  012737  000022  002336  MOV     #22,$GDDAT
7306  032520  004537  003670          JSR     R5,GETOC
7307
7308  032524  005037  002402          CLR     ERRWRD
7309  032530  104410                  TRAP    C$ESCAPE
7310  032532  000064                  .WORD   L10115-.
7311
7312                                  ;;;;;;;;;;;;
7313                                  ; NOW READ SELECTION TIMER AND
7314                                  ; SEE IF IT IS EQUAL TO 10
7315                                  ;;;;;;;;;;;;
7316
7317  032534  042777  000200  147702  BIC     #RDO,@BSEL2
7318  032542  012703  000056          MOV     #56,R3
7319  032546  004537  003162          JSR     R5,CONTIN
7320  032552  005037  002402          CLR     ERRWRD
```

```
                        ;********************************  TEST 44  ********************************

 7321  032556  104410                          TRAP    C$ESCAPE
 7322  032560  000036                          .WORD   L10115-.
 7323  032562  012737  000002  002336          MOV     #02,$GDDAT
 7324  032570  004537  003242                  JSR     R5,GETOUT
 7325  032574  005037  002402                  CLR     ERRWRD
 7326  032600  104410                          TRAP    C$ESCAPE
 7327  032602  000014                          .WORD   L10115-.
 7328  032604  012737  001010  002336          MOV     #1010,$GDDAT
 7329  032612  004537  003446                  JSR     R5,GETDAT
 7330
 7331
 7332  032616                          L10115:
 7333  032616  104401                          TRAP    C$ETST
 7334
 7335                                          .SBTTL  ------ END OF HARDWARE TESTS -----
 7336
 7337
 7338
 7339
```

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

032620  000041                          .WORD L10116-L$HARD/2
032622                          L$HARD::
032622  000032                          .WORD   T$CODE
032624  032724                          .WORD   OPTYPM
032626  000007                          .WORD   7
032630  000000                          .WORD   T$LOLIM
032632  000007                          .WORD   T$HILIM
032634  001031                          .WORD   T$CODE
032636  033007                          .WORD   ADDRES
032640  160000                          .WORD   T$LOLIM
032642  177776                          .WORD   T$HILIM
032644  002031                          .WORD   T$CODE
032646  033035                          .WORD   VECTOR
032650  000000                          .WORD   T$LOLIM
032652  000674                          .WORD   T$HILIM
032654  003032                          .WORD   T$CODE
032656  033066                          .WORD   PRIRTY
032660  007000                          .WORD   7000
032662  000004                          .WORD   T$LOLIM
032664  000007                          .WORD   T$HILIM
032666  010032                          .WORD   T$CODE
032670  033117                          .WORD   LOOPBK
032672  000007                          .WORD   7
032674  000000                          .WORD   T$LOLIM
032676  000004                          .WORD   T$HILIM
032700  011032                          .WORD   T$CODE
032702  033223                          .WORD   SPEDM
032704  000007                          .WORD   7
032706  000000                          .WORD   T$LOLIM
032710  000007                          .WORD   T$HILIM
032712  013032                          .WORD   T$CODE
032714  033434                          .WORD   IFTYPM
032716  000007                          .WORD   7
032720  000000                          .WORD   T$LOLIM
032722  000007                          .WORD   T$HILIM

                                        .EVEN
032724                          L10116:

032724  042523  042514  052103  OPTYPM: .ASCIZ  /SELECT TYPE ( 0=8207'DMP',1=8053'DMV',2=8064'DMV'):/
032732  052040  050131  020105
```

```
 7396  032740  020050  036460  031070
 7397  032746  033460  042047  050115
 7398  032754  026047  036461  030070
 7399  032762  031465  042047  053115
 7400  032770  026047  036462  030070
 7401  032776  032066  042047  053115
 7402  033004  035051     000
 7403  033007     104  053105  041511  ADDRES: .ASCIZ  /DEVICE CSR ADDRESS : /
 7404  033014  020105  051503  020122
 7405  033022  042101  051104  051505
 7406  033030  020123  020072     000
 7407  033035     104  053105  041511  VECTOR: .ASCIZ  /DEVICE VECTOR ADDRESS : /
 7408  033042  020105  042526  052103
 7409  033050  051117  040440  042104
 7410  033056  042522  051523  035040
 7411  033064  000040
 7412  033066  042504  044526  042503  PRIRTY: .ASCIZ  /DEVICE PRIORITY LEVEL : /
 7413  033074  050040  044522  051117
 7414  033102  052111  020131  042514
 7415  033110  042526  020114  020072
 7416  033116     000
 7417  033117     124  051125  040516  LOOPBK: .ASCII  /TURNAROUND TYPE -/
 7418  033124  047522  047125  020104
 7419  033132  054524  042520  026440
 7420  033140  030050  044075  031063          .ASCIZ  /(0=H3254&H3255,1=CABLE,2=MOD LOC,3=MOD REM,4=NONE)/
 7421  033146  032065  044046  031063
 7422  033154  032465  030454  041475
 7423  033162  041101  042514  031054
 7424  033170  046475  042117  046040
 7425  033176  041517  031454  046475
 7426  033204  042117  051040  046505
 7427  033212  032054  047075  047117
 7428  033220  024505     000
 7429  033223     120  042514  051501  SPEDM:  .ASCII  "PLEASE SELECT BAUD RATE;TYPE '0' FOR 2.4K; '1' FOR 4.8K;"
 7430  033230  020105  042523  042514
 7431  033236  052103  041040  052501
 7432  033244  020104  040522  042524
 7433  033252  052073  050131  020105
 7434  033260  030047  020047  047506
 7435  033266  020122  027062  045464
 7436  033274  020073  030447  020047
 7437  033302  047506  020122  027064
 7438  033310  045470     073
 7439  033313     015  023412  023462          .ASCII<15><12>"'2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;"
 7440  033320  043040  051117  034440
 7441  033326  033056  035513  023440
 7442  033334  023463  043040  051117
 7443  033342  030440  027071  045462
 7444  033350  020073  032047  020047
 7445  033356  047506  020122  033065
 7446  033364  035513  023440  023465
 7447  033372  043040  051117  031040
 7448  033400  030065  035513
 7449  033404  005015  051117  023440          .ASCIZ<15><12>"OR '6' FOR 500K BAUDS"
 7450  033412  023466  043040  051117
 7451  033420  032440  030060  020113
```

```
 7452  033426  040502  042125  000123
 7453  033434  042523  042514  052103  IFTYPM: .ASCIZ  /SELECT INTERFACE TYPE (1=INTEGRAL,2=EIA,3=V.35,4=422):/
 7454  033442  044440  052116  051105
 7455  033450  040506  042503  052040
 7456  033456  050131  020105  030450
 7457  033464  044475  052116  043505
 7458  033472  040522  026114  036462
 7459  033500  044505  026101  036463
 7460  033506  027126  032463  032054
 7461  033514  032075  031062  035051
 7462  033522     000
 7463
 7464          033524                  .EVEN
 7465
 7466
 7467
```

```
                                .SBTTL  SOFTWARE PARAMETER CODING SECTION


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

033524  000000                          .WORD L10117-L$SOFT/2
033526                          L$SOFT::

                                        .EVEN
033526                          L10117:




                                ;****** PATCH AREA FOR DEBUG ******
033526                          PATCH:
033526  000240                          NOP
033530  000240                          NOP
033532  000240                          NOP
                                ;************************************

033534  041101  000103          MR1:    .ASCIZ  "ABC"
033540                          MR1E:

033540  047516  020127  051511  MR12:   .ASCII  "NOW IS THE TIME FOR ALL GOOD PEOPLE TO COME TO THE"
033546  052040  042510  052040
033554  046511  020105  047506
033562  020122  046101  020114
033570  047507  042117  050040
033576  047505  046120  020105
033604  047524  041440  046517
033612  020105  047524  052040
033620  042510
033622  044124  020105  052521          .ASCII  "THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S"
033630  041511  020113  051102
033636  053517  020116  047506
033644  020130  052512  050115
033652  042105  047440  042526
033660  020122  044124  020105
033666  040514  054532  042040
033674  043517  051447
033700  040502  045503  020056          .ASCII  "BACK. LOPS ARE TOPS!"
033706  047514  051520  040440
```

```
 7524  033714  042522  052040  050117
 7525  033722  020523
 7526  033724  041101  042103  043105          .ASCII  "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
 7527  033732  044107  045111  046113
 7528  033740  047115  050117  051121
 7529  033746  052123  053125  054127
 7530  033754  055131
 7531  033756  041501  043505  045511          .ASCII  "ACEGIKMOQSUWY"
 7532  033764  047515  051521  053525
 7533  033772     131
 7534
 7535          033774                  .EVEN
 7536  033774                          MR12E:
 7537
 7538  033774  000000                  DATLST: 0
 7539  033776  125252                          125252
 7540  034000  052525                          052525
 7541  034002  000000                          0
 7542  034004  177777                          -1
 7543  034006  000377                          377
 7544  034010  177400                          177400
 7545  034012  000562                          562
 7546
 7547  034014  001750                  RECBU1: .BLKW   1000.
