

DMP-11
DMV-11

DMP/V-11 FCTNL TST #1 AH-E238C-MC
CZDMTCO FICHE 1 OF 2

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IDENTIFICATION

PRODUCT CODE: AC-E237C-MC
PRODUCT NAME: CZDMTCO DMP/V-11 FUNCTIONAL TEST #1
PRODUCT DATE: AUGUST 1981
MAINTAINER: DIAGNOSTICS MERRIMACK CC: 38P

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HISTORY

REV	DATE	REASON
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A	18-AUG-80	INITIAL RELEASE DMP ONLY
B	14-JAN-81	DMP11 BUGS FIXED
C	1-APR-81	DMV11 SUPPORT ADDED

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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.

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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.

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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.

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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-C-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.

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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.

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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.

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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>)

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<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(CCEED)/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>)

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<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>
*****
```

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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.

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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.

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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.

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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).

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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 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)

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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

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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;ISTRIB;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 TP'B'.

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 ISTRIB 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 REQUEST 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 BS'- 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:

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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 BOUNDARY TO A REC BUFFER STARTING ON AN
EVEN BYTE BOUNDARY. 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

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ON AN EVEN BYTE BOUNDARY TO A REC BUFFER STARTING ON AN EVEN BOUNDARY. 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 LOOPBACK 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 CORRECTNESS. 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 BOUNDARY TO A RECEIVE BUFFER STARTING ON AN ODD BYTE BOUNDARY IN DDCMP MODE,POINT TO POINT. IF THERE IS EXTERNAL LOOPBACK 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:

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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, ISTRY 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.

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```
1092      ;
1093      002000      .=2000
1094
1095
1096
1097      000200      DRUN== 200
1098
1099
1100
1101
1102
1103
1104      000001      $LSTIN= 1
1105      000001      $LSTTAG= 1
1106      000000      SVCINS= 0      ; LIST INSTRUCTIONS, SHIFTED RIGHT
1107      000000      SVCTST= 0      ; LIST TEST TAGS, SHIFTED RIGHT
1108      000000      SVCSUB= 0      ; LIST SUBTEST TAGS, SHIFTED RIGHT
1109      000000      SVCGBL= 0      ; LIST GLOBAL TAGS, SHIFTED RIGHT
1110      000000      SVCTAG= 0      ; LIST OTHER TAGS, SHIFTED RIGHT
1111
1112      ;      CHANCE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
1113      ;      TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
1114      ;      SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
1115      ;      CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
1116
1117
```

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PROGRAM HEADER

```

1118
1119
1120
1121
1122
1123
1124
1125
1126 002000
1127 002000 103
1128 002001 132
1129 002002 104
1130 002003 115
1131 002004 124
1132 002005 000
1133 002006 000
1134 002007 000
1135 002010
1136 002010 103
1137 002011
1138 002011 060
1139 002012
1140 002012 000000
1141 002014
1142 002014 003410
1143 002016
1144 002016 032534
1145 002020
1146 002020 000000
1147 002022
1148 002022 002264
1149 002024
1150 002024 000000
1151 002026
1152 002026 037660
1153 002030
1154 002030 000000
1155 002032
1156 002032 000000
1157 002034
1158 002034 000000
1159 002036
1160 002036 000000
1161 002040
1162 002040 002132
1163 002042
1164 002042 000340
1165 002044
1166 002044 000000
1167 002046
1168 002046 000000
1169 002050
1170 002050 003
1171 002051 003
1172 002052
1173 002052 000000

```

```

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

L$NAME::          ;DIAGNOSTIC NAME
                  .ASCII /C/
                  .ASCII /Z/
                  .ASCII /D/
                  .ASCII /M/
                  .ASCII /T/
                  .BYTE 0
                  .BYTE 0
                  .BYTE 0

L$REV::           ;REVISION LEVEL
                  .ASCII /C/

L$DEPO::          ;0
                  .ASCII /O/

L$UNIT::          ;NUMBER OF UNITS
                  .WORD 0

L$TIML::          ;LONGEST TEST TIME
                  .WORD 1800.

L$HPCP::          ;POINTER TO H.W. QUES.
                  .WORD L$HARD

L$SPCP::          ;POINTER TO S.W. QUES.
                  .WORD 0

L$HPTP::          ;PTR. TO DEF. H.W. PTABLE
                  .WORD L$HW

L$SPTP::          ;PTR. TO S.W. PTABLE
                  .WORD 0

L$LADP::          ;DIAG. END ADDRESS
                  .WORD L$LAST

L$STA::           ;RESERVED FOR APT STATS
                  .WORD 0

L$CO::            ;DIAGNOSTIC TYPE
                  .WORD 0

L$DTYP::          ;APT EXPANSION
                  .WORD 0

L$APT::           ;PTR. TO DISPATCH TABLE
                  .WORD L$DISPATCH

L$DTP::           ;DIAGNOSTIC RUN PRIORITY
                  .WORD #PRI07

L$PRIO::          ;FLAGS DESCRIBE HOW IT WAS SETUP
                  .WORD 0

L$ENVI::          ;EXPANSION WORD
                  .WORD 0

L$EXP1::          ;SVC REV AND EDIT #
                  .BYTE C$REVISION
                  .BYTE C$EDIT

L$MREV::          ;DIAG. EVENT FLAGS
                  .WORD 0

```

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PROGRAM HEADER

1174	002054	000000	L\$SPC::	.WORD	0	
1175	002056		L\$DEVP::	.WORD	0	
1176	002056	000000	L\$REPP::	.WORD	L\$DVTYP	; POINTER TO DEVICE TYPE LIST
1177	002060		L\$EXP4::	.WORD	0	;PTR. TO REPORT CODE
1178	002060	002564	L\$EXP5::	.WORD	0	
1179	002062	000000	L\$AUT::	.WORD	L\$AU	;PTR. TO ADD UNIT CODE
1180	002062	000000	L\$DUT::	.WORD	L\$DU	;PTR. TO DROP UNIT CODE
1181	002064	000000	L\$SLUN::	.WORD	0	;LUN FOR EXERCISERS TO FILL
1182	002064	000000	L\$DESP::	.WORD	L\$DESC	;POINTER TO DIAG. DESCRIPTION
1183	002066	000000	L\$LOAD::	EMT	E\$LOAD	;GENERATE SPECIAL AUTOLOAD EMT
1184	002066	000000	L\$ETP::	.WORD	0	;POINTER TO ERR_TBL
1185	002070	014502	L\$ICP::	.WORD	L\$INIT	;PTR. TO INIT CODE
1186	002070	014502	L\$CCP::	.WORD	L\$CLEAN	;PTR. TO CLEAN-UP CODE
1187	002072	014476	L\$ACP::	.WORD	L\$AUTO	;PTR. TO AUTO CODE
1188	002072	014476	L\$PRT::	.WORD	L\$PROT	;PTR. TO PROTECT TABLE
1189	002074	000000	L\$TEST::	.WORD	0	;TEST NUMBER
1190	002074	000000	L\$DLY::	.WORD	0	;DELAY COUNT
1191	002076	002606	L\$HIME::	.WORD	0	;PTR. TO HIGH MEM
1192	002076	002606				
1193	002100	104035				
1194	002100	104035				
1195	002102	000000				
1196	002102	000000				
1197	002104	013774				
1198	002104	013774				
1199	002106	014472				
1200	002106	014472				
1201	002110	014430				
1202	002110	014430				
1203	002112	002122				
1204	002112	002122				
1205	002114	000000				
1206	002114	000000				
1207	002116	000000				
1208	002116	000000				
1209	002120	000000				
1210	002120	000000				
1211						
1212	002122		L\$PROT::	.WORD	-1	
1213	002122	177777		.WORD	-1	
1214	002124	177777		.WORD	-1	
1215	002126	177777				
1216						

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DISPATCH TABLE

.SBTTL DISPATCH TABLE

```

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

```

```

1217
1218
1219
1220
1221
1222
1223
1224 002130 000054
1225 002132
1226 002132 014504
1227 002134 014664
1228 002136 015216
1229 002140 015550
1230 002142 016102
1231 002144 016434
1232 002146 016766
1233 002150 017320
1234 002152 017460
1235 002154 017620
1236 002156 020004
1237 002160 021136
1238 002162 021250
1239 002164 021460
1240 002166 021724
1241 002170 022134
1242 002172 022366
1243 002174 022620
1244 002176 023104
1245 002200 023212
1246 002202 023320
1247 002204 023434
1248 002206 024162
1249 002210 024610
1250 002212 025236
1251 002214 025352
1252 002216 025436
1253 002220 025664
1254 002222 026112
1255 002224 026440
1256 002226 026534
1257 002230 026654
1258 002232 027022
1259 002234 027210
1260 002236 027326
1261 002240 027450
1262 002242 027612
1263 002244 027706
1264 002246 030334
1265 002250 030576
1266 002252 031040
1267 002254 031302
1268 002256 031420
1269 002260 031516
1270
1271
1272

```

```

        .WORD 44
L$DISPATCH::
        .WORD T1
        .WORD T2
        .WORD T3
        .WORD T4
        .WORD T5
        .WORD T6
        .WORD T7
        .WORD T8
        .WORD T9
        .WORD T10
        .WORD T11
        .WORD T12
        .WORD T13
        .WORD T14
        .WORD T15
        .WORD T16
        .WORD T17
        .WORD T18
        .WORD T19
        .WORD T20
        .WORD T21
        .WORD T22
        .WORD T23
        .WORD T24
        .WORD T25
        .WORD T26
        .WORD T27
        .WORD T28
        .WORD T29
        .WORD T30
        .WORD T31
        .WORD T32
        .WORD T33
        .WORD T34
        .WORD T35
        .WORD T36
        .WORD T37
        .WORD T38
        .WORD T39
        .WORD T40
        .WORD T41
        .WORD T42
        .WORD T43
        .WORD T44

```

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DISPATCH TABLE

1273
1274
1275

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DEFAULT HARDWARE P-TABLE

.SBTTL DEFAULT HARDWARE P-TABLE

```

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