 7548
 7549                                  .EVEN
 7550  037734  000000                  .WORD   0
 7551  037736  000000                  .WORD   0
 7552  037740                          L$LAST::
 7553
 7554          000001                  .END
```

```
ADDRES  033007            7362    7403#
ADR   = 000020 G          1403#
ASSEMB= 000010            1102
AXNUM   002506            1525#   2223*   2225*   2283    2488*   2616    6694*
BADBR   006274            2530    2546    2589#
BADBRM  010606            2591    3070#
BADIF   006242            2528    2544    2559    2569    2578#
BADIFM  010530            2580    3062#
BASER   010512            3050    3059#
BEGPOL  031610            7110#
BIT0  = 000001 G          1376#   1430    3452
BIT00 = 000001 G          1365#   1376
BIT01 = 000002 G          1364#   1375
BIT02 = 000004 G          1363#   1374
BIT03 = 000010 G          1362#   1373
BIT04 = 000020 G          1361#   1372
BIT05 = 000040 G          1360#   1371
BIT06 = 000100 G          1359#   1370
BIT07 = 000200 G          1358#   1369
BIT08 = 000400 G          1357#   1368
BIT09 = 001000 G          1356#   1367
BIT1  = 000002 G          1375#   1429
BIT10 = 002000 G          1355#
BIT11 = 004000 G          1354#
BIT12 = 010000 G          1353#   7247
BIT13 = 020000 G          1352#
BIT14 = 040000 G          1351#   2704    6887    6948    7011
BIT15 = 100000 G          1350#   2626    7085
BIT2  = 000004 G          1374#   1428
BIT3  = 000010 G          1373#   1427    1435    2274    2498    2519    4506    4523    4813    4891    6708
BIT4  = 000020 G          1372#   1426
BIT5  = 000040 G          1371#   5084    5108    5360    5383    5455
BIT6  = 000100 G          1370#   1425
BIT7  = 000200 G          1369#   1424    5070    5418
BIT8  = 000400 G          1368#
BIT9  = 001000 G          1367#   7190
BOE   = 000400 G          1407#
BSEL0   002440            1496#   1779*   1784*   2238    2276*   2284*   2661*   2696*   2701*   4268*   4320*   4331*   4352
                          4370*   4390    4412*   4415*   4511*   4534    4550*   4615*   4670*   4680*   4743    4745*   4751*
                          4830*   4836*   4909*   4918*   5587*   5594*   5851*   5857*   6342*   6348*   6395*   6401*   6463*
                          6469*   6508*   6515*   7219*   7225*
BSEL1   002442            1499#   2143*   2145*   2146*   2193*   2196*   2226*   2229*   2266*   2274*   2400*   2498*   2519*
                          3470*   3471*   4506*   4523    4731*   4734*   4813*   4891*   6708*
BSEL10  002460            1509#   2407*   2673*   2694*   3482*   3483*
BSEL2   002444            1501#   1636    1639    1649*   1679    1682    1692*   1724    1787*   1818    2028    2268*   2281
                          2285*   2409*   2647*   2675*   2679*   2697*   2702*   2721    2741*   2782*   4279    4334*   4630*
                          4637    4682*   4687    4698    4754*   4759    4816    4829*   4838*   4897    4908*   4920*   4922
                          5007*   5320    5452*   5586*   5598*   5623*   5635*   5714*   5750*   5786*   5858*   5868*   5978*
                          5998*   6010    6075*   6096*   6107    6222*   6352*   6405*   6473*   6519*   7179*   7195*   7215*
                          7227*   7228*   7259*   7282*   7294*   7317*
BSEL3   002446            1502#   1783*   1832    2668*   2689*   3476*   3477*   4439*   4477*   4752*   5597*   6349*   6404*
                          6472*   6516*
BSEL4   002450            1503#   1785*   1888    2254    2667*   2688*   4509*   5595*   5702*   5703    6351*   6403*   6471*
                          6518*   6778    7190    7247
BSEL5   002452            1505#   3478*   3479*
BSEL6   002454            1506#   1740    1786*   1859    1989    2035    2144*   2245    2247    2283*   2674*   2678*   2695*
```

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                    2700*  2821   4245   4247   4332*  4510*  4627*  4681*  4753*  4773   4819   4837*  4919*
                    5596*  6350*  6402*  6470*  6517*  7226*
BSEL7   002456      1508#  3480*  3481*  3725   3728   3748   3761   3772   3875   3878   3898   3911   3922
                    4025   4028   4048   4061   4072   4319*  4333*  4346   4386
CADDR   002404      1479#  2119   2123   3645*  3651*  3654*  3655   3670*  3684*  3695*  3720*  3726*  3729*
                    3730   3745*  3759*  3770*  3795*  3801*  3804*  3805   3820*  3834*  3845*  3870*  3876*
                    3879*  3880   3895*  3909*  3920*  3945*  3951*  3954*  3955   3970*  3984*  3995*  4020*
                    4026*  4029*  4030   4045*  4059*  4070*
CFM1    005306      2333   2362#
CFM2    005373      2342   2371#
CFM3    005451      2350   2379#
CFM4    005466      2356   2382#
CODEW   002430      1490#  1730*  1744*  1823*  1864*  1894*  1994*  2038*  3037   4703*  4765*  4776*  5708*
                    6782*
CONTIN  003162      1778#  2511   2612   2621   2632   2653   4885   4966   4983   5010   5056   5071   5085
                    5165   5180   5229   5242   5288   5303   5361   5420   5434   5456   5507   5554   5563
                    5600   5639   5666   5679   5716   5729   5752   5788   5801   5900   5947   5960   5980
                    6000   6044   6057   6077   6097   6143   6157   6170   6224   6237   6384   6444   6454
                    6713   6726   6739   7120   7130   7142   7151   7159   7181   7200   7235   7260   7319
COUNT   002342      1461#  3502*  3507*  4228*  4234*
COUNTT  005134      2299*  2306*  2312#
CRCCAL  002434      1492#  2417*  2437
CRCR    004376      2164#  2425   3658   3733   3808   3883   3958   4033
CWORD   002374      1475#  2168*  2172   2173*  2174*  2399*  2438   2983   3647*  3661*  3662   3722*  3736*
                    3737   3797*  3811*  3812   3872*  3886*  3887   3947*  3961*  3962   4022*  4036*  4037
C$AU  = 000052      1102#  3561
C$AUTO= 000061      1102#  3515
C$BRK = 000022      1102#  2309
C$BSEG= 000004      1102#
C$BSUB= 000002      1102#  5342   5401   5491
C$CEFG= 000045      1102#
C$CLCK= 000062      1102#
C$CLEA= 000012      1102#  3528
C$CLOS= 000035      1102#
C$CLP1= 000006      1102#
C$CVEC= 000036      1102#  3605   4497   4499
C$DCLN= 000044      1102#  3602
C$DODU= 000051      1102#  3510
C$DRPT= 000024      1102#
C$DU  = 000053      1102#  3545
C$EDIT= 000003      1102#  1179
C$ERDF= 000055      1102#  1644   1687   1734   1748   1824   1836   1865   1895   1928   1964   1995   2039
                    2052   2068   2075   2301   2440   2765   3615   3666   3676   3700   3741   3751   3775
                    3816   3826   3850   3891   3901   3925   3966   3976   4000   4041   4051   4075   4107
                    4153   4239   4250   4260   4360   4398   4525   4542   4564   4574   4640   4690   4704
                    4766   4777   4822   4924   5323   5709   6013   6110   6783
C$ERMR= 000056      1102#
C$ERRO= 000060      1102#
C$ERSF= 000054      1102#
C$ERSO= 000057      1102#  2256
C$ESCA= 000010      1102#  4100   4112   4146   4157   4243   4256   4264   4273   4282   4317   4325   4340
                    4364   4380   4402   4447   4483   4517   4530   4546   4609   4620   4664   4674   4695
                    4709   4739   4749   4757   4770   4805   4834   4844   4870   4903   4913   4959   4972
                    4989   5001   5016   5048   5062   5077   5091   5101   5112   5122   5156   5172   5187
                    5199   5221   5235   5248   5257   5279   5295   5310   5353   5364   5375   5387   5411
                    5423   5437   5446   5459   5470   5479   5499   5510   5520   5550   5560   5568   5576
```

```
                    5581  5592  5605  5611  5616  5621  5627  5633  5658  5672  5685  5696  5722
                    5735  5745  5758  5769  5780  57$4  5807  5817  5845  5855  5863  5892  5903
                    5913  5939  5953  5963  5973  5983  5993  6003  6036  6050  6060  6070  6080
                    6090  6100  6135  6149  6163  6176  6190  6203  6216  6230  6243  6256  6269
                    6309  6317  6336  6346  6357  6377  6389  6399  6410  6436  6447  6457  6467
                    6478  6502  6513  6525  6564  6573  6613  6622  6654  6664  6699  6719  6732
                    6745  6758  6771  6787  6895  6956  7019  7056  7088  7112  7122  7132  7144
                    7153  7161  7169  7174  7183  7188  7202  7223  7237  7262  7267  7287  7292
                    7303  7309  7321  7326
C$ESEG= 000005      1102#
C$ESUB= 000003      1102#  5399  5489  5531
C$ETST= 000001      1102#  3608  3706  3781  3856  3931  4006  4081  4128  4172  4285  4591  4648
                    4718  4783  4852  4930  5029  5139  5206  5263  5329  5533  5644  5824  5874
                    5920  6019  6116  6282  6320  6363  6416  6485  6531  6580  6629  6671  6835
                    6900  6961  7024  7064  7096  7333
C$EXIT= 000032      1102#  4551  4826  6688  6794
C$GETB= 000026      1102#
C$GETW= 000027      1102#
C$GMAN= 000043      1102#
C$GPHR= 000042      1102#  3460
C$GPLO= 000030      1102#
C$GPRI= 000040      1102#
C$INIT= 000011      1102#  3498
C$INLP= 000020      1102#
C$MANI= 000050      1102#
C$MEM = 000031      1102#
C$MSG = 000023      1102#  2815  2829  2841  2853  2865  2877  2895  2910  2923  2941  2962  2980
                    2993  3006  3020  3045  3057
C$OPEN= 000034      1102#
C$PNTB= 000014      1102#  2812  2825  2837  2849  2861  2873  2891  2906  2919  2929  2937  2947
                    2953  2958  2976  2989  3002  3016  3032  3041  3053
C$PNTF= 000017      1102#  2583  2594  2601  3693  3768  3843  3918  3993  4068  4121  4166
C$PNTS= 000016      1102#
C$PNTX= 000015      1102#  2336  2345  2353  2359  3625
C$QIO = 000377      1102#
C$RDBU= 000007      1102#
C$REFG= 000047      1102#  3429  3433  3437  3441
C$RESE= 000033      1102#  3513  3525  3543
C$REVI= 000003      1102#  1178
C$RFLA= 000021      1102#
C$RPT = 000025      1102#  3400
C$SEFG= 000046      1102#
C$SPRI= 000041      1102#  4441  4476  4556  4563  4573  4583  6869  6929  6992
C$SVEC= 000037      1102#  3589  4425  4434  4465  4471
C$TPRI= 000013      1102#
DATLST  033774      4505  5068  5118  5128  75380#
DEVMAP  002350      1464#  3447*  3466*
DEVPTR  002352      1465#  3452*  3463*  3466  3467*
DFMT4   013624      3356#
DFMT5   013637      3358#
DFMT6   013667      3363#
DFMT9   013722      3368#
DFPTBL  002264 G    1291#
DIAGMC= 000000      1102
DISILO  002510      1526#
DMPMOD  002000 G    1110#
```

```
DRUN  = 000200 G          1105#   4320
DUPTYP  030374            6694    6823#
ECBINT  014660 G          3586    3612#
EF.CON= 000036 G          1383#   3440
EF.NEW= 000035 G          1384#   3436
EF.PWR= 000034 G          1385#
EF.RES= 000037 G          1382#   3432
EF.STA= 000040 G          1381#   3428
EMT0    011010            3093#   3617
ENDIT   014470            3442    3496#
ERLB1   020030            4269    4275#
ERLB10  021562            4742#
ERLB2   020172            4337    4342#
ERLB3   020326            4377    4382#
ERLB4   020564            4444    4449#
ERLB5   020706            4480    4485#
ERLB6   021006            4514    4519#
ERLB7   004600            2232    2236#
ERLB8   004632            2240    2244#
ERLB9   005036            2277    2281#
ERDIC   011550            1736    1750    1826    1867    1897    1997    2041    3159#   4706    4768    4779    5711    6785
ERRADD  002406            1480#   1632*   1675*   1719*   1778*   1814*   1858*   1887*   1917*   1951*   1988*   2232*   2240*
                          2277*   2884    2969    3011    3027    4269*   4337*   4377*   4444*   4480*   4514*
ERROR1  002326            1455#   3416*
ERRWRD  002402            1478#   1634    1648*   1677    1691*   1721    1738*   1752*   1781    1816    1828*   1840*   1869*
                          1899*   1932*   1968*   1999*   2026    2043*   2056*   2072*   2234    2242    2260*   2270    2279