```

```

        .WORD    L10001-L$HW/2
L$HW::
DFPTBL::

```

```

        .WORD    0                ;HARDWARE TYPE
        .WORD    160170           ;M8200,4,7 CSR UNIBUS ADDRESS
        .WORD    300              ;M8200,4,7 INTERRUPT VECTOR
        .WORD    5000             ;M8200,4,7 INTERRUPT PRIORITY LEVEL = 5
        .WORD    3                ;LINE UNIT = M8203
        .WORD    056              ;SWITCH PACK #1 (REG 11)
        .WORD    000              ;SWITCH PACK #2 (REG 15)
        .WORD    000              ;SWITCH PACK #3 (REG 16)
        .WORD    4                ;H3251&H3252 USED
                                   ;0= LOOPBACK CABLE,2= TEST CONNECTOR
                                   ;4= NONE
        .WORD    4                ;CONTAINS BAUD RATE 4=56K BAUD DEFAULT
                                   ;0=2.4K , 1=4.8K , 2=9.6K , 3=19.2K , 4=56K
                                   ;5=250K , 6=500K , 7=1 MEG BAUD
        .WORD    0                ;DUMMY WORD FOR RUN
        .WORD    2                ;1=INTEGRAL ;2=EIA;3=V.35;4=422

```

L10001:

```

1276
1277
1278
1279
1280
1281
1282
1283
1284 002262 000014
1285 002264
1286 002264
1287
1288 002264 000000
1289 002266 160170
1290 002270 000300
1291 002272 005000
1292 002274 000003
1293 002276 000056
1294 002300 000000
1295 002302 000000
1296 002304 000004
1297
1298
1299 002306 000004
1300
1301
1302 002310 000000
1303 002312 000002
1304
1305 002314
1306
1307
1308
1309
1310

```

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SOFTWARE P-TABLE

.SBTTL SOFTWARE P-TABLE

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

.WORD L10002-L\$SW/2

L\$SW::
SFPTBL::

L10002:

```
1311  
1312  
1313  
1314  
1315  
1316  
1317  
1318 002314 000000  
1319 002316  
1320 002316  
1321  
1322  
1323 002316  
1324  
1325  
1326  
1327  
1328  
1329
```

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SOFTWARE P-TABLE

1330
1331
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1367
1368
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1370
1371
1372
1373
1374
1375
1376
1377
1378
1379
1380
1381
1382
1383
1384
1385

100000
040000
020000
010000
004000
002000
001000
000400
000200
000100
000040
000020
000010
000004
000002
000001

001000
000400
000200
000100
000040
000020
000010
000004
000002
000001

000040
000037
000036
000035
000034

000340
000300
000240

.SBTTL GLOBAL EQUATES SECTION

```

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

```

: BIT DEFINITIONS

```

:
BIT15== 100000
BIT14== 40000
BIT13== 20000
BIT12== 10000
BIT11== 4000
BIT10== 2000
BIT09== 1000
BIT08== 400
BIT07== 200
BIT06== 100
BIT05== 40
BIT04== 20
BIT03== 10
BIT02== 4
BIT01== 2
BIT00== 1
:
BIT9==  BIT09
BIT8==  BIT08
BIT7==  BIT07
BIT6==  BIT06
BIT5==  BIT05
BIT4==  BIT04
BIT3==  BIT03
BIT2==  BIT02
BIT1==  BIT01
BIT0==  BIT00
:

```

: EVENT FLAG DEFINITIONS

```

: EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
:

```

```

EF.START== 32.      : START COMMAND WAS ISSUED
EF.RESTART== 31.    : RESTART COMMAND WAS ISSUED
EF.CONTINUE== 30.   : CONTINUE COMMAND WAS ISSUED
EF.NEW== 29.        : A NEW PASS HAS BEEN STARTED
EF.PWR== 28.        : A POWER-FAIL/POWER-UP OCCURRED
:

```

: PRIORITY LEVEL DEFINITIONS

```

:
PRI07== 340
PRI06== 300
PRI05== 240

```

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GLOBAL EQUATES SECTION

1386 000200
 1387 000140
 1388 000100
 1389 000040
 1390 000000
 1391
 1392
 1393
 1394 000004
 1395 000010
 1396 000020
 1397 000040
 1398 000100
 1399 000200
 1400 000400
 1401 001000
 1402 002000
 1403 004000
 1404 010000
 1405 020000
 1406 040000
 1407 100000
 1408
 1409
 1410
 1411
 1412
 1413
 1414
 1415
 1416
 1417 000200
 1418 000100
 1419 000020
 1420 000010
 1421 000004
 1422 000002
 1423 000001
 1424
 1425
 1426
 1427
 1428 000010
 1429 000200
 1430 000020
 1431 000200
 1432
 1433

PRI04== 200
 PRI03== 140
 PRI02== 100
 PRI01== 40
 PRI00== 0
 ;
 ; OPERATOR FLAG BITS
 ;
 EVL== 4
 LOT== 10
 ADR== 20
 IDU== 40
 ISR== 100
 UAM== 200
 BOE== 400
 PNT== 1000
 PRI== 2000
 IXE== 4000
 IBE== 10000
 IER== 20000
 LOE== 40000
 HOE== 100000

;*****
 ; * PROGRAM EVENT FLAG DEFINITIONS
 ;*****

;*****
 ; * MAINTENANCE REGISTER - BSEL1
 ;*****

RUN = BIT7
 MCLR = BIT6
 STEPLU = BIT4
 LULOOB = BIT3
 ROMO = BIT2
 ROMI = BIT1
 STEPMP = BIT0

;*****
 ; OTHER BIT DEFINITIONS
 ;*****

Q22BIT =BIT3
 RQI =200
 RDI =020
 RDO =200

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GLOBAL DATA SECTION

.SBTTL GLOBAL DATA SECTION

```

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

```

```

*****
; * MISCELLANEOUS STORAGE
;*****

```

```

SAVE4:  .WORD 0 ;SAVE LOC 4 HERE (ERROR TRAP VECTOR)

```

```

SAVE6:  .WORD 0

```

```

PSTACK: .WORD 0

```

```

SUBRPC: .WORD 0

```

```

ERROR1: .WORD 0

```

```

FRSTIM: .WORD 0

```

```

LOGDEV: .WORD 0

```

```

IFLAG:  .WORD 0

```

```

$GDDAT: .WORD 0

```

;GOOD AND BAD DATA STORAGE

```

$BDDAT: .WORD 0

```

```

COUNT: .WORD 0

```

```

REG:     .WORD 0

```

;INDICATES PASSES

```

STARES: .WORD 0

```

```

DEVMAP: .WORD 0

```

```

DEVPTR: .WORD 0

```

```

FRSPAS: .WORD 0

```

```

MODINT: .WORD 0

```

;MODEM INTERFACE SELECTION

```

TRIBN:  .WORD 0

```

;POINTS TO CURRENT TRIP NUMBER.

```

TRIBMX: .WORD 32.

```

;MAXIMUM NUMBER OF TRIBS

```

TRIBH:  .WORD 0

```

;VALUE OF HIGHEST TRIB USED

```

ROMN:   .WORD 0

```

;CURRENT ROM AND USED FOR TEST #

```

ROMN1:  .WORD 0

```

;CURRENT ROM NUMBER

```

WORDT:  .WORD 0

```

;CURRENT ROM CONTENTS.

```

CWORD:  .WORD -1

```

;CURRENT CRC CAL.

```

MODQ22: .WORD 0

```

;DMV Q22 FORMAT FLAG (Q22 MODE)

```

EXLOOP: .WORD 0

```

;DMV EXTERNAL LOOP FLAG

```

ERRWRD: .WORD 0

```

;ERROR OCCURRED.

```

CADDR:  .WORD 0

```

;CURRENT ROM ADDR.

```

ERRADD: .WORD 0

```

;PC OF ERROR

```

PERR:   .WORD 0

```

;PROCEDURE ERROR CHECKED

```

TSSADD: .WORD 0

```

;WORD FOR TSS ADD

```

TYLST:  .WORD 3406

```

```

        .WORD 2403

```

```

TYEND:  .WORD 0

```

;TX BUFF ADDRESS

```

TXADD:  .WORD 0

```

;RX BUFF ADDRESS

```

RXADD:  .WORD 0

```

```

RXCC:   .WORD 0

```

;RX CHAR COUNT

```

TXCC:   .WORD 0

```

;TX CHAR COUNT

```

CODEW:  .WORD 0

```

;LOCATION FOR ERROR CODES

```

GENWRD: .WORD 0

```

;USED FOR MAINT STATE AND EX MEM

```

CRCCAL: .WORD 0

```

;TEMP FOR CRC

```

ROMADD: .WORD 0

```

;ROM ADDRESS

```

;***** CURRENT DEVICE PARAMETERS *****

```

```

BSELO:

```

```

1434
1435
1436
1437
1438
1439
1440
1441
1442
1443
1444 002316 000000
1445 002320 000000
1446 002322 000000
1447 002324 000000
1448 002326 000000
1449 002330 000000
1450 002332 000000
1451 002334 000000
1452 002336 000000
1453 002340 000000
1454 002342 000000
1455 002344 000000
1456 002346 000000
1457 002350 000000
1458 002352 000000
1459 002354 000000
1460 002356 000000
1461 002360 000000
1462 002362 000040
1463 002364 000000
1464
1465 002366 000000
1466 002370 000000
1467 002372 000000
1468 002374 177777
1469 002376 000000
1470 002400 000000
1471 002402 000000
1472 002404 000000
1473 002406 000000
1474 002410 000000
1475 002412 000000
1476 002414 003406
1477 002416 002403
1478 002420
1479 002420 000000
1480 002422 000000
1481 002424 000000
1482 002426 000000
1483 002430 000000
1484 002432 000000
1485 002434 000000
1486 002436 000000
1487
1488
1489 002440

```

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GLOBAL DATA SECTION

1490	002440		SEL0:			
1491	002440	160170	MPCSR:	.WORD	160170	;POINTER TO M8200,4,7 CSR'S
1492	002442	160171	BSEL1:	.WORD	160171	;POINTER TO BSEL1
1493	002444		SEL2:			
1494	002444	160172	BSEL2:	.WORD	160172	
1495	002446	160173	BSEL3:	.WORD	160173	
1496	002450		BSEL4:			
1497	002450	160174	SEL4:	.WORD	160174	;POINTER TO SEL4
1498	002452	160175	BSEL5:	.WORD	160175	
1499	002454		BSEL6:			
1500	002454	160176	SEL6:	.WORD	160176	
1501	002456	160177	BSEL7:	.WORD	160177	
1502	002460		BSEL10:			
1503	002460	160200	SEL10:	.WORD	160200	;POINTER TO SEL10 (REQ'D FOR DMV Q22 MODE)
1504	002462		KMRVEC:			
1505	002462	000300	MPIVEC:	.WORD	300	;M8200,4,7 INPUT INTERRUPT VECTOR
1506	002464		KMTVEC:			
1507	002464	000304	MPOVEC:	.WORD	304	;M8200,4,7 OUTPUT INTERRUPT VECTOR
1508	002466	000000	SPEEDM:	.WORD	0	;SPEED OF LINE UNIT
1509	002470		KMRLVL:			
1510	002470		KMTLVL:			
1511	002470	000240	MPRIOR:	.WORD	240	;M8200,4,7 DEVICE PRIORITY
1512	002472	000000	OPTYP:	.WORD	0	;OPTION TYPE
1513	002474	000000	IFTYP:	.WORD	0	;INTERFACE TYPE
1514	002476	000000	TSTCON:	.WORD	0	;TEST CONNECTOR INDICATOR
1515	002500	000000	RETADR:	.WORD	0	;SUBR ERROR RETURN ADDRESS
1516	002502	000000	REDBYT:	.WORD	0	;LO BYTE CONTAINS BYTE READ FROM LU REG
1517	002504	000000	WRIBYT:	.WORD	0	;LO BYTE CONTAINS BYTE TO LOAD INTO LU REG
1518	002506	000000	AXNUM:	.WORD	0	;NUMBER (0-7) OF EXTENDED REG BYTE BEING TESTED
1519	002510	000000	DISILO:	.WORD	0	;CONTAINS CURRENT STATE OF DISSI IN BITS
1520						
1521			;***** STORAGE FOR DATA READ IN ADDRESS TESTS *****			
1522	002512	000	REDDAT:	.BYTE	0	
1523	002513	000		.BYTE	0	
1524	002514	000		.BYTE	0	
1525	002515	000		.BYTE	0	
1526	002516	000		.BYTE	0	
1527	002517	000		.BYTE	0	
1528	002520	000		.BYTE	0	
1529	002521	000		.BYTE	0	
1530						
1531			;***** GENERAL PURPOSE SCRATCH STORAGE *****			
1532	002522	000000	REG0:	.WORD	0	
1533	002524	000000	REG1:	.WORD	0	
1534	002526	000000	REG2:	.WORD	0	
1535	002530	000000	REG3:	.WORD	0	
1536	002532	000000	REG4:	.WORD	0	
1537	002534	000000	REG5:	.WORD	0	
1538	002536	000000	REG6:	.WORD	0	
1539	002540	000000	REG7:	.WORD	0	
1540						
1541			;***** SCRATCH STORAGE FOR MESSAGE REPORTING *****			
1542	002542	000000	\$TMP0:	.WORD	0	
1543	002544	000000	TMP0:	.WORD	0	
1544	002546	000000	TMP1:	.WORD	0	
1545	002550	000000	TMP2:	.WORD	0	

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GLOBAL DATA SECTION

1546	002552	000000
1547	002554	000000
1548	002556	000000
1549	002560	000000
1550	002562	000000
1551		

TMP3:	.WORD	0
TMP4:	.WORD	0
TMP5:	.WORD	0
TMP6:	.WORD	0
TMP7:	.WORD	0

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GLOBAL DATA SECTION

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.SBTTL GLOBAL TEXT SECTION

```

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

```

```

:*****
:* NAMES OF DEVICES SUPPORTED BY PROGRAM
:*****
L$DVTYP::

```

.ASCIIZ /DMP-11 OR DMV-11/

.EVEN

L\$DESC::

.ASCIIZ /DMP OR DMV-11 FUNCTIONAL DIAG./

.EVEN

```

:
:  FORMAT STATEMENTS USED IN PRINT CALLS
:

```

002564			
002564	046504	026520	030461
002572	047440	020122	046504
002600	026526	030461	000
	002606		
002606			
002606	046504	020120	051117
002614	042040	053115	030455
002622	020061	052506	041516
002630	044524	047117	046101
002636	042040	040511	027107
002644	000		
	002646		

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GLOBAL SUBROUTINES

.SBTTL GLOBAL SUBROUTINES

```

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

```

```

:
:*****
: FUNCTIONAL DESCRIPTION: WRDO.. WAITS FOR READY OUT
: FIRST SAVE THE CALLING ADDRESS
: IN ERRADD. THEN SEE IF TIME OUT OCCURED
: IF TIME OUT EXIT ROUTINE..ELSE SEE IF
: READY OUT SET IF READY OUT SET EXIT
: ROUTINE. IF NOT THEN WAIT A WHILE
: THEN SEE IF READY IN SET. IF READY IN
: IS SET REPORT ERROR AND EXIT ROUTINE.
: IF NOT READY IN THEN GO BACK AND CHECK
: FOR TIME OUT.
: NOTE: CAN BE ENTERED AT WRDO1 IF CALLING
: ADDRESS FROM R5 DOES NOT NEED TO BE SAVED.
:
: INPUTS: R5=ADDRESS FROM WHERE ROUTINE WAS CALLED
:
: OUTPUTS: ERRWRD= -1 IF ERROR OCCURED IN ROUTINE.
:
: SUBORDINATE ROUTINES USED:
: TOUT - TIME OUT ROUTINE
: WAIT50 - SHORT DELAY ROUTINE
:
: CALLING SEQUENCE:
: JSR R5,WRDO
:-----*****

```

```

WRDO: MOV R5,ERRADD ;STORE ERROR ADD. AWAY
WRDO1: JSR R5,TOUT ; GO TO TIME OUT ROUTINE
TST ERRWRD ;CHECK IF ERROR
BMI WRDOE ;EXIT NOW
BIT #RDO,@BSEL2 ;RDO SET?
BNE WRDOE ;EXIT IF RDO IS SET
JSR PC,WAIT50 ;ELSE DELAY A LITTLE
BIT #RDI,@BSEL2 ;THEN SEE IF RDI IS SET
BEQ WRDO1 ;IF NOT THEN GO BACK TO START

```

; ERROR -UNEXPECTED RDI SET

```

TRAP C$ERDF
.WORD 1
.WORD MEF14
.WORD ERR26
DEC ERRWRD
CLRB @BSEL2 ;CLEAR RDO
WRDOE: RTS R5 ;EXIT

```

```

1592
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1619
1620
1621
1622
1623
1624
1625
1626 002646 010537 002406
1627 002652 004537 005070
1628 002656 005737 002402
1629 002662 100422
1630 002664 032777 000200 177552
1631 002672 001016
1632 002674 004737 004244
1633 002700 032777 000020 177536
1634 002706 001761
1635
1636
1637
1638 002710 104455
1639 002712 000001
1640 002714 012021
1641 002716 010266
1642 002720 005337 002402
1643 002724 105077 177514
1644 002730 000205
1645
1646

```

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GLOBAL SUBROUTINES

```

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1667
1668
1669 002732 010537 002406
1670 002736 004537 005070
1671 002742 005737 002402
1672 002746 100422
1673 002750 032777 000020 177466 1$:
1674 002756 001016
1675 002760 004737 004244
1676 002764 032777 000200 177452
1677 002772 001761
1678
1679
1680
1681 002774 104455
1682 002776 000002
1683 003000 012066
1684 003002 010266
1685 003004 005337 002402
1686 003010 105077 177430
1687 003014 000205
1688
1689
1690
1691
1692

```

```

*****
: FUNCTIONAL DESCRIPTION: WRDI - WAIT FOR READY IN
: THIS ROUTINE FIRST SAVES THE CALLING ADDRESS
: IN ERRADD, UNLESS ENTERED AT WRDI1.
: THEN CHECK FOR TIME OUT IF TIME OUT REPORT
: ERROR AND EXIT. IF NOT TIME OUT CHECK FOR
: READY IN. IF READY IN EXIT IF NOT READY IN
: DELAY A LITTLE AND CHECK FOR READY OUT. IF
: READY OUT REPORT ERROR AND EXIT ROUTINE.
: IF NOT READY OUT GO BACK AND CHECK FOR TIME OUT.
:
: INPUTS: R5= CALLING ADDRESS
: OUTPUTS: ERRWRD= -1 IF ERROR OCCURED IN ROUTINE
: SUBORDINATE ROUTINES USED:
: TOUT- TIME OUT
: WAIT50- DELAY A LITTLE
: CALLING SEQUENCE:
: JSR R5,WRDI ;OR
: JSR R5,WRDI1
: *****

```

```

WRDI: MOV R5,ERRADD ;STORE AWAY ERROR ADD.
WRDI1: JSR R5,TOUT ;GO TO TIME OUT
TST ERRWRD ;IF ERROR EXIT
BMI WRDIE
BIT #20,@BSEL2 ;RDI SET?
BNE WRDIE ;YES-EXIT
JSR PC,WAIT50 ;SHORT DELAY
BIT #200,@BSEL2 ;RDYO SET?
BEQ WRDI1 ;NO-LOOP.
;RDO INSTEAD OF RDI
TRAP C$ERDF
WORD 2
WORD MEF15
WORD ERR26
DEC ERRWRD ;SET ERROR OCCURRED
CLRB @BSEL2 ;CLEAR RDYO
WRDIE: RTS R5 ;EXIT.