                          2305*   2402    2411    2513    2613    2623    2634    2641    2645    2655    2664    2685    2719
                          2730    2734    2738    2744    2748    2752    2769*   2785    2789    2793    4099*   4145*   4272*
                          4316*   4324*   4339*   4379*   4446*   4482*   4516*   4608*   4619*   4663*   4673*   4716*   4738*
                          4748*   4756*   4804*   4833*   4843*   4869*   4887    4902*   4912*   4958*   4971*   4988*   5000*
                          5015*   5026*   5047*   5061*   5076*   5090*   5100*   5111*   5121*   5155*   5171*   5186*   5198*
                          5220*   5234*   5247*   5256*   5278*   5294*   5309*   5352*   5363*   5374*   5386*   5410*   5422*
                          5436*   5445*   5458*   5468*   5478*   5498*   5509*   5519*   5529*   5549*   5559*   5567*   5575*
                          5580*   5591*   5604*   5610*   5615*   5620*   5626*   5632*   5640*   5657*   5671*   5684*   5695*
                          5721*   5734*   5744*   5757*   5768*   5779*   5793*   5806*   5816*   5844*   5854*   5862*   5891*
                          5902*   5912*   5938*   5952*   5962*   5972*   5982*   5992*   6002*   6035*   6049*   6059*   6069*
                          6079*   6089*   6099*   6134*   6148*   6162*   6175*   6189*   6202*   6215*   6229*   6242*   6255*
                          6268*   6280*   6308*   6316*   6335*   6345*   6356*   6376*   6388*   6398*   6409*   6435*   6446*
                          6456*   6466*   6477*   6501*   6512*   6524*   6563*   6572*   6612*   6620*   6653*   6663*   6698*
                          6718*   6731*   6744*   6757*   6770*   6894*   6898*   6955*   6959*   7018*   7022*   7055*   7062*
                          7087*   7094*   7111*   7121*   7131*   7143*   7152*   7160*   7168*   7173*   7182*   7187*   7201*
                          7222*   7236*   7261*   7266*   7286*   7291*   7302*   7308*   7320*   7325*
ERR1    007412 G          2807#   3618
ERR10   007614 G          2869#   4693    5326
ERR18   007642 G          1839    2883#
ERR19   007710 G          2768    2899#
ERR20   007750 G          2055    2914#
ERR21   010002 G          2071    2925#
ERR22   010064 G          2078    2943#
ERR23   010156 G          1931    1967    2968#
ERR24   010224 G          2443    2982#   3669    3744    3819    3894    3969    4044
ERR25   010266 G          2995#   3679    3754    3829    3904    3979    4054    4110    4156
ERR26   010330 G          1647    1690    2304    3010#
ERR27   010366 G          1737    1751    1827    1868    1898    1998    2042    3026#   4707    4769    4780    5712    6786
ERR3    007440 G          2620#   4242    4253
ERR32   010464 G          2259    3049#   3703    3778    3853    3928    4003    4078    4263    4528    4567    4577    4825
```

```
                        4927    6016    6113
ERR5    007472 G        2831#   4363    4401
ERR6    007530 G        2843#   4545
ERR9    007566 G        2857#   4643
EVL   = 000004 G        1401#
EXLOOP  002400          1477#   2264    3418*   6560*   6562*   6609*   6611*   7052*   7054*
EXMDT   021176          4309    4588#
EXMEM   003744          2025#
EXMEMA  004122          2031    2061#
EXMEMB  004036          2033    2038#
EXMEMC  004062          2037    2045#
EXMEMX  004226          2027    2044    2057    2067    2073    2081#
E$END = 002100          1102#
E$LOAD= 000035          1102#   1202
FMTO    011036          3097#   3622
FRSPAS  002354          1466#   3450*
FRSTIM  002330          1456#   3419    3426*
F$AU  = 000015          1102#   3559    3560
F$AUTO= 000020          1102#   3500    3514
F$BGN = 000040          1102#   1110    1220    2807    2820    2831    2843    2857    2869    2883    2899    2914    2925
                        2943    2968    2982    2995    3010    3026    3049    3392    3397    3413    3500    3524    3541
                        3559    3584    3607    3612    3641    3705    3716    3780    3791    3855    3866    3930    3941
                        4005    4016    4080    4092    4100    4112    4127    4138    4146    4157    4171    4226    4243
                        4256    4264    4273    4282    4284    4305    4317    4325    4340    4364    4380    4402    4447
                        4483    4517    4530    4546    4551    4554    4561    4571    4581    4590    4605    4609    4620
                        4647    4659    4664    4674    4695    4709    4717    4729    4739    4749    4757    4770    4782
                        4799    4805    4826    4834    4844    4851    4864    4870    4903    4913    4929    4945    4959
                        4972    4989    5001    5016    5028    5041    5048    5062    5077    5091    5101    5112    5122
                        5138    5152    5156    5172    5187    5199    5205    5218    5221    5235    5248    5257    5262
                        5275    5279    5295    5310    5328    5339    5341    5353    5364    5375    5387    5398    5400
                        5411    5423    5437    5446    5459    5470    5479    5488    5490    5499    5510    5520    5530
                        5532    5546    5550    5560    5568    5576    5581    5592    5605    5611    5616    5621    5627
                        5633    5643    5653    5658    5672    5685    5696    5722    5735    5745    5758    5769    5780
                        5794    5807    5817    5823    5839    5845    5855    5863    5873    5887    5892    5903    5913
                        5919    5934    5939    5953    5963    5973    5983    5993    6003    6018    6031    6036    6050
                        6060    6070    6080    6090    6100    6115    6130    6135    6149    6163    6176    6190    6203
                        6216    6230    6243    6256    6269    6281    6298    6309    6317    6319    6331    6336    6346
                        6357    6362    6374    6377    6389    6399    6410    6415    6431    6436    6447    6457    6467
                        6478    6484    6497    6502    6513    6525    6530    6549    6564    6573    6579    6596    6613
                        6622    6628    6643    6654    6664    6670    6684    6688    6699    6719    6732    6745    6758
                        6771    6787    6794    6834    6856    6895    6899    6916    6956    6960    6978    7019    7023
                        7040    7056    7063    7077    7088    7095    7107    7112    7122    7132    7144    7153    7161
                        7169    7174    7183    7188    7202    7223    7237    7262    7267    7287    7292    7303    7309
                        7321    7326    7332    7354    7480
F$CLEA= 000007          1102#   3524    3527
F$DU  = 000016          1102#   3541    3544
F$END = 000041          1102#   1110    2816    2830    2842    2854    2866    2878    2896    2911    2924    2942    2963
                        2981    2994    3007    3021    3046    3058    3395    3401    3499    3516    3529    3546    3562
                        3584    3607    3609    3629    3641    3705    3707    3716    3780    3782    3791    3855    3857
                        3866    3930    3932    3941    4005    4007    4016    4080    4082    4092    4100    4112    4127
                        4129    4138    4146    4157    4171    4173    4226    4243    4256    4264    4273    4282    4284
                        4286    4305    4317    4325    4340    4364    4380    4402    4447    4483    4517    4530    4546
                        4551    4560    4570    4580    4587    4590    4592    4605    4609    4620    4647    4649    4659
                        4664    4674    4695    4709    4717    4719    4729    4739    4749    4757    4770    4782    4784
                        4799    4805    4826    4834    4844    4851    4853    4864    4870    4903    4913    4929    4931
                        4945    4959    4972    4989    5001    5016    5028    5030    5041    5048    5062    5077    5091
```

```
                    5101    5112    5122    5138    5140    5152    5156    5172    5187    5199    5205    5207    5218
                    5221    5235    5248    5257    5262    5264    5275    5279    5295    5310    5328    5330    5339
                    5341    5353    5364    5375    5387    5398    5400    5411    5423    5437    5446    5459    5470
                    5479    5488    5490    5499    5510    5520    5530    5532    5534    5546    5550    5560    5568
                    5576    5581    5592    5605    5611    5616    5621    5627    5633    5643    5645    5653    5658
                    5672    5685    5696    5722    5735    5745    5758    5769    5780    5794    5807    5817    5823
                    5825    5839    5845    5855    5863    5873    5875    5887    5892    5903    5913    5919    5921
                    5934    5939    5953    5963    5973    5983    5993    6003    6018    6020    6031    6036    6050
                    6060    6070    6080    6090    6100    6115    6117    6130    6135    6149    6163    6176    6190
                    6203    6216    6230    6243    6256    6269    6281    6283    6298    6309    6317    6319    6321
                    6331    6336    6346    6357    6362    6364    6374    6377    6389    6399    6410    6415    6417
                    6431    6436    6447    6457    6467    6478    6484    6486    6497    6502    6513    6525    6530
                    6532    6549    6564    6573    6579    6581    6596    6613    6622    6628    6630    6643    6654
                    6664    6670    6672    6684    6688    6699    6719    6732    6745    6758    6771    6787    6794
                    6834    6836    6856    6895    6899    6901    6916    6956    6960    6962    6978    7019    7023
                    7025    7040    7056    7063    7065    7077    7088    7095    7097    7107    7112    7122    7132
                    7144    7153    7161    7169    7174    7183    7188    7202    7223    7237    7262    7267    7287
                    7292    7303    7309    7321    7326    7332    7334    7393    7485
F$HARD= 000004       1102#   7354    7391
F$HW  = 000013       1102#   1289    1312
F$INIT= 000006       1102#   3413    3497
F$JMP = 000050       1102#   3395    4551    4826    6688    6794
F$MOD = 000000       1102#   1110
F$MSG = 000011       1102#   2807    2814    2820    2828    2831    2840    2843    2852    2857    2864    2869    2876
                     2883    2894    2899    2909    2914    2922    2925    2940    2943    2961    2968    2979    2982
                     2992    2995    3005    3010    3019    3026    3044    3049    3056
F$PROT= 000021       1102#   1220    1224
F$PWR = 000017       1102#
F$RPT = 000012       1102#   3392    3399
F$SEG = 000003       1102#
F$SOFT= 000005       1102#   7480    7483
F$SRV = 000010       1102#   3612    3627    4554    4558    4561    4568    4571    4578    4581    4585
F$SUB = 000002       1102#   5342    5398    5401    5488    5491    5530
F$SW  = 000014       1102#   1325    1330
F$TEST= 000001       1102#   3585    3607    3642    3705    3717    3780    3792    3855    3867    3930    3942    4005
                     4017    4080    4093    4127    4139    4171    4227    4284    4306    4590    4606    4647    4660
                     4717    4730    4782    4800    4851    4865    4929    4946    5028    5042    5138    5153    5205
                     5219    5262    5276    5328    5340    5532    5547    5643    5654    5823    5840    5873    5888
                     5919    5935    6018    6032    6115    6131    6281    6299    6319    6332    6362    6375    6415
                     6432    6484    6498    6530    6550    6579    6597    6628    6644    6670    6685    6834    6857