```

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GLOBAL SUBROUTINES

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003016 010537 002406
003022 004537 002652
003026 005737 002402
003032 100452

003034 117737 177404 002340
003042 042737 177770 002340
003050 122737 000001 002340
003056 001415

003060 012737 000001 002336
003066 012737 012000 002430

003074 104455
003076 000003
003100 011506
003102 010324
003104 005337 002402
003110 000423
003112 117737 177336 002340
003120 123737 002410 002340
003126 001414
003130 013737 002410 002336
003136 012737 011762 002430

003144 104455
003146 000004
003150 011506
003152 010324
003154 005337 002402
003160
003160 000205

```

*****
: FUNCTIONAL DESCRIPTION: WFPE - WAIT FOR PROCEDURE ERROR
: FIRST SAVE CALLING ADDRESS IN ERRADD.
: THEN WAIT FOR READY OUT, IF ERROR FROM
: WRDO ROUTINE EXIT THIS ROUTINE. ELSE
: GET CONTROL KEY FROM BSEL2 IF NOT CONTROL
: OUT REPORT ERROR AND EXIT. ELSE CHECK THAT
: CONTROL OUT CODE IS SAME AS IN PERR. IF
: EQUAL THEN EXIT ELSE REPORT ERROR AND EXIT.
:
: INPUTS:      R5= CALLING ADDRESS
:              PERR = PROCEDURE ERROR EXPECTED.
: OUTPUTS:     ERRWRD= -1 IF ERROR OCCURED IN ROUTINE
: SUBORDINATE ROUTINES USED:
:              WRDO1 - WAIT FOR READY OUT
: CALLING SEQUENCE:
:              JSR      R5,WFPE
:-----*****
WFPE:  MOV      R5,ERRADD      ;STORE OFF ERROR ADDRESS
      JSR      R5,WRDO1      ;WAIT FOR READY OUT
      TST      ERRWRD
      BMI      20$           ;IF ERROR OCCURRED IN SR
                                ; EXIT THIS SR.
      MOVB     @BSEL2,$BDDAT
      BIC      #'C<7>,$BDDAT ; STRIP DATA TO CONTROL KEY
      CMPB     #01,$BDDAT
      BEQ      10$           ; GO TO 10 IF CONTROL OUT
                                ; ELSE REPORT ERROR
      MOV      #01,$GDDAT     ;SET GOOD DATA TO 01
      MOV      #M18F,CODEW    ;SET UP CODE WORD
                                ;ERROR NOT CONTROL OUT
      TRAP     C$ERDF
      .WORD    3
      .WORD    EROIC
      .WORD    ERR27
      DEC      ERRWRD         ;SET ERROR OCCURRED
      BR       20$           ;AND EXIT SUBROUTINE
10$:  MOVB     @BSEL6,$BDDAT   ;MOVE ERROR CODE TO BDDAT
      CMPB     PERR,$BDDAT    ;IS IT WHAT IT SHOULD BE
      BEQ      20$           ; IF SO GO TO 20
      MOV      PERR,$GDDAT    ;PUT EXPECTED IN GOOD DATA
      MOV      #M13F,CODEW    ;SET UP ERROR WORD
                                ;ERROR BAD ERROR CODE RETURNED
      TRAP     C$ERDF
      .WORD    4
      .WORD    EROIC
      .WORD    ERR27
      DEC      ERRWRD         ;SET ERROR INDICATOR
20$:  RTS      R5             ;RETURN TO CALLER

```

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GLOBAL SUBROUTINES

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1783

```

*****
: FUNCTIONAL DESCRIPTION:      CONTIN - CONTROL IN ROUTINE
: THIS ROUTINE SAVES THE CALLING ADDRESS IN R5.
: THEN SETS RQI AND WAITS FOR RDI TO BE RETURNED BY
: THE DMP/V-11. IF WRDI REPORTS ERROR EXIT TEST. ELSE
: LOAD BSEL 3 WITH TRIB NUMBER FROM TRIBN, CLEAR THE RQI
: BIT, MOV DATA FROM R4 TO SEL4, DATA FROM R3 TO SEL6, AND
: THEN ISSURE CONTROL IN AND EXIT ROUTINF.
:
: INPUTS:      R4 = SEL4 DATA
:              R3 = SEL6 DATA
:              TRIBN = TRIBUTARY NUMBER.
:              R5 = CALLING ADDRESS
:
: OUTPUTS:      ERRWRD = -1 IF ERROR REPORTED IN THIS OR ANY SUBODINATE
:              SUB ROUTINE.
: SUBORDINATE ROUTINES USED:
:              WRDI1 - WAIT FOR READY IN.
: CALLING SEQUENCE:
:              JSR      R5,CONTIN
:-----*****

```

003162	010537	002406		CONTIN: MOV	R5,ERRADD	:SET UP ERROR ADDRESS
003166	052777	000200	177244	BIS	#RQI,@BSELO	:SET REQUEST
003174	004537	002736		JSR	R5,WRDI1	:GO WAIT FOR RDI
003200	005737	002402		TST	ERRWRD	
003204	100415			BMI	43\$	:EXIT IF ERROR OCCURRED
003206	113777	002360	177232	MOVB	TRIBN,@BSEL3	:SET TRIBN
003214	042777	000200	177216	BIC	#RQI,@BSELO	:CLEAR REQUEST
003222	010477	177222		MOV	R4,@BSEL4	:SET DATA
003226	010377	177222		MOV	R3,@BSEL6	:SET REQUEST TYPE
003232	112777	000001	177204	MOVB	#01,@BSEL2	:DO CONTROL IN
003240	000205			43\$: RTS	R5	:RETURN TO CALLER

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GLOBAL SUBROUTINES

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003242	010537	002406	
003246	004537	002652	
003252	005737	002402	
003256	100444		
003260	117737	177160	002340
003266	042737	177770	002340
003274	023737	002340	002336
003302	001412		
003304	012737	012007	002430
003312	104455		
003314	000005		
003316	011506		
003320	010324		
003322	005337	002402	
003326	000420		
003330	013737	002360	002336
003336	117737	177104	002340
003344	023737	002340	002336
003352	001406		
003354	104455		
003356	000006		
003360	012242		
003362	007600		
003364	005337	002402	
003370	000205		

```

*****
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:
             WRD01 - WAIT FOR READY OUT

CALLING SEQUENCE:
             JSR    R5,GETOUT
*****

```

```

GETOUT: MOV    R5,ERRADD      ;STORE OFF ERROR ADD.
        JSR    R5,WRD01      ;GO WAIT FOR READY OUT
        TST    ERRWRD
        BMI    20$           ;EXIT IF ERROR OCCURRED
        MOVB   @BSEL2,$BDDAT ;GET COMMAND TYPE TO BDDAT
        BIC    #^C<7>,$BDDAT ;STRIP IT TO JUST COMMAND TYPE
        CMP    $BDDAT,$GDDAT ;IS IT THE RIGHT VALUE??
        BEQ    10$           ;IF YES GO TO 10
                               ;ELSE REPORT ERROR
        MOV    #M28F,CODEW
        TRAP   C$ERDF
        .WORD  5
        .WORD  EROIC
        .WORD  ERR27
        DEC    ERRWRD
        BR     20$           ;AND EXIT ON ERROR

10$:    MOV    TRIBN,$GDDAT   ;SET UP GDDAT FOR GOOD TRIBN
        MOVB   @BSEL3,$BDDAT ;GET TRIB NUMBER RETURNED
        CMP    $BDDAT,$GDDAT ;ARE THEY THE SAME???
        BEQ    20$           ;IF YES GO TO 20
                               ;ELSE REPORT ERROR
        TRAP   C$ERDF
        .WORD  6
        .WORD  MEF18A
        .WORD  ERR18
        DEC    ERRWRD
        BR     20$           ;RETURN TO CALLER

20$:    RTS    R5

```

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GLOBAL SUBROUTINES

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003372 010537 002406
003376 017737 177052 002340
003404 042737 177600 002340
003412 023737 002340 002336
003420 001411
003422 012737 011747 002430
003430 104455
003432 000007
003434 011506
003436 010324
003440 005337 002402
003444 000205

```

:*****
: FUNCTIONAL DESCRIPTION:      GETRKY - GET RETURN KEY VALUE
: THIS ROUTINE GETS THE VALUE OF THE RETURN KEY
: FROM BSEL6 ADN COMPARES IT TO THE VALUE IN
: $GDDAT. IF EQUAL EXIT IF NOT EQUAL REPORT
: ERROR AND EXIT.
:
: INPUTS:      R5      = ADDRESS OF CALLER
:              $GDDAT  = VALUE OF EXPECTED RETURN KEY
:
: OUTPUTS:      ERRWRD = -1 IF ERROR OCCURS
: CALLING SEQUENCE:
:              JSR      R5,GETRKY
:*****
GETRKY: MOV      R5,ERRADD      ; STORE OFF ERROR ADDRESS
        MOV      @BSEL6,$BDDAT ; GET RETURN KEY FROM BSEL6
        BIC      #^C<177>,$BDDAT ; STRIP TO VALID BITS
        CMP      $BDDAT,$GDDAT ; ARE THE VALUES EQUAL
        BEQ      10$           ; IF YES GO TO 10
                                ; ELSE ERROR.....
                                ; SET UP CODE WORD
        MOV      #M12F,CODEW
        TRAP     C$ERDF
        .WORD    7
        .WORD    EROIC
        .WORD    ERR27
        DEC      ERRWRD        ; SET ERROR OCCURRED
10$:    RTS      R5            ; RETURN TO CALLER

```

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GLOBAL SUBROUTINES

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003446 010537 002406
003452 017737 176772 002340
003460 023737 002340 002336
003466 001411

003470 012737 012014 002430
003476 104455
003500 000010
003502 011506
003504 010324
003506 005337 002402
003512 000205

```

*****
: FUNCTIONAL DESCRIPTION:      GETDAT - GET DATA CODE
: THIS ROUTINE GETS THE DATA CODE FROM BSEL4
: AND COMPARES IT TO THE VALUE IN $GDDAT
: IF EQUAL EXIT ELSE REPORT ERROR AND EXIT
:
: INPUTS:      R5      = ADDRESS OF CALLER
:              $GDDAT  = VALUE OF EXPECTED DATA
:
: OUTPUTS:      ERRWRD  = -1 IF ERROR OCCURED
: CALLING SEQUENCE:
:              JSR      R5,GETDAT
:*****
GETDAT: MOV      R5,ERRADD      ;STORE OFF ERROR ADDRESS
        MOV      @BSEL4,$BDDAT ;GET DATA
        CMP      $BDDAT,$GDDAT ;COMPARE GOOD AND BAD
        BEQ      10$           ;IF OK GO TO 10
                                ;ELSE ERROR
                                ;ERROR BAD DATA CODE
        MOV      #M30F,CODEW
        TRAP     C$ERDF
        .WORD    8
        .WORD    EROIC
        .WORD    ERR27
        DEC      ERRWRD        ;SET ERROR OCCURRED
10$:     RTS      R5           ;RETURN TO CALLER

```

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GLOBAL SUBROUTINES

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1911 003514 010537 002406
1912 003520 017737 176730 002340
1913 003526 005737 002376
1914 003532 001403
1915 003534 017737 176720 002340
1916 003542 042737 140000 002340
1917 003550 023737 002340 002336
1918 003556 001406
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1921
1922 003560 104455
1923 003562 000011
1924 003564 012133
1925 003566 010114
1926 003570 005337 002402
1927 003574 000205
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```

```

*****
: FUNCTIONAL DESCRIPTION:      GETCC - GET CHARACTER COUNT
: THIS ROUTINE GETS THE CHAR. COUNT FROM EITHER:
: (1) CSR6 IF DMP OR DMV IN Q18 MODE
: (2) CSR10 IF DMV IN Q22 MODE
: AND THEN COMPARES IT TO THE VALUE IN $GDDAT.
: IF EQUAL EXIT, ELSE REPORT ERROR AND EXIT
:
: INPUTS:      R5      = ADDRESS OF CALLER
:              $GDDAT = VALUE OF EXPECTED DATA
:
: OUTPUTS:     ERRWRD = -1 IF ERROR OCCURED
: CALLING SEQUENCE:
:              JSR      R5,GETCC
: *****
GETCC:  MOV      R5,ERRADD      ;STORE OFF RETURN ADDRESS
:        MOV      @SEL6,$BDDAT  ;GET CSR6 TO BDDAT
:        TST      MODQ22        ;IS THIS DMV W/Q22 ?
:        BEQ      1$
:        MOV      @SEL10,$BDDAT ;IF YES: GET CSR10 INSTEAD
:        BIC      #140000,$BDDAT ;STRIP TO CHAR COUNT
:        CMP      $BDDAT,$GDDAT ;COMPARE
:        BEQ      10$           ;IF OK GO TO 10
:
:        ;ELSE REPORT ERROR : BAD CHAR COUNT
:
:        TRAP     C$ERDF
:        .WORD    9
:        .WORD    MEF16A
:        .WORD    ERR23
:        DEC      ERRWRD        ;SET ERROR OCCURRED
:        RTS      R5           ;RETURN TO CALLER
:
: 1$:
:
: 10$:

```

GLOBAL SUBROUTINES

```

*****
:  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
:               $GDDAT     = VALUE OF EXPECTED BUFFER ADDRESS
:
:  OUTPUTS:     ERRWRD     = -1 IF ERROR OCCURED
:  CALLING SEQUENCE:
:               JSR        R5,GETBA
:  -----*****
GETBA:  MOV      R5,ERRADD      ;STORE OFF ERROR ADDRESS
        MOV      @SEL4,$BDDAT ;GET ADDRESS OUTPUT
        CMP      $BDDAT,$GDDAT ;ARE THEY EQUAL ?
        BNE      1$           ;IF NOT: REPORT IN
        TST      MODQ22        ;* IS THIS Q22 MODE ?
        BEQ      10$           ;* IF NOT: EXIT
        MOV      #0,$BDDAT     ;* GET EXPECTED EXTENDED ADDRESS
        MOV      @SEL6,$GDDAT  ;* GET ACTUAL EXTENDED ADDRESS
        CMP      $BDDAT,$GDDAT ;* ARE THEY EQUAL ?
        BEQ      10$           ;IF YES: EXIT
                                ;ELSE ERROR
1$:
        TRAP     C$ERDF
        .ORD     10
        .WORD    MEF17A
        .WORD    ERR23
        DEC      ERRWRD        ;SET ERROR OCCURRED
10$:      RTS      R5           ;RETURN TO CALLER

```

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GLOBAL SUBROUTINES

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003670 010537 002406
003674 017737 176554 002340
003702 042737 177400 002340
003710 023737 002340 002336
003716 001411
003720 012737 012000 002430
003726 104455
003730 000013
003732 011506
003734 010324
003736 005337 002402
003742 000205

```

*****
: 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
:              $GDDAT  = VALUE OF EXPECTED OUTPUT CODE
:
: OUTPUTS:      ERRWRD  = -1 IF ERROR OCCURED
: CALLING SEQUENCE:
:              JSR      R5,GETOC
:-----*****
GETOC:  MOV      R5,ERRADD      ;STORE OFF ERROR ADDRESS
        MOV      @BSEL6,$BDDAT ;GET OUTPUT FROM BSEL6
        BIC      #^C<377>,$BDDAT ;STRIP TO VALID BITS
        CMP      $BDDAT,$GDDAT ;ARE THEY EQUAL
        BEQ      10$           ;IF SO GO TO 10
                                ;ELSE ERROR
        MOV      #M18F,CODEW
        TRAP     C$ERDF
        .WORD    11
        .WORD    EROIC
        .WORD    ERR27
        DEC      ERRWRD        ;SET ERROR OCCURRED
10$:    RTS      R5            ;RETURN TO CALLER

```

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GLOBAL SUBROUTINES

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003744
003744 004537 002646
003750 005737 002402
003754 100524
003756 117737 176462 002340
003764 042737 177770 002340
003772 122737 000000 002340
004000 001450
004002 122737 000001 002340
004010 001012
004012 012737 000302 002336
004020 117737 176430 002340
004026 123737 002336 002340
004034 001412
004036 012737 011762 002430
004044 104455
004046 000014
004050 011506
004052 010324
004054 005337 002402
004060 000462
004062
004062 005237 177572
004066 012737 004216 000004
004074 005737 120000
004100 005037 177572
004104 104455
004106 000015
004110 000000
004112 007706
004114 005337 002402
004120 000442

```

*****
: FUNCTIONAL DESCRIPTION: MEMEX - MEMORY EXTENSION CODE
: THIS ROUTINE IS USED WITH THE
: MEMORY EXTENSION 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 EXTENSIONS 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-EXISTENT
: 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
:-----*****

MEMEX:
EXMEM:  JSR      R5, WRDO      ;WAIT FOR READY OUT
        TST      ERRWRD
        BMI      EXMEMX
        MOVB     @BSEL2, $BDDAT
        BIC      #^C<7>, $BDDAT
        CMPB     #0, $BDDAT
        BEQ      EXMEMA
        CMPB     #1, $BDDAT
        BNE      EXMEMB
        MOV      #302, $GDDAT
        MOVB     @BSEL6, $BDDAT
        CMPB     $GDDAT, $BDDAT
        BEQ      EXMEMC
EXMEMB: MOV      #M13F, CODEW
        TRAP     C$ERDF
        .WORD    12
        .WORD    EROIC
        .WORD    ERR27
        DEC      ERRWRD
        BR       EXMEMX
        ;SET ERROR FLAG
        ;PRINT ERROR AND EXIT

EXMEMC: ;IF ERROR IS NON EXISTENT
        INC      177572
        MOV      #METB, 4
        TST      @M120000
        CLR      177572
        TRAP     C$ERDF
        .WORD    13
        .WORD    0
        .WORD    ERR20
        DEC      ERRWRD
        BR       EXMEMX
        ;INCREMENT MM
        ;SET UP TRAP
        ;TEST THE NON EXISTENT
        ;CLEAR MM
        ;PRINT ERROR AND EXIT TEST

```

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GLOBAL SUBROUTINES

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2053      ; GET HERE IF BUFFER RETURNED OK
2054
2055 004122 005237 177572      EXMEMA: INC 177572      ;ENABLE MM
2056 004126 012737 004202 000004      MOV #METC,4      ;SET UP TRAP
2057 004134 013737 033456 002336      MOV MR1+2,$GDDAT      ;GET FIRST WORD FROM NEW PAGE
2058 004142 013737 120000 002340      MOV 120000,$BDDAT      ;AND FIRST RX WORD
2059 004150 005037 177572      CLR 177572      ;DISABLE MM
2060 004154 023737 002336 002340      CMP $GDDAT,$BDDAT      ;COMPARE DATA
2061 004162 001421      REQ EXMEMX      ;EXIT IF GOOD
2062 004164 104455      TRAP C$ERDF
2063 004166 000016      .WORD 14
2064 004170 000000      .WORD 0
2065 004172 007740      .WORD ERR21
2066 004174 005337 002402      DEC ERRWORD
2067 004200 000412      BR EXMEMX      ;AND EXIT
2068 004202 005037 177572      METC: CLR 177572      ;DISABLE MM
2069 004206 104455      TRAP C$ERDF
2070 004210 000017      .WORD 15
2071 004212 000000      .WORD 0
2072 004214 010022      .WORD ERR22
2073 004216 005037 177572      METB: CLR 177572      ;DISABLE MM
2074 004222 062716 000004      META: ADD #4,(SP)
2075 004226 013737 002316 000004      EXMEMX: MOV SAVE4,4
2076 004234 013737 002320 000006      MOV SAVE6,6      ;RESTORE TRAPS
2077 004242 000205      RTS R5
2078

```

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GLOBAL SUBROUTINES

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2089 004244 010146
2090 004246 012701 000310
2091 004252 005737 002472
2092 004256 001402
2093 004260 062701 000620
2094 004264 005301
2095 004266 001376
2096 004270 012601
2097 004272 000207
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2110
2111
2112 004274 005077 176140
2113 004300 113777 002405 176136
2114 004306 004537 004346
2115 004312 121053
2116 004314 042737 000377 004334
2117 004322 153737 002404 004334
2118 004330 004537 004346
2119 004334 100000
2120 004336 052777 002000 176074
2121 004344 000207