                     6899    6917    6960    6979    7023    7041    7063    7078    7095    7108    7332
GENWRD  002432       1491#   2626    2704    2708    2780    6303*   6556*   6605*   6649*   6885*   6887*   6946*   6948*
                     7009*   7011*   7044*   7084*   7085*   7109*
GETBA   003576       1951#   2737    2751    2792    5619
GETCC   003514       1917#   2733    2747    2788    5614
GETDAT  003446       1887#   5119    5476    6210    6276    7210    7276    7329
GETOC   003670       1988#   2644    5579    7172    7290    7306
GETOUT  003242       1814#   2640    2729    2743    2784    5097    5371    5466    5517    5571    5608    5625    5692
                     5765    6183    6250    6752    7167    7186    7205    7241    7265    7285    7301    7324
GETPRM  014226       3443    3455#   3464
GETRKY  003372       1858#   4714    5109    5384    5527    5630    5776    6197    6263    6765
GSSREP  024026       5452#   5486
GWORD   004274       2118#   3649    3652    3672    3685    3696    3724    3727    3747    3760    3771    3799    3802
                     3822    3835    3846    3874    3877    3897    3910    3921    3949    3952    3972    3985    3996
                     4024    4027    4047    4060    4071
G$CNTO= 000200       1102#
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G$DELM= 000372            1102#
G$DISP= 000003            1102#
G$EXCP= 000400            1102#
G$HILI= 000002            1102#
G$LOLI= 000001            1102#
G$NO  = 000000            1102#
G$OFFS= 000400            1102#  7356   7361   7365   7369   7374   7379   7384
G$OFSI= 000376            1102#  7356   7361   7365   7369   7374   7379   7384
G$PRMA= 000001            1102#  7361   7365
G$PRMD= 000002            1102#  7356   7369   7374   7379   7384
G$PRML= 000000            1102#
G$RADA= 000140            1102#
G$RADB= 000000            1102#
G$RADD= 000040            1102#
G$RADL= 000120            1102#
G$RADO= 000020            1102#  7356   7361   7365   7369   7374   7379   7384
G$XFER= 000004            1102#
G$YES = 000010            1102#  7356   7361   7365   7369   7374   7379   7384
HELP  = 000000            1101#  1133   1220   1276   1593   3394   3398
HOE   = 100000 G          1414#
IBE   = 010000 G          1411#
IDU   = 000040 G          1404#
IER   = 020000 G          1412#
IFLAG   002334            1458#  4438*  4453   4474*  4489   4557*  4584*
IFTYP   002474            1520#  2499   2525   2541   2556   3493*  3494*
IFTYPM  033434            7385   7453#
INTC0   021106 G          4422   4554#
INTC4   021122 G          4431   4561#
INTD0   021142 G          4462   4571#
INTD4   021162 G          4468   4581#
ISR   = 000100 G          1405#
IXE   = 004000 G          1410#
I$AU  = 000041            1102#  3559#  3562#
I$AUTO= 000041            1102#  3500#  3516#
I$CLN = 000041            1102#  3524#  3529#
I$DU  = 000041            1102#  3541#  3546#
I$HRD = 000041            7354#  7393#
I$INIT= 000041            1102#  3413#  3499#
I$MOD = 000040            1102#  1110#
I$MSG = 000041            1102#  2807#  2816#  2820#  2830#  2831#  2842#  2843#  2854#  2857#  2866#  2869#  2878#
                          2883#  2896#  2899#  2911#  2914#  2924#  2925#  2942#  2943#  2963#  2968#  2981#  2982#
                          2994#  2995#  3007#  3010#  3021#  3026#  3046#  3049#  3058#
I$PROT= 000040            1102#  1220#
I$PTAB= 000041            1102#
I$PWR = 000041            1102#
I$RPT = 000041            1102#  3392#  3401#
I$SEG = 000041            1102#  3584   3641   3716   3791   3866   3941   4016   4092   4138   4226   4305   4605
                          4659   4729   4799   4864   4945   5041   5152   5218   5275   5339   5341   5400   5490
                          5546   5653   5839   5887   5934   6031   6130   6298   6331   6374   6431   6497   6549
                          6596   6643   6684   6856   6916   6978   7040   7077   7107
I$SETU= 000041            1102#
I$SFT = 000041            7480#  7485#
I$SRV = 000041            1102#  3612#  3629#  4554#  4560#  4561#  4570#  4571#  4580#  4581#  4587#
I$SUB = 000041            1102#  3584   3641   3716   3791   3866   3941   4016   4092   4138   4226   4305   4605
                          4659   4729   4799   4864   4945   5041   5152   5218   5275   5339   5341#  5353   5364
                          5375   5387   5398#  5400#  5411   5423   5437   5459   5470   5479   5488#  5490#  5499
```

```
                    5510    5520    5530#   5532#   5546    5653    5839    5887    5934    6031    6130    6298    6331
                    6374    6431    6497    6549    6596    6643    6684    6856    6916    6978    7040    7077    7107
I$TST = 000041      1102#   3584#   3607#   3609#   3641#   3705#   3707#   3716#   3780#   3782#   3791#   3855#   3857#
                    3866#   3930#   3932#   3941#   4005#   4007#   4016#   4080#   4082#   4092#   4100    4112    4127#
                    4129#   4138#   4146    4157    4171#   4173#   4226#   4243    4256    4264    4273    4282    4284#
                    4286#   4305#   4317    4325    4340    4364    4380    4402    4447    4483    4517    4530    4546
                    4551    4590#   4592#   4605#   4609    4620    4647#   4649#   4659#   4664    4674    4695    4709
                    4717#   4719#   4729#   4739    4749    4757    4770    4782#   4784#   4799#   4805    4826    4834
                    4844    4851#   4853#   4864#   4870    4903    4913    4929#   4931#   4945#   4959    4972    4989
                    5001    5016    5028#   5030#   5041#   5048    5062    5077    5091    5101    5112    5122    5138#
                    5140#   5152#   5156    5172    5187    5199    5205#   5207#   5218#   5221    5235    5248    5257
                    5262#   5264#   5275#   5279    5295    5310    5328#   5330#   5339#   5341    5400    5446    5490
                    5532#   5534#   5546#   5550    5560    5568    5576    5581    5592    5605    5611    5616    5621
                    5627    5633    5643#   5645#   5653#   5658    5672    5685    5696    5722    5735    5745    5758
                    5769    5780    5794    5807    5817    5823#   5825#   5839#   5845    5855    5863    5873#   5875#
                    5887#   5892    5903    5913    5919#   5921#   5934#   5939    5953    5963    5973    5983    5993
                    6003    6018#   6020#   6031#   6036    6050    6060    6070    6080    6090    6100    6115#   6117#
                    6130#   6135    6149    6163    6176    6190    6203    6216    6230    6243    6256    6269    6281#
                    6283#   6298#   6309    6317    6319#   6321#   6331#   6336    6346    6357    6362#   6364#   6374#
                    6377    6389    6399    6410    6415#   6417#   6431#   6436    6447    6457    6467    6478    6484#
                    6486#   6497#   6502    6513    6525    6530#   6532#   6549#   6564    6573    6579#   6581#   6596#
                    6613    6622    6628#   6630#   6643#   6654    6664    6670#   6672#   6684#   6688    6699    6719
                    6732    6745    6758    6771    6787    6794    6834#   6836#   6856#   6895    6899#   6901#   6916#
                    6956    6960#   6962#   6978#   7019    7023#   7025#   7040#   7056    7063#   7065#   7077#   7088
                    7095#   7097#   7107#   7112    7122    7132    7144    7153    7161    7169    7174    7183    7188
                    7202    7223    7237    7262    7267    7287    7292    7303    7309    7321    7326    7332#   7334#
JMO       014656    3591*   3600    3610#   3613    3619*
J$JMP =   000167    1102#   3395
KMRLVL    002470    1516#   4421    4461
KMRVEC    002462    1511#   4423    4463    4496
KMTLVL    002470    1517#   4430    4467
KMTVEC    002464    1513#   4432    4469    4498
LASTRS    005136    2297    2307*   2314#
LOE   =   040000 G  1413#
LOGDEV    002332    1457#   2332    3449*   3456*   3457    3459    3509    3689    3764    3839    3914    3989    4064
                    4117    4162
LOOPBK    033117    7375    7417#
LOT   =   000010 G  1402#
LULOOP=   000010    1427#
L$ACP     002110 G  1209#
L$APT     002036 G  1167#
L$AU      014544 G  1194    3559#
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L$AUTO    014472 G  1210    3500#
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L$CLEA    014534 G  1208    3524#
L$CO      002032 G  1163#
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L$DESC    002606 G  1200    1580#
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L$DISP    002132 G  1170    1231#
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L$DU      014540 G  1196    3541#
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L$EF    002052 G        1180#
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L$EXP1  002046 G        1175#
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L$HARD  032622 G        1152    7354    7355#
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L$HPTP  002022 G        1155#
L$HW    002264 G        1156    1289    1290#
L$ICP   002104 G        1205#
L$INIT  014036 G        1206    3413#
L$LADP  002026 G        1159#
L$LAST  037740 G        1160    7552#
L$LOAD  002100 G        1201#
L$LUN   002074 G        1197#
L$MREV  002050 G        1177#
L$NAME  002000 G        1134#
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L$PROT  002122 G        1212    1220#
L$PRT   002112 G        1211#
L$REPP  002062 G        1187#
L$REV   002010 G        1143#
L$RPT   014030 G        3392#
L$SOFT  033526 G        7480    7481#
L$SPC   002056 G        1183#
L$SPCP  002020 G        1153#
L$SPTP  002024 G        1157#
L$STA   002030 G        1161#
L$SW    002316 G        1325    1326#
L$TEST  002114 G        1213#
L$TIML  002014 G        1149#
L$UNIT  002012 G        1147#   3457
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L10002  002316          1325    1330#
L10003  007436          2814#
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L10007  007612          2864#
L10010  007640          2876#
L10011  007706          2894#
L10012  007746          2909#
L10013  010000          2922#
L10014  010062          2940#
L10015  010154          2961#
L10016  010222          2979#
L10017  010264          2992#
L10020  010326          3005#
L10021  010364          3019#
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L10024  014034          3396    3399#
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L10033  014724          3627#
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L10041  017360          4080#
L10042  017520          4101    4113    4127#
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L10113  031504          7057    7063#
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MEF14   012063          1646    3200#
MEF15   012130          1689    3207#
MEF16A  012175          1930    3214#
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MEF18   012343          2888    3232#
MEF18A  012304          1838    3226#
MEF19   012434          2903    3243#
MEF19A  012401          2767    3238#
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MEF3    011147          2822    3110#
MEF3A   011105          3104#   4241    4252
MEF30   012560          3259#   4824    4926    6015    6112
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MEF7    011456          2303    3148#   4527
MEF8    011510          3153#   4566    4576
MEMEX   003744          2024#   6897    6958    7021
META    004222          2080#   6858    6918    6980
METB    004216          2049    2079#
METC    004202          2062    2074#
MFPC    011653          2885    2970    3012    3028    3172#
MFRI    012036          3195#
MFRO    012032          3194#
MGB     011772          3036    3188#
MINITR  004456          2193#   3501    4229
MINITS  004522          2225#   4312    4606    4661    4801    4866    4956    5045    5153    5219    5276    5350    5408