```
*****
: 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
:-----*****
```

```
WAIT50: MOV      R1,-(SP)      ;SAVE R1
        MOV      #200.,R1     ;INIT COUNTER
        TST      OPTYP
        BEQ      3$           ;IF DMP GO TO 3
        ADD      #400.,R1     ;ELSE TRIPLE UP TIMER FOR DMV
3$:      DEC      R1           ;DECREMENT COUNTER
        BNE      3$           ;BR IF NOT DONE YET
        MOV      (SP)+,R1     ;RESTORE R1
        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 CIRCUIT
: CALLING SEQUENCE:
:             JSR      PC,GWORD
:-----*****
```

```
GWORD: CLR      @SELO         ;INIT
        MOVB     CADDR+1,@SEL2 ;NOW HIGH BYTE OF ADDRESS
        JSR      R5,ROMCLK
        .WORD     121053      ;MOV IBUS* 2 TO OBUS* 13
        BIC      #377,1$      ;STRIP ADDR FLIED.
        BISB     CADDR,1$     ;ADD IN IMM ADDR.
        JSR      R5,ROMCLK    ;GO DO BRANCH.
        .WORD     100000      ;BRANCH EXT PUTS ADDR. IN PCREG.
1$:      BIS      #2000,@SELO ;SET READ ENABLE.
        RTS      PC          ;EXIT.
```

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GLOBAL SUBROUTINES

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2136 004346
2137 004346 152777 000002 176066
2138 004354 012577 176074
2139 004360 152777 000003 176054
2140 004366 142777 000007 176046
2141 004374 000205
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2158 004376 010146
2159 004400 010246
2160 004402 012702 000020
2161 004406 000241
2162 004410 006037 002374
2163 004414 006037 002372
2164 004420 102011
2165 004422 012701 102010
2166 004426 043701 002374
2167 004432 042737 102010 002374
2168 004440 050137 002374
2169 004444 005302
2170 004446 003357
2171 004450 012602
2172 004452 012601
2173 004454 000207
2174

```

```

*****
: FUNCTIONAL DESCRIPTION: ROMCLK - ROM CLOCK ROUTINE
: THIS ROUTINE ISSUES A SINGE STEP TO THE
: M8207.
: INPUTS: R5 - POINTS TO INSTRUCTION TO BE STEPPED
: RETURN: RETURN IS TO WORD FOLLWOING INSTRUCTION
: CALLING SEQUENCE:
: JSR R5,ROMCLK
: .WORD INSTR ;INSTURCITON TO EXECUTE
*****
ROMCLK:
BISB #2,@BSEL1 ;SET ROMI
MOV (R5)+,@BSEL6 ;SET INSTRUCTION.
BISB #3,@BSEL1 ;CLOCK INSTR.
BICB #7,@BSEL1 ;CLEAR.
RTS R5
*****
: FUNCTIONAL DESCRIPTION: CRCR - CRC CALCULATE ROUTINE
: THIS ROUTINE TAKES 16 BITS OF DATA FROM WORDT
: AND CONVERTS THEM INTO PART OF THE SERIAL STREAM
: THAT IS BEING USED TO CALCULATE A CRC-CCITT WORD.
: INPUTS: WORDT - WORD TO CALCULATE ON
: IMPLICIT INPUTS:
: CWORD - MUST BE A -1 FIRST TIME CALLED
: OUTPUTS: CWORD - 16 BIT CALCULATED WORD
: CALLING SEQUENCE:
: JSR PC,CRCR
*****
CRCR: MOV R1,-(SP)
MOV R2,-(SP)
MOV #16.,R2
10$: CLC
ROR CWORD
ROR WORDT
BVC 20$
MOV #102010,R1
BIC CWORD,R1
BIC #102010,CWORD
BIS R1,CWORD
20$: DEC R2
BGT 10$
MOV (SP)+,R2
MOV (SP)+,R1
RTS PC

```

GLOBAL SUBROUTINES

2175				
2176				
2177				
2178				
2179				
2180				
2181				
2182				
2183				
2184				
2185				
2186				
2187	004456	112777	000100	175756
2188	004464	022737	000004	002472
2189	004472	001003		
2190	004474	112777	000200	175740
2191	004502	000240		
2192	004504	004737	004244	
2193	004510	000207		
2194				
2195				
2196				
2197				
2198				
2199				
2200				
2201				
2202				
2203				
2204				
2205				
2206				
2207				
2208				
2209				
2210				
2211				
2212				
2213				
2214				
2215				
2216				
2217	004512	012737	000003	002506
2218	004520	000403		
2219	004522	012737	000005	002506
2220	004530	112777	000100	175704
2221	004536	022737	000004	002472
2222	004544	001003		
2223	004546	112777	000200	175666
2224	004554	000240		
2225	004556	000240		
2226	004560	012737	004600	002406
2227	004566	004537	005070	
2228	004572	005737	002402	
2229	004576	100533		
2230	004600			

```

*****
: FUNCTIONAL DESCRIPTION:          MINITR - MASTER CLEAR ROUTINE
:                               THIS ROUTINE ISSUES A MASTER CLEAR TO THE DEVICE
:                               IF OPTION IS AN 8206 IT ALSO SETS THE RUN BIT.
:
: SUBORDINATE ROUTINES USED:
:                               WAIT50 - SHORT DELAY ROUTINE
: CALLING SEQUENCE:
:                               JSR      PC,MINITR
:
:-----*****
MINITR:  MOVB    #100,@BSEL1          ;SET MASTER CLEAR.
:         CMP     #04,OPTYP           ;IS THIS 8206
:         BNE     MIN1R              ;BRANCH IF NOT
:         MOVB    #200,@BSEL1        ;SET RUN
MIN1R:   NOP
1$:      JSR      PC,WAIT50           ;SHORT DELAY.
:         RTS     PC                 ;RETURN.
:
:-----*****
: FUNCTIONAL DESCRIPTION:          MINITS - MASTER CLEAR AND INIT
:                               THIS ROUTINE ISSUES A MASTER CLEAR, WAITS FOR THE
:                               RUN BIT TO SET, CHECKS FOR GOOD COMPLETION OF MICRO
:                               DIAGNOSTICS AND ISSUES THE MODE DEFINITION.
:                               IF ENTERED AT MINIT1 - SET MODE TO FULL DUPLEX POINT
:                               TO POINT
:                               IF ENTERED AT MINITS - SET MODE TO FULL DUPLEX CONTROL
:                               IF ENTERED AT MINTR - SET MODE TO VALUE IN AXNUM
:
: OUTPUTS:          ERRWRD = -1 IF ERROR OCCURS.
:
: IMPLICIT OUTPUTS:
:                   DMP EXITS WITH MODE DEFINED
:
: SUBORDINATE ROUTINES USED:
:                   TOUT      - TIME OUT ROUTINE
:                   WAIT50    - SHORT DELAY ROUTINE
:                   WRDO      - WAIT FOR READY OUT
:
: CALLING SEQUENCE:
:                   JSR      PC,MINITS          ;OR MINIT1 OR MINTR
:
:-----*****
MINIT1:  MOV      #03,AXNUM
:         BR       MINTR
MINITS:  MOV      #05,AXNUM
MINTR:   MOVB     #100,@BSEL1          ;SET MASTER CLEAR.
:         CMP     #4,OPTYP            ;IS THIS 8206
:         BNE     MIN2R              ;SKIP IF NOT
:         MOVB    #200,@BSEL1        ;SET RUN BIT
MIN2R:   NOP
:         NOP
:         MOV     #ERLB7,ERRADD      ;SET ERROR ADDRESS
TLB7:    JSR      R5,TOUT
:         TST     ERRWRD
:         BMI     MINTE              ;EXIT IF ERROR
ERLB7:

```

GLOBAL SUBROUTINES

Line	Address	Instruction	Comment
2231	004600	004737	004244
2232	004604	005777	175630
2233	004610	100366	
2234	004612	012737	004632 002406
2235	004620	004537	005070
2236	004624	005737	002402
2237	004630	100516	
2238	004632		
2239	004632	122777	000305 175614
2240	004640	001404	
2241	004642	122777	000264 175604
2242	004650	001363	
2243			
2244	004652	012737	000077 002336
2245	004660	032737	000003 002472
2246	004666	001403	
2247	004670	012737	000033 002336
2248	004676	023777	002336 175544
2249	004704	001407	
2250	004706	104457	
2251	004710	000025	
2252	004712	012566	
2253	004714	010422	
2254	004716	005337	002402
2255	004722	000461	
2256	004724	032737	000003 002472
2257	004732	001423	
2258	004734	005737	002400
2259	004740	001020	
2260	004742	112777	000301 175472
2261	004750	004537	002646
2262	004754	012777	000006 175462
2263	004762	004537	005070
2264	004766	005737	002402
2265	004772	100435	
2266	004774	005777	175440
2267	005000	100370	
2268	005002	152777	000010 175432
2269			
2270	005010	052777	000200 175422
2271	005016	012737	005036 002406
2272	005024	004537	005070
2273	005030	005737	002402
2274	005034	100414	
2275	005036	032777	000020 175400
2276	005044	001767	
2277	005046	013777	002506 175400
2278	005054	105077	175360
2279	005060	012777	000002 175356
2280	005066	000207	
2281			

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GLOBAL SUBROUTINES

2282
 2283
 2284
 2285
 2286
 2287
 2288
 2289
 2290
 2291 005070 020537 005136
 2292 005074 001011
 2293 005076 005237 005134
 2294 005102 001012
 2295 005104 104455
 2296 005106 000020
 2297 005110 011414
 2298 005112 010266
 2299 005114 005337 002402
 2300 005120 005037 005134
 2301 005124 010537 005136
 2302 005130
 2303 005130 104422
 2304 005132 000205
 2305
 2306 005134 000000
 2307
 2308 005136 000000
 2309

```

*****
: 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
: *****
TOUT:  CMP      R5,LA5TR5
       BNE      TOUTE
       INC      COUNTT
       BNE      TOUTEX
       TRAP     C$ERDF
       .WORD    16
       .WORD    MEF7
       .WORD    ERR26
       DEC      ERRWRD
TOUTE: CLR      COUNTT
       MOV      R5,LA5TR5      ;SAVE CURRENT PC.
TOUTEX: TRAP     C$BRK
       RTS      R5            ;EXIT

COUNTT: 0                    ;NUMBERS OF TIMES IN THIS ROUTINE FROM
LA5TR5: 0                      ;SAME CALLING LOCATION.
                      ;LAST CALLING LOCATION.