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MINIT1  004512          2223#   6561    6610    7053
MINTE   005066          2235    2243    2261    2271    2280    2286#
MINTR   004530          2224    2226#   6695
MIN1R   004502          2195    2197#
MIN2R   004554          2228    2230#
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MODEB   030022          6694#   6792
MODED   030120          6725#
MODEX   030314          6693    6793#
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MODINT  002356          1467#
MODOUT  030350          6779    6810#
MODQ22  002376          1476#   1919    1955    2670    2691    3417*   6618*   6621*
MODTYP  030320          6711    6797#
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MPOVEC  002464            1514#  3487*  3488*
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MRDO    011746            2870   3184#
MRFT    011672            3176#  4642   4692   5325
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MR1E    033540            7503#
MR12    033540            7505#
MR12E   033774            7536#
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M12F    012011            1864   3191#
M13F    012024            1744   2038   3193#  4776
M18F    012042            1730   1994   3196#  4765
M28F    012051            1823   3198#  4703
M30F    012056            1894   3199#  5708   6782
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NEWSLT  022714            5043#  5135
NEWST   014202            3438   3448#  3458
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O$GNSW= 000000            1102#  1157
O$POIN= 000001            1102#  1132#  1219
O$SETU= 000000            1102#  1147   7550
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PRI   = 002000 G          1409#
PRIRTY  033066            7370   7412#
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PRI01 = 000040 G          1396#
PRI02 = 000100 G          1395#
PRI03 = 000140 G          1394#
PRI04 = 000200 G          1393#
PRI05 = 000240 G          1392#
PRI06 = 000300 G          1391#
PRI07 = 000340 G          1172   1390#  3585
PSTACK  002322            1453#  3414*
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RDO   = 000200            1438#  1636   2647   2741   2782   4687   4816   4829   4897   4908   4922   5007   5320
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RDVEX2  017660            4140   4149   4170#
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REG2    002526            15400
REG3    002530            15410
REG4    002532            15420
REG5    002534            15430
REG6    002536            15440
REG7    002540            15450
RETADR  002500            15220
RET16   030656            6862   68980
RET17   031120            6922   69590
RET18   031362            6985   70220
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RMVBB   005664            2431   24350
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RMVRT   005472            23990  4098   4144
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RMVYY   005620            2416   24240  2428
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ROMCLK  004346            2120   2124   21420
ROMI  - 000002            14290
ROMMSG  013727            33690  3690   3765   3840   3915   3990   4065   4118   4163
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RQI   - 000200            14360  1779   1784   2276   2661   2696   2701   4268   4615   4670   4680   4745   4830
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RUN   - 000200            14240
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RXCC    002424            14880  2673   2678   6299#  6552#  6601#  6646#  6889#  6950#  7013#  7048#  7082#
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SAVE6   002320            14520  2082   3422#  3425
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SEL2    002444            15000  2119#  2340   3474#  3475#  3595
SEL4    002450            15040  1952   2339   2408#  3472#  3473#  3597
SEL6    002454            15070  1918   1958   2338   2406#  3484#  3485#  3599   3650   3653   3673   3686   3697
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SFPTBL  002316 G          13270
SPEDM   033223            7380   74290
SPEEDM  002466            15150  2529   2545   3492#
STAND   005140            23300  2827   2839   2851   2863   2875   2893   2908   2921   2939   2960   2978   2991
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STARST  014172            3430   3434   34440
STEPLU- 000020            14260
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5562	5568	5569	5570	5576	5577	5578	5581	5582	5583	5592	5593	5594
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5628	5629	5633	5634	5635	5644	5645	5658	5659	5660	5672	5673	5674
5685	5686	5687	5696	5697	5698	5709	5710	5711	5712	5713	5722	5723
5724	5735	5736	5737	5745	5746	5747	5758	5759	5760	5769	5770	5771
5780	5781	5782	5794	5795	5796	5807	5808	5809	5817	5818	5819	5824
5825	5845	5846	5847	5855	5856	5857	5863	5864	5865	5874	5875	5892
5893	5894	5903	5904	5905	5913	5914	5915	5920	5921	5939	5940	5941
5953	5954	5955	5963	5964	5965	5973	5974	5975	5983	5984	5985	5993
5994	5995	6003	6004	6005	6013	6014	6015	6016	6017	6019	6020	6036

```
                    6037  6038  6050  6051  6052  6060  6061  6062  6070  6071  6072  6080  6081
                    6082  6090  6091  6092  6100  6101  6102  6110  6111  6112  6113  6114  6116
                    6117  6135  6136  6137  6149  6150  6151  6163  6164  6165  6176  6177  6178
                    6190  6191  6192  6203  6204  6205  6216  6217  6218  6230  6231  6232  6243
                    6244  6245  6256  6257  6258  6269  6270  6271  6282  6283  6309  6310  6311
                    6317  6318  6319  6320  6321  6336  6337  6338  6346  6347  6348  6357  6358
                    6359  6363  6364  6377  6378  6379  6389  6390  6391  6399  6400  6401  6410
                    6411  6412  6416  6417  6436  6437  6438  6447  6448  6449  6457  6458  6459
                    6467  6468  6469  6478  6479  6480  6485  6486  6502  6503  6504  6513  6514
                    6515  6525  6526  6527  6531  6532  6564  6565  6566  6573  6574  6575  6580
                    6581  6613  6614  6615  6622  6623  6624  6629  6630  6654  6655  6656  6664
                    6665  6666  6671  6672  6688  6689  6690  6699  6700  6701  6719  6720  6721
                    6732  6733  6734  6745  6746  6747  6758  6759  6760  6771  6772  6773  6783
                    6784  6785  6786  6787  6788  6789  6794  6795  6796  6835  6836  6868  6869
                    6870  6895  6896  6897  6900  6901  6928  6929  6930  6956  6957  6958  6961
                    6962  6991  6992  6993  7019  7020  7021  7024  7025  7056  7057  7058  7064
                    7065  7088  7089  7090  7096  7097  7112  7113  7114  7122  7123  7124  7132
                    7133  7134  7144  7145  7146  7153  7154  7155  7161  7162  7163  7169  7170
                    7171  7174  7175  7176  7183  7184  7185  7188  7189  7190  7202  7203  7204
                    7223  7224  7225  7237  7238  7239  7262  7263  7264  7267  7268  7269  7287
                    7288  7289  7292  7293  7294  7303  7304  7305  7309  7310  7311  7321  7322
                    7323  7326  7327  7328  7333  7334  7354  7355  7356  7357  7358  7359  7360
                    7361  7362  7363  7364  7365  7366  7367  7368  7369  7370  7371  7372  7373
                    7374  7375  7376  7377  7378  7379  7380  7381  7382  7383  7384  7385  7386
                    7387  7388  7389  7391  7392  7480  7481  7483  7484  7549  7550  7551  7552
SVCSUB= 000000       11020  11160  5341  5342  5400  5401  5490  5491
SVCTAG= 000000       11020  11180  1312  1313  1330  1331  2814  2815  2828  2829  2840  2841  2852
                    2853  2864  2865  2876  2877  2894  2895  2909  2910  2922  2923  2940  2941
                    2961  2962  2979  2980  2992  2993  3005  3006  3019  3020  3044  3045  3056
                    3057  3399  3400  3497  3498  3514  3515  3527  3528  3544  3545  3560  3561
                    3607  3608  3627  3628  3705  3706  3780  3781  3855  3856  3930  3931  4005
                    4006  4080  4081  4127  4128  4171  4172  4284  4285  4558  4559  4568  4569
                    4578  4579  4585  4586  4590  4591  4647  4648  4717  4718  4782  4783  4851
                    4852  4929  4930  5028  5029  5138  5139  5205  5206  5262  5263  5328  5329
                    5398  5399  5488  5489  5530  5531  5532  5533  5643  5644  5823  5824  5873
                    5874  5919  5920  6018  6019  6113  6116  6281  6282  6319  6320  6362  6363
                    6415  6416  6484  6485  6530  6531  6579  6580  6628  6629  6670  6671  6834
                    6835  6899  6900  6960  6961  7023  7024  7063  7064  7095  7096  7332  7333
                    7392  7393  7484  7485
SVCTST= 000000       11020  11150  3584  3585  3641  3642  3716  3717  3791  3792  3866  3867  3941
                    3942  4016  4017  4092  4093  4138  4139  4226  4227  4305  4306  4605  4606
                    4659  4660  4729  4730  4799  4800  4864  4865  4945  4946  5041  5042  5152
                    5153  5218  5219  5275  5276  5339  5340  5546  5547  5653  5654  5839  5840
                    5887  5888  5934  5935  6031  6032  6130  6131  6298  6299  6331  6332  6374
                    6375  6431  6432  6497  6498  6549  6550  6596  6597  6643  6644  6684  6685
                    6856  6857  6916  6917  6978  6979  7040  7041  7077  7078  7107  7108
S$LSYM= 010000       11020  13130  13310  28150  28290  28410  28530  28650  28770  28950  29100  29230  29410
                    29620  29800  29930  30060  30200  30450  30570  34000  34980  35150  35280  35450  35610
                    36080  36280  37060  37810  38560  39310  40060  40810  41280  41720  42850  45590  45690
                    45790  45960  45910  46480  47180  47830  48520  49300  50290  51390  52060  52630  53290
                    53990  54890  55310  55330  56440  58240  58740  59200  60190  61160  62820  63200  63630
                    64160  64850  65310  65800  66290  66710  68350  69000  69610  70240  70640  70960  73330
                    73930  74850
TABEN   006350       2579  2590  26030
TABM    006324       2585  25960
TESTAB  010666       2598  30780
```

CROSS REFERENCE TABLE -- USER SYMBOLS

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TFM2A   013107            2934    3298#
TFM20   012675            2916    3273#
TFM21   013020            2926    3288#
TFM22   013170            2944    3307#
TFM22A  013256            2950    3316#
TFM22B  013345            2955    3326#
TFM24   013431            2986    3335#
TFM25   013523            2999    3345#
TLB1    020014            4270#   4280
TLB10   021546            4733    4736#   4744
TLB2    020150            4336#   4347
TLB3    020304            4376#   4387
TLB4    020542            4443#   4454
TLB5    020664            4479#   4490
TLB6    020764            4513#   4535
TLB6A   020742            4508#   4549
TLB7    004566            2233#   2239
TLB8    004620            2241#   2248
TLB9    005024            2278#   2282
TMP0    002544            1549#
TMP1    002546            1550#
TMP2    002550            1551#
TMP3    002552            1552#
TMP4    002554            1553#
TMP5    002556            1554#
TMP6    002560            1555#
TMP7    002562            1556#
TOUT    005070            1633    1676    2233    2241    2269    2278    2297#   4271    4338    4378    4445    4481    4515
                          4737
TOUTE   005120            2298    2306#
TOUTEX  005130            2300    2308#
TRIBH   002364            1470#   4953*   4954*   4978
TRIBMX  002362            1469#   4946*   4949*   4954
TRIBN   002360            1468#   1783    1831    2488    2489*   2616*   2668    2689    4952*   4977*   4978    5008*   5054*
                          5163*   5227*   5286*   5348*   5407*   5505*   5552*   5597    5664*   5704    5898*   5945*   6042*
                          6141*   6304*   6382*   6404    6442*   6472    6557*   6606*   6648*   6710*   6886*   6947*   7010*
                          7049*   7079*   7117*   7128*
TSSADD  002412            1482#   5042*   5069    5083    5107    5132    5134*   5347*   5359    5382    5394*   5395    5406*
                          5417    5419    5429*   5430    5433    5453*   5454    5475    5485
TSTCON  002476            1521#   2482    2492    2496    2503    3491*   4814    4875    4880    4895    6558    6607    6692
                          7050
TXADD   002420            1486#   2688    2736    2757    2791    6301*   6555*   6604*   6645*   6890*   6951*   7014*   7046*
                          7081*
TXCC    002426            1489#   2694    2700    2732    2746    2773    2787    6302*   6554*   6603*   6644*   6891*   6952*
                          7015*   7045*   7080*
TXRXA   006540            2515    2614    2624    2635    2642    2646    2656#
TXRXB   006524            2627    2652#
TXRXC   006546            2648    2656    2661#
TXRXEN  007406            2603    2657    2666    2687    2706    2720    2731    2735    2739    2745    2749    2753    2771
                          2781    2786    2790    2794    2795#
TXRXG   007136            2709    2726    2742#
TXRXSR  005720            2482#   6570    6619    7061
TXRX1   005746            2492#
TXRX1A  006040            2506    2510#
TXRX1B  006062            2494    2514    2517#
TXRX2   006402            2501    2608    2616#
```

```
TXRX3   006410          2484    2620#   6315    6660    6893    6954    7017    7093
TYEND   002420          1485#   5869
TYLST   002414          1483#   5840
T$ARGC= 000004          1135#   1136#   1137#   1138#   1139#   1140#   2331#   2337    2338#   2346    2349#   2354    2356#
                        2360    2580#   2584    2591#   2595    2597#   2602    2808#   2813    2821#   2826    2832#   2838
                        2844#   2850    2858#   2862    2870#   2874    2884#   2892    2900#   2907    2915#   2920    2926#
                        2930    2931#   2938    2944#   2948    2949#   2954    2955#   2959    2969#   2977    2983#   2990
                        2996#   3003    3011#   3017    3027#   3033    3034#   3042    3050#   3054    3621#   3626    3687#
                        3694    3762#   3769    3837#   3844    3912#   3919    3987#   3994    4062#   4069    4115#   4122
                        4160#   4167
T$CODE= 013032          7356#   7361#   7365#   7369#   7374#   7379#   7384#
T$ERRN= 000055          1102#   1645#   1688#   1735#   1749#   1825#   1837#   1866#   1896#   1929#   1965#   1996#   2040#
                        2053#   2069#   2076#   2257#   2302#   2441#   2766#   3616#   3667#   3677#   3701#   3742#   3752#
                        3776#   3817#   3827#   3851#   3892#   3902#   3926#   3967#   3977#   4001#   4042#   4052#   4076#
                        4108#   4154#   4240#   4251#   4261#   4361#   4399#   4526#   4543#   4565#   4575#   4641#   4691#
                        4705#   4767#   4778#   4823#   4925#   5324#   5710#   6014#   6111#   6784#
T$EXCP= 000000          7356#   7361#   7365#   7369#   7374#   7379#   7384#   7389
T$FLAG= 000040          3395#   3397    4100#   4112#   4146#   4157#   4243#   4256#   4264#   4273#   4282#   4317#   4325#
                        4340#   4364#   4380#   4402#   4447#   4483#   4517#   4530#   4546#   4551#   4609#   4620#   4664#
                        4674#   4695#   4709#   4739#   4749#   4757#   4770#   4805#   4826#   4834#   4844#   4870#   4903#
                        4913#   4959#   4972#   4989#   5001#   5016#   5048#   5062#   5077#   5091#   5101#   5112#   5122#
                        5156#   5172#   5187#   5199#   5221#   5235#   5248#   5257#   5279#   5295#   5310#   5353#   5364#
                        5375#   5387#   5411#   5423#   5437#   5446#   5459#   5470#   5479#   5499#   5510#   5520#   5550#
                        5560#   5568#   5576#   5581#   5592#   5605#   5611#   5616#   5621#   5627#   5633#   5658#   5672#
                        5685#   5696#   5722#   5735#   5745#   5758#   5769#   5780#   5794#   5807#   5817#   5845#   5855#
                        5863#   5892#   5903#   5913#   5939#   5953#   5963#   5973#   5983#   5993#   6003#   6036#   6050#
                        6060#   6070#   6080#   6090#   6100#   6135#   6149#   6163#   6176#   6190#   6203#   6216#   6230#
                        6243#   6256#   6269#   6309#   6317#   6336#   6346#   6357#   6377#   6389#   6399#   6410#   6436#
                        6447#   6457#   6467#   6478#   6502#   6513#   6525#   6564#   6573#   6613#   6622#   6654#   6664#
                        6688#   6699#   6719#   6732#   6745#   6758#   6771#   6787#   6794#   6895#   6956#   7019#   7056#
                        7088#   7112#   7122#   7132#   7144#   7153#   7161#   7169#   7174#   7183#   7188#   7202#   7223#
                        7237#   7262#   7267#   7287#   7292#   7303#   7309#   7321#   7326#
T$GMAN= 000000          1102#
T$HILI= 000007          7356#   7360    7361#   7364    7365#   7368    7369#   7373    7374#   7378    7379#   7383    7384#
                        7388
T$LAST= 000001          1102#   7550#
T$LOLI= 000000          7356#   7359    7361#   7363    7365#   7367    7369#   7372    7374#   7377    7379#   7382    7384#
                        7387
T$LSYM= 010000          1102#   1313    1331    2815    2829    2841    2853    2865    2877    2895    2910    2923    2941
                        2962    2980    2993    3006    3020    3045    3057    3400    3498    3515    3528    3545    3561
                        3608    3628    3706    3781    3856    3931    4006    4081    4128    4172    4285    4559    4569
                        4579    4586    4591    4648    4718    4783    4852    4930    5029    5139    5206    5263    5329
                        5399    5489    5531    5533    5644    5824    5874    5920    6019    6116    6282    6320    6363
                        6416    6485    6531    6580    6629    6671    6835    6900    6961    7024    7064    7096    7333
                        7393    7485
T$LTNO= 000054          7553#
T$NEST= 000000          1102#   1110#   1220#   1224#   1289#   1312#   1325#   1330#   2807#   2814#   2820#   2828#   2831#
                        2840#   2843#   2852#   2857#   2864#   2869#   2876#   2883#   2894#   2899#   2909#   2914#   2922#
                        2925#   2940#   2943#   2961#   2968#   2979#   2982#   2992#   2995#   3005#   3010#   3019#   3026#
                        3044#   3049#   3056#   3392#   3399#   3413#   3497#   3500#   3514#   3524#   3527#   3541#   3544#
                        3559#   3560#   3585#   3607#   3612#   3627#   3642#   3705#   3717#   3780#   3792#   3855#   3867#
                        3930#   3942#   4005#   4017#   4080#   4093#   4127#   4139#   4171#   4227#   4284#   4306#   4554#
                        4558#   4561#   4568#   4571#   4578#   4581#   4585#   4590#   4606#   4647#   4660#   4717#   4730#
                        4782#   4800#   4851#   4865#   4929#   4946#   5028#   5042#   5138#   5153#   5205#   5219#   5262#
                        5276#   5328#   5340#   5342#   5398#   5401#   5488#   5491#   5530#   5532#   5547#   5643#   5654#
                        5823#   5840#   5873#   5888#   5919#   5935#   6018#   6032#   6115#   6131#   6281#   6299#   6319#
```

CROSS REFERENCE TABLE -- USER SYMBOLS

```
                    6332#  6362#  6375#  6415#  6432#  6484#  6498#  6530#  6550#  6579#  6597#  6628#  6644#
                    6670#  6685#  6834#  6857#  6899#  6917#  6960#  6979#  7023#  7041#  7063#  7078#  7095#
                    7108#  7332#  7354#  7391#  7480#  7483#
T$NS0 = 000000      1110#
T$NS1 = 000005      1220#  1224   1289#  1312   1325#  1330   2807#  2814   2820#  2828   2831#  2840   2843#
                    2852   2857#  2864   2869#  2876   2883#  2894   2899#  2909   2914#  2922   2925#  2940
                    2943#  2961   2968#  2979   2982#  2992   2995#  3005   3010#  3019   3026#  3044   3049#
                    3056   3392#  3399   3413#  3497   3500#  3514   3524#  3527   3541#  3544   3559#  3560
                    3585#  3607   3612#  3627   3642#  3705   3717#  3780   3792#  3855   3867#  3930   3942#
                    4005   4017#  4080   4093#  4127   4139#  4171   4227#  4284   4306#  4590   4606#  4647
                    4660#  4717   4730#  4782   4800#  4851   4865#  4929   4946#  5028   5042#  5138   5153#
                    5205   5219#  5262   5276#  5328   5340#  5532   5547#  5643   5654#  5823   5840#  5873
                    5888#  5919   5935#  6018   6032#  6115   6131#  6281   6299#  6319   6332#  6362   6375#
                    6415   6432#  6484   6498#  6530   6550#  6579   6597#  6628   6644#  6670   6685#  6834
                    6857#  6899   6917#  6960   6979#  7023   7041#  7063   7078#  7095   7108#  7332   7354#
                    7391   7480#  7483
T$NS2 = 000002      4554#  4558   4561#  4568   4571#  4578   4581#  4585   5342#  5398   5401#  5488   5491#
                    5530
T$PTNU= 000000      1102#
T$SAVL= 177777      1102#
T$SEGL= 177777      1102#
T$SUBN= 000000      1102#  3584#  3641#  3716#  3791#  3866#  3941#  4016#  4092#  4138#  4226#  4305#  4605#
                    4659#  4729#  4799#  4864#  4945#  5041#  5152#  5218#  5275#  5339#  5341#  5400#  5490#
                    5546#  5653#  5839#  5887#  5934#  6031#  6130#  6298#  6331#  6374#  6431#  6497#  6549#
                    6596#  6643#  6684#  6856#  6916#  6978#  7040#  7077#  7107#
T$TAGL= 177777      1102#
T$TAGN= 010120      1102#  1220#  1289#  1325#  2807#  2820#  2831#  2843#  2857#  2869#  2883#  2899#  2914#
                    2925#  2943#  2968#  2982#  2995#  3010#  3026#  3049#  3392#  3413#  3500#  3524#  3541#
                    3559#  3585#  3612#  3642#  3717#  3792#  3867#  3942#  4017#  4093#  4139#  4227#  4306#
                    4554#  4561#  4571#  4581#  4606#  4660#  4730#  4800#  4865#  4946#  5042#  5153#  5219#
                    5276#  5340#  5342#  5401#  5491#  5547#  5654#  5840#  5888#  5935#  6032#  6131#  6299#
                    6332#  6375#  6432#  6498#  6550#  6597#  6644#  6685#  6857#  6917#  6979#  7041#  7078#
                    7108#  7354#  7480#
T$TEMP= 000005      1224#  1232#  1233#  1234#  1235#  1236#  1237#  1238#  1239#  1240#  1241#  1242#  1243#
                    1244#  1245#  1246#  1247#  1248#  1249#  1250#  1251#  1252#  1253#  1254#  1255#  1256#
                    1257#  1258#  1259#  1260#  1261#  1262#  1263#  1264#  1265#  1266#  1267#  1268#  1269#
                    1270#  1271#  1272#  1273#  1274#  1275#  1276#  1312#  1330#  2814#  2828#  2840#  2852#
                    2864#  2876#  2894#  2909#  2922#  2940#  2961#  2979#  2992#  3005#  3019#  3044#  3056#
                    3395#  3396   3399#  3497#  3514#  3527#  3544#  3560#  3607#  3627#  3705#  3780#  3855#
                    3930#  4005#  4080#  4100#  4101   4112#  4113   4127#  4146#  4147   4157#  4158   4171#
                    4243#  4244   4256#  4257   4264#  4265   4273#  4274   4282#  4283   4284#  4317#  4318
                    4325#  4326   4340#  4341   4364#  4365   4380#  4381   4402#  4403   4447#  4448   4483#
                    4484   4517#  4518   4530#  4531   4546#  4547   4551#  4552   4558#  4568#  4578#  4585#
                    4590#  4609#  4610   4620#  4621   4647#  4664#  4665   4674#  4675   4695#  4696   4709#
                    4710   4717#  4739#  4740   4749#  4750   4757#  4758   4770#  4771   4782#  4805#  4806