```

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GLOBAL SUBROUTINES

2310
2311
2312
2313
2314
2315
2316
2317
2318
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2320
2321
2322
2323
2324 005140
2325 005140 013746 002440
2326 005144 013746 002332
2327 005150 012746 005306
2328 005154 012746 000003
2329 005160 010600
2330 005162 104415
2331 005164 062706 000010
2332 005170 017746 175260
2333 005174 017746 175250
2334 005200 017746 175240
2335 005204 017746 175230
2336 005210 012746 005373
2337 005214 012746 000005
2338 005220 010600
2339 005222 104415
2340 005224 062706 000014
2341 005230 032737 000003 002472
2342 005236 001412
2343 005240 017746 175214
2344 005244 012746 005451
2345 005250 012746 000002
2346 005254 010600
2347 005256 104415
2348 005260 062706 000006
2349 005264
2350 005264 012746 005466
2351 005270 012746 000001
2352 005274 010600
2353 005276 104415
2354 005300 062706 000004
2355 005304 000207
2356 005306 047045 040445 040506
2357 005314 046111 047111 020107
2358 005322 041515 052520 044440
2359 005330 020123 047125 052111
2360 005336 021440 047445 022462
2361 005344 020101 044127 051517
2362 005352 020105 042101 051104
2363 005360 051505 020123 051511
2364 005366 022440 033117 000
2365 005373 045 022516 051501

```
*****
:  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 INF'TS:
:  CSRS'  - THE CSR ARE EXPECTED TO CONTAIN USEFUL DATA
:  LOGDEV - THE LOGICAL DEVICE NUMBER
:  SELO   - ADDRESS OF THIS UNIT
:  CALLING SEQUENCE:
:  JSR    PC,STAND
:  -----*****
```

STAND:

```
MOV    SELO,-(SP)
MOV    LOGDEV,-(SP)
MOV    #CFM1,-(SP)
MOV    #3,-(SP)
MOV    SP,R0
TRAP   C$PNTX
ADD    #10,SP
MOV    @SEL6,-(SP)
MOV    @SEL4,-(SP)
MOV    @SEL2,-(SP)
MOV    @SELO,-(SP)
MOV    #CFM2,-(SP)
MOV    #5,-(SP)
MOV    SP,R0
TRAP   C$PNTX
ADD    #14,SP
BIT    #3,OPTYP      ;IS THIS A DMV-11 ?
BEQ    1$            ;IF NOT: SKIP SEL10 PRINTOUT
MOV    @SEL10,-(SP)
MOV    #CFM3,-(SP)
MOV    #2,-(SP)
MOV    SP,R0
TRAP   C$PNTX
ADD    #6,SP
1$:
MOV    #CFM4,-(SP)
MOV    #1,-(SP)
MOV    SP,R0
TRAP   C$PNTX
ADD    #4,SP
RTS    PC
CFM1:  .ASCIIZ  '%N%AFAILING MCPU IS UNIT #%02%A WHOSE ADDRESS IS %06%'

CFM2:  .ASCIIZ  '%N%ASELO=%06%A SEL2=%06%A SEL4=%06%A SEL6=%06%'
```

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GLOBAL SUBROUTINES

2366	005400	046105	036460	047445	
2367	005406	022466	020101	042523	
2368	005414	031114	022475	033117	
2369	005422	040445	051440	046105	
2370	005430	036464	047445	022466	
2371	005436	020101	042523	033114	
2372	005444	022475	033117	000	
2373	005451	045	020101	042523	CFM3: .ASCIIZ '%A SEL10=%06''
2374	005456	030514	036460	047445	
2375	005464	000066			
2376	005466	047045	000		CFM4: .ASCIIZ '%N''
2377		005472			.EVEN
2378					
2379					

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GLOBAL SUBROUTINES

```

2380
2381
2382
2383
2384
2385
2386
2387
2388
2389
2390
2391
2392
2393 005472 012737 177777 002374 RMVRT: MOV #1,CWORD ;INIT CRC WORD
2394 005500 112777 000301 174734 MOVB #301,@BSEL1 ;*ENTER MAINTENANCE LOOP
2395 005506 004537 002646 JSR R5,WRDO ;*
2396 005512 005737 002402 TST ERRWRD ;*
2397 005516 100477 BMI RMVEX ;*EXIT IF ERROR
2398 005520 005003 CLR R3 ;CLEAR BLOCK_NUMBER
2399
2400 00552. 012777 033734 174724 RMVXX: MOV #RECBU1,@SEL6 ;READ 256 BYTES USING M-LOOP
2401 005530 105077 174724 CLRB @BSEL10 ;RCV BUFFER ADDR => BSR10:CSR6
2402 005534 013777 002436 174706 MOV ROMADD,@SEL4 ;ROM ADDRESS => CSR4
2403 005542 112777 000003 174674 MOVB #03,@BSEL2 ;*DO BLOCK READ OF 256 BYTES
2404 005550 004537 002646 JSR R5,WRDO ;*WAIT FOR MRDY BIT (RDO)
2405 005554 005737 002402 TST ERRWRD ;*
2406 005560 100456 BMI RMVEX ;*EXIT IF ERROR
2407
2408 005562 005002 CLR R2 ;CLEAR WORD_INDEX
2409 005564 005703 TST R3 ;IS THIS THE 1ST BLOCK?
2410 005566 001014 BNE RMVYY ;
2411 005570 013737 033734 002434 MOV RECBU1,CRCCAL ;YES: SAVE 1ST WORD OF 1ST BLOCK
2412 005576 005722 TST (R2)+ ; (CRC CHARACTER)
2413 005600 116237 033734 013762 MOVB RECBU1(R2),ROMNO ;SAVE ROM #
2414 005606 005202 INC R2 ;
2415 005610 116237 033734 013764 MOVB RECBU1(R2),REVNO ;SAVE REVISION #
2416 005616 005302 DEC R2 ;ADJUST INDEX FOR ROM#
2417
2418 005620 016237 033734 002372 RMVYY: MOV RECBU1(R2),WORDT ;GET INDEXED WORD FROM BUFFER
2419 005626 004737 004376 JSR PC,CRCR ;CALCULATE CRC WORD
2420 005632 062702 000002 ADD #2,R2 ;(BUMP INDEX)
2421 005636 022702 000400 CMP #256.,R2 ;IS THIS THE LAST WORD ?
2422 005642 001366 BNE RMVYY ;IF NOT: GET NEXT WORD.
2423
2424 005644 020327 000037 RMVAA: CMP R3,#31. ;IS THIS THE LAST 256 WORD BLOCK?
2425 005650 001405 BEQ RMVBB ;
2426 005652 062737 000400 002436 ADD #256.,ROMADD ;NO: ADD 256 TO ADDRESS
2427 005660 005203 INC R3 ; AND BUMP BLOCK NUMBER
2428 005662 000717 BR RMVXX ; AND GO GET SOME MORE
2429
2430 005664 000240 RMVBB: NOP ;(COM CWORD=5137 2374)
2431 005666 000240 NOP ;YES:
2432 005670 013737 002434 002372 MOV CRCCAL,WORDT ;
2433 005676 023737 002374 002372 CMP CWORD,WORDT ; COMPARE CRC WORDS...
2434 005704 001404 BEQ RMVEX ; AND REPORT ERROR IF NO MATCH.
2435 005706 104455 TRAP C$ERDF

```

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GLOBAL SUBROUTINES

2436 005710 000021
2437 005712 000000
2438 005714 010162
2439
2440 005716 000205
2441