                    4826#  4827   4834#  4835   4844#  4845   4851#  4870#  4871   4903#  4904   4913#  4914
                    4929#  4959#  4960   4972#  4973   4989#  4990   5001#  5002   5016#  5017   5028#  5048#
                    5049   5062#  5063   5077#  5078   5091#  5092   5101#  5102   5112#  5113   5122#  5123
                    5138#  5156#  5157   5172#  5173   5187#  5188   5199#  5200   5205#  5221#  5222   5235#
                    5236   5248#  5249   5257#  5258   5262#  5279#  5280   5295#  5296   5310#  5311   5328#
                    5353#  5354   5364#  5365   5375#  5376   5387#  5388   5398#  5411#  5412   5423#  5424
                    5437#  5438   5446#  5447   5459#  5460   5470#  5471   5479#  5480   5488#  5499#  5500
                    5510#  5511   5520#  5521   5530#  5532#  5550#  5551   5560#  5561   5568#  5569   5576#
                    5577   5581#  5582   5592#  5593   5605#  5606   5611#  5612   5616#  5617   5621#  5622
                    5627#  5628   5633#  5634   5643#  5658#  5659   5672#  5673   5685#  5686   5696#  5697
                    5722#  5723   5735#  5736   5745#  5746   5758#  5759   5769#  5770   5780#  5781   5794#
```

```
                    5795  5807#  5808  5817#  5818  5823#  5845#  5846  5855#  5856  5863#  5864  5873#
                    5892#  5893  5903#  5904  5913#  5914  5919#  5939#  5940  5953#  5954  5963#  5964
                    5973#  5974  5983#  5984  5993#  5994  6003#  6004  6018#  6036#  6037  6050#  6051
                    6060#  6061  6070#  6071  6080#  6081  6090#  6091  6100#  6101  6115#  6135#  6136
                    6149#  6150  6163#  6164  6176#  6177  6190#  6191  6203#  6204  6216#  6217  6230#
                    6231  6243#  6244  6256#  6257  6269#  6270  6281#  6309#  6310  6317#  6318  6319#
                    6336#  6337  6346#  6347  6357#  6358  6362#  6377#  6378  6389#  6390  6399#  6400
                    6410#  6411  6415#  6436#  6437  6447#  6448  6457#  6458  6467#  6468  6478#  6479
                    6484#  6502#  6503  6513#  6514  6525#  6526  6530#  6564#  6565  6573#  6574  6579#
                    6613#  6614  6622#  6623  6628#  6654#  6655  6664#  6665  6670#  6688#  6689  6699#
                    6700  6719#  6720  6732#  6733  6745#  6746  6758#  6759  6771#  6772  6787#  6788
                    6794#  6795  6834#  6895#  6896  6899#  6956#  6957  6960#  7019#  7020  7023#  7056#
                    7057  7063#  7088#  7089  7095#  7112#  7113  7122#  7123  7132#  7133  7144#  7145
                    7153#  7154  7161#  7162  7169#  7170  7174#  7175  7183#  7184  7188#  7189  7202#
                    7203  7223#  7224  7237#  7238  7262#  7263  7267#  7268  7297#  7288  7292#  7293
                    7303#  7304  7309#  7310  7321#  7322  7326#  7327  7332#  7356#  7361#  7365#  7369#
                    7374#  7379#  7384#  7391#  7483#
T$TEST= 000054       1102#  3570  3583  3584#  3632  3639  3641#  3707  3714  3716#  3782  3789  3791#
                    3857  3864  3866#  3932  3939  3941#  4007  4014  4016#  4082  4091  4092#  4129
                    4137  4138#  4174  4225  4226#  4288  4302  4305#  4594  4604  4605#  4650  4658
                    4659#  4719  4728  4729#  4786  4798  4799#  4854  4863  4864#  4932  4943  4945#
                    5031  5040  5041#  5141  5150  5152#  5208  5217  5218#  5265  5273  5275#  5330
                    5338  5339#  5341  5400  5490  5536  5545  5546#  5646  5652  5653#  5828  5838
                    5839#  5877  5886  5887#  5923  5933  5934#  6021  6030  6031#  6118  6129  6130#
                    6286  6296  6298#  6322  6330  6331#  6365  6373  6374#  6421  6430  6431#  6487
                    6496  6497#  6536  6548  6549#  6584  6595  6596#  6631  6642  6643#  6673  6683
                    6684#  6841  6855  6856#  6901  6915  6916#  6963  6977  6978#  7026  7039  7040#
                    7066  7076  7077#  7097  7106  7107#  7553
T$TSTM= 177777       1102#  1644  1687  1734  1748  1824  1836  1865  1895  1928  1964  1995  2039
                    2052  2068  2075  2256  2301  2309  2336  2345  2353  2359  2440  2583  2594
                    2601  2765  2812  2815  2825  2829  2837  2841  2849  2853  2861  2865  2873
                    2877  2891  2895  2906  2910  2919  2923  2929  2937  2941  2947  2953  2958
                    2962  2976  2980  2989  2993  3002  3006  3016  3020  3032  3041  3045  3053
                    3057  3400  3429  3433  3437  3441  3460  3498  3510  3513  3515  3525  3528
                    3543  3545  3561  3589  3602  3605  3608  3615  3625  3666  3676  3693  3700
                    3706  3741  3751  3768  3775  3781  3816  3826  3843  3850  3856  3891  3901
                    3918  3925  3931  3966  3976  3993  4000  4006  4041  4051  4068  4075  4081
                    4100  4107  4112  4121  4128  4146  4153  4157  4166  4172  4239  4243  4250
                    4256  4260  4264  4273  4282  4285  4317  4325  4340  4360  4364  4380  4398
                    4402  4425  4434  4441  4447  4465  4471  4476  4483  4497  4499  4517  4525
                    4530  4542  4546  4551  4556  4563  4564  4573  4574  4583  4591  4609  4620
                    4640  4648  4664  4674  4690  4695  4704  4709  4718  4739  4749  4757  4766
                    4770  4777  4783  4805  4822  4826  4834  4844  4852  4870  4903  4913  4924
                    4930  4959  4972  4989  5001  5016  5029  5048  5062  5077  5091  5101  5112
                    5122  5139  5156  5172  5187  5199  5206  5221  5235  5248  5257  5263  5279
                    5295  5310  5323  5329  5342  5353  5364  5375  5387  5399  5401  5411  5423
                    5437  5446  5459  5470  5479  5489  5491  5499  5510  5520  5531  5533  5550
                    5560  5568  5576  5581  5592  5605  5611  5616  5621  5627  5633  5644  5658
                    5672  5685  5696  5709  5722  5735  5745  5758  5769  5780  5794  5807  5817
                    5824  5845  5855  5863  5874  5892  5903  5913  5920  5939  5953  5963  5973
                    5983  5993  6003  6013  6019  6036  6050  6060  6070  6080  6090  6100  6110
                    6116  6135  6149  6163  6176  6190  6203  6216  6230  6243  6256  6269  6282
                    6309  6317  6320  6336  6346  6357  6363  6377  6389  6399  6410  6416  6436
                    6447  6457  6467  6478  6485  6502  6513  6525  6531  6564  6573  6580  6613
                    6622  6629  6654  6664  6671  6688  6699  6719  6732  6745  6758  6771  6783
                    6787  6794  6835  6869  6895  6900  6929  6956  6961  6992  7019  7024  7056
```

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                    7064  7088  7096  7112  7122  7132  7144  7153  7161  7169  7174  7183  7188
                    7202  7223  7237  7262  7267  7287  7292  7303  7309  7321  7326  7333
T$TSTS= 000001      1102#  3585#  3642#  3717#  3792#  3867#  3942#  4017#  4093#  4139#  4227#  4306#  4606#
                    4660#  4730#  4800#  4865#  4946#  5042#  5153#  5219#  5276#  5340#  5547#  5654#  5840#
                    5888#  5935#  6032#  6131#  6299#  6332#  6375#  6432#  6498#  6550#  6597#  6644#  6685#
                    6857#  6917#  6979#  7041#  7078#  7108#
T$$AU = 010031      3559#  3560
T$$AUT= 010026      3500#  3514
T$$CLE= 010027      3524#  3527
T$$DU = 010030      3541#  3544
T$$HAR= 010116      7354#  7392
T$$HW = 010001      1289#  1312
T$$INI= 010025      3413#  3497
T$$MSG= 010023      2807#  2814  2820#  2828  2831#  2840  2843#  2852  2857#  2864  2869#  2876  2883#
                    2894  2899#  2909  2914#  2922  2925#  2940  2943#  2961  2968#  2979  2982#  2992
                    2995#  3005  3010#  3019  3026#  3044  3049#  3056
T$$PRO= 010000      1220#
T$$RPT= 010024      3392#  3395  3399
T$$SOF= 010117      7480#  7484
T$$SRV= 010051      3612#  3627  4554#  4558  4561#  4568  4571#  4578  4581#  4585
T$$SUB= 010067      5342#  5353  5364  5375  5387  5398  5401#  5411  5423  5437  5459  5470  5479
                    5488  5491#  5499  5510  5520  5530
T$$SW = 010002      1325#  1330
T$$TES= 010115      3585#  3607  3642#  3705  3717#  3780  3792#  3855  3867#  3930  3942#  4005  4017#
                    4080  4093#  4100  4112  4127  4139#  4146  4157  4171  4227#  4243  4256  4264
                    4273  4282  4284  4306#  4317  4325  4340  4364  4380  4402  4447  4483  4517
                    4530  4546  4551  4590  4606#  4609  4620  4647  4660#  4664  4674  4695  4709
                    4717  4730#  4739  4749  4757  4770  4782  4800#  4805  4826  4834  4844  4851
                    4865#  4870  4903  4913  4929  4946#  4959  4972  4989  5001  5016  5028  5042#
                    5048  5062  5077  5091  5101  5112  5122  5138  5153#  5156  5172  5187  5199
                    5205  5219#  5221  5235  5248  5257  5262  5276#  5279  5295  5310  5328  5340#
                    5446  5532  5547#  5550  5560  5568  5576  5581  5592  5605  5611  5616  5621
                    5627  5633  5643  5654#  5658  5672  5685  5696  5722  5735  5745  5758  5769
                    5780  5794  5807  5817  5823  5840#  5845  5855  5863  5873  5888#  5892  5903
                    5913  5919  5935#  5939  5953  5963  5973  5983  5993  6003  6018  6032#  6036
                    6050  6060  6070  6080  6090  6100  6115  6131#  6135  6149  6163  6176  6190
                    6203  6216  6230  6243  6256  6269  6281  6299#  6309  6317  6319  6332#  6336
                    6346  6357  6362  6373#  6377  6389  6399  6410  6415  6432#  6436  6447  6457
                    6467  6478  6484  6498#  6502  6513  6525  6530  6550#  6564  6573  6579  6597#
                    6613  6622  6628  6644#  6654  6664  6670  6685#  6688  6699  6719  6732  6745
                    6758  6771  6787  6794  6834  6857#  6895  6899  6917#  6956  6960  6979#  7019
                    7023  7041#  7056  7063  7078#  7088  7095  7108#  7112  7122  7132  7144  7153
                    7161  7169  7174  7183  7188  7202  7223  7237  7262  7267  7287  7292  7303
                    7309  7321  7326  7332
T1      014546 G    1232  3584#
T10     017662 G    1241  4226#
T11     020046 G    1242  4305#
T12     021200 G    1243  4605#
T13     021312 G    1244  4659#
T14     021522 G    1245  4729#
T14A    021730      4764  4772#
T14EX   021764      4762  4775  4781#
T15     021766 G    1246  4799#
T16     022176 G    1247  4864#
T17     022454 G    1248  4945#
T18     022706 G    1249  5041#
```

```
T19      023172 G          1250    5152#
T2       014726 G          1233    3641#
T20      023300 G          1251    5218#
T21      023406 G          1252    5275#
T22      023522 G          1253    5339#
T22.1    023522            5341#
T22.2    023664            5400#
T22.3    024142            5490#
T23      024250 G          1254    5546#
T24      024676 G          1255    5653#
T25      025324 G          1256    5839#
T26      025440 G          1257    5887#
T27      025524 G          1258    5934#
T28      025752 G          1259    6031#
T29      026200 G          1260    6130#
T3       015260 G          1234    3716#
T30      026526 G          1261    6298#
T31      026622 G          1262    6331#
T32      026742 G          1263    6374#
T33      027110 G          1264    6431#
T34      027276 G          1265    6497#
T35      027414 G          1266    6549#
T36      027536 G          1267    6596#
T36END   027676            6598    6627#
T37      027700 G          1268    6643#
T38      027774 G          1269    6684#
T39      030422 G          1270    6856#
T4       015612 G          1235    3791#
T40      030664 G          1271    6916#
T41      031126 G          1272    6978#
T42      031370 G          1273    7040#
T422C    006224            2557    2568#
T43      031506 G          1274    7077#
T44      031604 G          1275    7107#
T5       016144 G          1236    3866#
T6       016476 G          1237    3941#
T7       017030 G          1238    4016#
T8       017362 G          1239    4092#
T9       017522 G          1240    4138#
T98G     020062            4311#   4413
UAM   =  000200 G          1406#
VECTOR   033035            7366    7407#
V35TC    006174            2500    2542    2556#
WAIT50   004244            1638    1681    2095#   2198    2237    2518    3504    4231    4632    4633    4634    4635    4684
                           4685    4810    4812    4867    4890    4893    4894    4921    5317    5318    5636    5637    6009
                           6106    6696
WFPE     003016            1719#   4841    4900    4998    5025    5196    5254    5443    5742    5814    5860    5910    5970
                           5990    6067    6087    6354    6407    6475    6522
WORDT    002372            1474#   2169*   2424*   2437*   2438    2984    2996    3650*   3653*   3662    3673*   3674    3683
                           3697*   3698    3725*   3728*   3737    3748*   3749    3758    3772*   3773    3800*   3803*   3812
                           3823*   3824    3833    3847*   3848    3875*   3878*   3887    3898*   3899    3908    3922*   3923
                           3950*   3953*   3962    3973*   3974    3983    3997*   3998    4025*   4028*   4037    4048*   4049
                           4058    4072*   4073
WRDI     002732            1675#   2662    2683    4322    4617    4671    4746    4831    4910    5589    5852    6343    6396
                           6464    6510    7220
WRDIE    003014            1678    1680    1693#
```

```
WRDI1   002736          1676#  1683   1780
WRDO    002646          1632#  2025   2267   2401   2410   2718   4755
WRDOE   002730          1635   1637   1650#
WRDO1   002652          1633#  1640   1720   1815
WRIBYT  002504          1524#
XX      022500          4948   4950#
XYZTC   006134          2526   2541#
X$ALWA= 000000          1102#
X$FALS= 000040          1102#
X$OFFS= 000400          1102#
X$TRUE= 000020          1102#
$BDDAT  002340          1460#  1724*  1725*  1726   1740*  1741   1818*  1819*  1820   1832*  1833   1859*  1860*
                        1861   1888*  1889   1918*  1921*  1922*  1923   1952*  1953   1957*  1959   1989*  1990*
                        1991   2028*  2029*  2030   2032   2035*  2036   2064*  2066   2760*  2762   2832   2844
                        2886   2900   2931   2971   3034   4354*  4355   4392*  4393*  4510   4538   4698*  4699*
                        4701   4759*  4760*  4761   4763   4773*  4774   4819*  4820   5703*  5705   6777*  6778*
                        6780
$GDDAT  002336          1459#  1729*  1743*  1820   1831*  1833   1861   1889   1923   1953   1958*  1959   1991
                        2034*  2036   2063*  2066   2250*  2253*  2254   2639*  2643*  2728*  2732*  2736*  2742*
                        2746*  2750*  2761*  2762   2783*  2787*  2791*  2833   2845   2887   2901   2932   2972
                        3035   4351*  4355   4389*  4508*  4538   4700*  4701   4713*  4818*  4820   5096*  5107*
                        5108*  5118*  5370*  5382*  5383*  5465*  5475*  5516*  5526*  5570*  5578*  5607*  5613*
                        5618*  5624*  5629*  5691*  5704*  5705   5764*  5775*  6182*  6196*  6209*  6249*  6262*
                        6275*  6751*  6764*  6776*  6779*  6780   7166*  7171*  7185*  7204*  7209*  7239*  7264*
                        7275*  7284*  7289*  7300*  7305*  7323*  7328*
$LSTIN= 000001          1112#
$LSTTA= 000001          1113#
$TMPO   002542          1548#  2915   2933   2949   6860*  6920*  6982*
.       = 037740        1101#  1578#  1587#  2383#  3396   4101   4113   4147   4158   4244   4257   4265   4274
                        4283   4318   4326   4341   4365   4381   4403   4448   4484   4518   4531   4547   4552
                        4610   4621   4665   4675   4696   4710   4740   4750   4758   4771   4806   4827   4835
                        4845   4871   4904   4914   4960   4973   4990   5002   5017   5049   5063   5078   5092
                        5102   5113   5123   5157   5173   5188   5200   5222   5236   5249   5258   5280   5296
                        5311   5354   5365   5376   5388   5412   5424   5438   5447   5460   5471   5480   5500
                        5511   5521   5551   5561   5569   5577   5582   5593   5606   5612   5617   5622   5628
                        5634   5659   5673   5686   5697   5723   5736   5746   5759   5770   5781   5795   5808
                        5818   5846   5856   5864   5893   5904   5914   5940   5954   5964   5974   5984   5994
                        6004   6037   6051   6061   6071   6081   6091   6101   6136   6150   6164   6177   6191
                        6204   6217   6231   6244   6257   6270   6310   6318   6337   6347   6358   6378   6390
                        6400   6411   6437   6448   6458   6468   6479   6503   6514   6526   6565   6574   6614
                        6623   6655   6665   6689   6700   6720   6733   6746   6759   6772   6788   6795   6896
                        6957   7020   7057   7089   7113   7123   7133   7145   7154   7162   7170   7175   7184
                        7189   7203   7224   7238   7263   7268   7288   7293   7304   7310   7322   7327   7464#
                        7535#  7547#
```

M15


```
BADHEA  1103#  3570  3583  3632  3639  3707  3714  3782  3789  3857  3864  3932  3939  4007  4014
        4082   4091  4129  4137  4174  4225  4288  4302  4594  4604  4650  4658  4719  4728  4786
        4798   4854  4863  4932  4943  5031  5040  5141  5150  5208  5217  5265  5273  5330  5338
        5536   5545  5646  5652  5828  5838  5877  5886  5923  5933  6021  6030  6118  6129  6286
        6296   6322  6330  6365  6373  6421  6430  6487  6496  6536  6548  6584  6595  6631  6642
        6673   6683  6841  6855  6901  6915  6963  6977  7026  7039  7066  7076  7097  7106
BCOMPL    1#   1102#  3430  3434  3438  3442  3462
BERROR    1#   1102#
BGNAU     1#   1102#  3559
BGNAUT    1#   1102#  3500
BGNCLN    1#   1102#  3524
BGNDU     1#   1102#  3541
BGNHRD    1#   1102#  7354
BGNHW     1#   1102#  1289
BGNINI    1#   1102#  3413
BGNMOD    1#   1102#  1110
BGNMSG    1#   1102#  2807  2820  2831  2843  2857  2869  2883  2899  2914  2925  2943  2968  2982
       2995    3010   3026  3049
BGNPRO    1#   1102#  1220
BGNPTA    1#   1102#
BGNRPT    1#   1102#  3392
BGNSEG    1#   1102#
BGNSET    1#   1102#
BGNSFT    1#   1102#  7480
BGNSRV    1#   1102#  3612  4554  4561  4571  4581
BGNSUB    1#   1102#  5341  5400  5490
BGNSW     1#   1102#  1325
BGNTST    1#   1102#  3584  3641  3716  3791  3866  3941  4016  4092  4138  4226  4305  4605  4659
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       6130    6298   6331  6374  6431  6497  6549  6596  6643  6684  6856  6916  6978  7040  7077
       7107
BNCOMP    1#   1102#
BNERRO    1#   1102#
BREAK     1#   1102#  2308
BRESET    1#   1102#  3512  3525  3543
CKLOOP    1#   1102#
CLOCK     1#   1102#
CLOSE     1#   1102#
CLRVEC    1#   1102#  3603  4496  4498
COMMEN    1#   1102#
CROMT  3631#   3632   3707  3782  3857  3932  4007
DELAY     1#   1102#
DESCRI    1#   1102#  1580
DEVTYP    1#   1102#  1574
DISPAT    1#   1102#  1230
DISPLA    1#   1102#
DOCLN     1#   1102#  3602
DODU      1#   1102#  3509
DORPT     1#   1102#
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ENDAU     1#   1102#  3560
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ENDHW       1#  1102#  1312
ENDINI      1#  1102#  3497
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         3005   3019   3044  3056
ENDPRO      1#  1102#  1224
ENDPTA      1#  1102#
ENDRPT      1#  1102#  3399
ENDSEG      1#  1102#
ENDSET      1#  1102#
ENDSFT      1#  1102#  7483
ENDSRV      1#  1102#  3627  4558  4568  4578  4585
ENDSUB      1#  1102#  5398  5488  5530
ENDSW       1#  1102#  1330
ENDTST      1#  1102#  3607  3705  3780  3855  3930  4005  4080  4126  4170  4284  4590  4647  4717
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         7332
EQUALS      1#  1102#  1347
ERRDF       1#  1102#  1644  1687  1734  1748  1824  1836  1865  1895  1928  1963  1995  2039  2052
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         4398   4525   4542  4564  4574  4640  4690  4704  4766  4777  4822  4924  5323  5709  6013
         6110   6783
ERRHRD      1#  1102#
ERROR       1#  1102#
ERRSF       1#  1102#
ERRSOF      1#  1102#  2256
ERRTBL      1#  1102#
ESCAPE      1#  1102#  4100  4112  4146  4157  4243  4256  4264  4273  4281  4317  4325  4340  4364
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FEQUAL      1#  1102#
GETBYT      1#  1102#
GETPRI      1#  1102#
GETWOR      1#  1102#
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GPRMD       1#  11020  7356  7369  7374  7379  7384
GPRML       1#  11020
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INLOOP      1#  11020
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LASTAD      1#  11020  7549
MANUAL      1#  11020
MEMORY      1#  11020
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CROSS REFERENCE TABLE -- MACRO NAMES

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                6014  6015  6016  6110#  6111  6112  6113  6688#  6783#  6784  6785  6786  6794#  7356#  7361#
                7365#  7369#  7374#  7379#  7384#  7550  7551
M$XFER             1#  1102#
NEWTST          1103#  3570  3632  3707  3782  3857  3932  4007  4082  4129  4174  4288  4594  4650  4719
                4786  4854  4932  5031  5141  5208  5265  5330  5536  5646  5828  5877  5923  6021  6118
                6286  6322  6365  6421  6487  6536  6584  6631  6673  6841  6901  6963  7026  7066  7097
OPEN               1#  1102#
POINTE             1#  1102#  1132
PRINTB             1#  1102#  2808  2821  2832  2844  2858  2870  2884  2900  2915  2926  2931  2944  2949
                2955  2969  2983  2996  3011  3027  3034  3050
PRINTF             1#  1102#  2580  2591  2596  3687  3762  3837  3912  3987  4062  4115  4160
PRINTS             1#  1102#
PRINTX             1#  1102#  2330  2338  2349  2355  3620
READBU             1#  1102#
READEF             1#  1102#  3428  3432  3436  3440
RFLAGS             1#  1102#
SETPRI             1#  1102#  4440  4475  4555  4562  4572  4582  6868  6928  6991
SETVEC             1#  1102#  3585  4421  4430  4461  4467
SLASH              1#  1102#
STARS              1#  1102#
SVC                1#  1102#
TOR             1605#  4270  4338  4378  4445  4481  4515  4737
WFE             1697#  4841  4900  4998  5196  5254  5443  5742  5814  5860  5910  5970  5990  6067  6087
                6354  6407  6475  6522
WFR             1695#  4322  4617  4671  4746  4831  4910  5589  5852  6343  6396  6464  6510  7220
WFRO            1696#
XFER               1#  1102#  3395#  4551#  4826#  6688#  6794#
XFERF              1#  1102#
XFERT              1#  1102#
```

```
ZZ      3570#   3572    3632#   3634    3707#   3709    3782#   3784    3857#   3859    3932#   3934    4007#   4009    4082#
        4084    4129#   4131    4174#   4176    4288#   4290    4594#   4596    4650#   4652    4719#   4721    4786#   4788
        4854#   4856    4932#   4934    5031#   5033    5141#   5143    5208#   5210    5264#   5267    5330#   5332    5536#
        5538    5646#   5648    5828#   5830    5877#   5879    5923#   5925    6021#   6023    6118#   6120    6285#   6288
        6322#   6324    6365#   6367    6421#   6423    6487#   6489    6535#   6538    6583#   6586    6631#   6633    6673#
        6675    6841#   6843    6901#   6903    6963#   6965    7026#   7028    7066#   7068    7097#   7099

. ABS.  037740     000

 ERRORS DETECTED:  0
 CZDMTF,CZDMTF/SOL/CRF=SVC34R.MLB,CZDMTF.P11
 RUN-TIME: 33 41 5 SECONDS
 RUN-TIME RATIO: 108/80=1.3
 CORE USED:  21K  (41 PAGES)
```