.WORD 17
.WORD 0
.WORD ERR24

RMVEX: RTS R5

;RETURN TO CALLER

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GLOBAL SUBROUTINES

```

2442 *****
2443 : FUNCTIONAL DESCRIPTION:      TXRXSR - TRANSMIT RECEIVE SUBROUTINE
2444 : THIS ROUTINE IS USED BY ALL TESTS THAT TRANSMIT
2445 : AND RECIEVE DATA. THE FIRST PART OF THE ROUTINE VERIFIES
2446 : THE OPERATOR INPUTS AND MAKES SURE THAT INTERFACE
2447 : SELECTION CORRESPOND TO SELECTED BAUD RATES.
2448 : THE SECOND PART OF THE ROUTINE FORMS 'TXRX3' AND DOES THE
2449 : FOLLOWING. ESTABLISH TRIBUTARY. THEN EITHER DO ISTRT OR
2450 : MAINT STATE DEPENDING ON FLAG. IF ISTRT THEN CHECK FOR
2451 : RUN STATE IF MAINT STATE THEN GO TO NEXT STEP. NEXT QUE
2452 : REC AND TRANSMIT BUFFERS THEN WAIT FOR OUTPUT. IF MEMORY
2453 : MANAGEMENT EXIT TEST. IF ISTRT LOOK FOR REC COMPLETED
2454 : FOLLOWED BY TX COMPLETED. IF MAINT LOOK FOR TRANSMIT FIRST.
2455 :
2456 : INPUTS:      TXADD - ADDRESS OF TRANSMIT BUFFER
2457 :              TXCC  - CHAR COUNT OF TX
2458 :              RXADD - ADDRESS OF REC BUFFER
2459 :              RXCC  - CHAR COUNT OF REC BUFFER
2460 :              GENWRD - FLAG WORD IF BIT 15 SET-MAINT MODE
2461 :                  IF BIT 14 SET THEN MEMORY MGT.
2462 :
2463 : SUBORDINATE ROUTINES USED:
2464 :       WAIT50 - SHORT DELAY
2465 :       CONTIN - CONTROL IN ROUTINE
2466 :       GETOUT - GET CONTROL OUT CODE
2467 :       GETOC  - GET OUTPUT CODE
2468 :       WRDI   - WAIT FOR READY IN
2469 :       GETCC  - GET CHAR COUNT
2470 :       GETBA  - GET BUFFER ADDRESS
2471 :
2472 : CALLING SEQUENCE:
2473 :       JSR      R5,TXRXSR      ;IF NOT INTERFACE CHECK
2474 :                               ;CALL AT JSR      R5,TXRX3
2475 : *****
2476 :
2477 005720 022737 000004 002476 TXRXSR: CMP      #4,TSTCON
2478 005726 001002          BNE      10$      ;IF INTERNAL LOOP
2479 005730 000137 006346          JMP      TXRX3      ;GO TO 3
2480 :
2481 : JUMP TO TXRX 3 IF INTERNAL LOOP
2482 :
2483 005734 013737 002360 002506 10$: MOV      TRIBN,AXNUM      ;SAVE TRIBN.
2484 005742 005037 002360          CLR      TRIBN      ;MAKE TRIBN 0
2485 :                               ;DMV-11 WILL IGNORE THE FOLLOWING...
2486 :
2487 005746 032737 000002 002476 TXRX1: BIT      #BIT1,TSTCON      ;IS IT MODEM LOOP BACK?
2488 005754 001571          BEQ      TXRX2      ;IF NOT THEN GO TO 2
2489 005756 012704 000110          MOV      #110,R4
2490 005762 032737 000001 002476 TXRX1A: BIT      #BIT0,TSTCON      ;IS IT REMOTE MODEM
2491 005770 001402          BEQ      TXRX1A      ;IF NOT THEN GO TO 1A
2492 005772 012704 000104          MOV      #104,R4
2493 005776 012703 000021 TXRX1A: MOV      #21,R3
2494 006002 004537 003162          JSR      R5,CONTIN      ; WRITE MODEM WITH CORRECT
2495 :                               ; TYPE OF LOOP CODE
2496 006006 005737 002402          TST      ERRWRD
2497 006012 100002          BPL      15$

```

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GLOBAL SUBROUTINES

```

2498 006014 000137 006476      JMP      TXRXA
2499
2500 006020 004737 004244      15$: JSR      PC, WAIT50      ; WAIT FOR A WHILE      ...
2501 006024 142777 000010 174410 BICB      #BIT3, @BSEL1      ; CLEAR LU LOOP IF NOT INTERNAL
2502
2503      ; IF INTEGRAL MODEM MAKE SURE OPTION
2504      ; IS NOT 8053 AND SPEED IS 56K OR HIGHER
2505      ; IF NOT INTEGRAL MODEM GO TO NEXT CHECK IF EIA
2506
2507 006032 022737 000001 002474      CMP      #1, IFTYP      ; IS THIS INTEGRAL MODEM
2508 006040 001014      BNE      XYZTC      ; IF NOT THEN GO CHECK FOR EIA
2509 006042 022737 000001 002472      CMP      #1, OPTYP      ; IS THIS 8053 (DMV NO INTEGRAL)
2510 006050 001453      BEQ      BADIF      ; IF SO PRINT BAD INTERFACE MESG.
2511 006052 023727 002466 000004      CMP      SPEEDM, #4      ; IS THIS 56 K OR HIGHER
2512 006060 103464      BLO      BADBR      ; IF NOT PRINT BAD BAUD RATE
2513
2514      ; GET HERE IF EVERYTHING OK FOR INTEGRAL
2515
2516 006062 012704 000323      MOV      #323, R4      ; LOAD R4 WITH INTERFACE TYPE
2517 006066 000137 006312      JMP      SETIF      ; AND GO SET IT
2518
2519      ; IF THIS IS EIA THEN CHECK THAT OPTION IS NOT
2520      ; M8054 AND THAT SPEED IS 56K OR LOWER
2521      ; IF NOT EIA CHECK IF V.35
2522
2523 006072 022737 000002 002474      XYZTC: CMP      #2, IFTYP      ; IS THIS EIA INTERFACE
2524 006100 001014      BNE      V35TC      ; IF NOT GO CHECK FOR V.35 TYPE
2525 006102 022737 000002 002472      CMP      #2, OPTYP      ; IS THIS 8054 (DMV INTEGRAL MODEM)
2526 006110 001433      BEQ      BADIF      ; IF SO PRINT BAD INTERFACE
2527 006112 023727 002466 000004      CMP      SPEEDM, #4      ; IS THIS HIGHER THAN 56K
2528 006120 101044      BHI      BADBR      ; IF SO PRINT BAD BAUD RATE
2529
2530      ; GET HERE IF EVERYTHING OK FOR EIA
2531
2532 006122 012704 000233      MOV      #233, R4      ; LOAD R4 WITH INTERFACE TYPE
2533 006126 000137 006312      JMP      SETIF      ; AND GO SET IT.
2534
2535      ; IF V.35 CHECK THAT OPTION IS NOT 8064
2536      ; IF NOT V.35 MUST BE 422
2537
2538 006132 022737 000003 002474      V35TC: CMP      #3, IFTYP      ; IS THIS V.35 INTERFACE
2539 006140 001010      BNE      T422C      ; IF NOT IT MUST BE 422
2540 006142 022737 000002 002472      CMP      #2, OPTYP      ; IS THIS 8064 (DMV INTEGRAL)
2541 006150 001413      BEQ      BADIF      ; IF SO PRINT BAD INTERFACE
2542
2543      ; GET HERE IF EVERYTHING OK FOR V.35
2544
2545 006152 012704 000313      MOV      #313, R4      ; LOAD R4 WITH INTERFACE TYPE AND
2546 006156 000137 006312      JMP      SETIF      ; GO SET IT
2547
2548      ; IF OPTION TYPE IS DMV THEN ERROR ELSE OK FOR 422
2549
2550 006162 032737 000003 002472      T422C: BIT      #3, OPTYP      ; IS THIS DMV
2551 006170 001003      BNE      BADIF      ; IF SO PRINT BAD INTERFACE
2552
2553      ; GET HERE IF EVERYTHING OK FOR 422

```

GLOBAL SUBROUTINES

2554									
2555	006172	012704	000133			MOV	#133,R4		
2556	006176	000445				BR	SETIF	;LOAD UP INTERFACE AND SET IT	
2557									
2558								:PRINTS BAD INTERFACE AND EXITS	
2559									
2560	006200	022737	000001	002346	BADIF:	CMP	#1,STARES		
2561	006206	001037				BNE	TABEN		
2562	006210	012746	010466			MOV	#BADIFM,-(SP)		
2563	006214	012746	000001			MOV	#1,-(SP)		
2564	006220	010600				MOV	SP,R0		
2565	006222	104417				TRAP	C\$PNTF		
2566	006224	062706	000004			ADD	#4,SP		
2567	006230	000414				BR	TABM	;PRINT 1ST PART OF MESSAGE	
2568									
2569								:PRINTS BAD BAUD RATE AND EXITS	
2570									
2571	006232	022737	000001	002346	BADBR:	CMP	#1,STARES		
2572	006240	001022				BNE	TABEN		
2573	006242	012746	010544			MOV	#BADDRM,-(SP)		
2574	006246	012746	000001			MOV	#1,-(SP)		
2575	006252	010600				MOV	SP,R0		
2576	006254	104417				TRAP	C\$PNTF		
2577	006256	062706	000004			ADD	#4,SP		
2578	006262				TABM:				
2579	006262	013746	00237C			MOV	R0MN1,-(SP)		
2580	006266	012746	010624			MOV	#TESTAB,-(SP)		
2581	006272	012746	000002			MOV	#2,-(SP)		
2582	006276	010600				MOV	SP,R0		
2583	006300	104417				TRAP	C\$PNTF		
2584	006302	062706	000006			ADD	#6,SP		
2585	006306	000137	007344		TABEN:	JMP	TXRXEN	;AND THEN EXIT SR.	
2586									
2587								: GET HERE TO SET INTERFACE	
2588									
2589	006312	032737	000003	002472	SETIF:	BIT	#03,OPTYP	;IS THIS A DMV11 ?	
2590	006320	001007				BNE	TXRX2	; YES: SKIP THIS SETUP STUFF !!.	
2591	006322	012703	000023			MOV	#23,R3	; NO: SET INTERFACE	
2592	006326	004537	003162			JSR	R5,CONTIN		
2593	006332	005737	002402			TST	ERRWRD		
2594	006336	100457				BMI	TXRXA		
2595									
2596	006340	013737	002506	002360	TXRX2:	MOV	AXNUM,TRIBN	;GET TRIB NUMBER BACK	
2597									
2598								:ESTABLISH TRIB	
2599									
2600	006346	012703	000001		TXRX3:	MOV	#01,R3		
2601	006352	004537	003162			JSR	R5,CONTIN	;ESTABLISH TRIB	
2602									
2603	006356	005737	002402			TST	ERRWRD	;TIME OUT OR REAY ERORS PRINT PC	
2604	006362	100445				BMI	TXRXA	;EXIT IF ERROR OCCURRED	
2605									
2606	006364	032737	100000	002432		BIT	#BIT15,GENWRD	;TEST THE MAINT STATE BIT	
2607	006372	001033				BNE	TXRXB	;IF SET GO TO 10	
2608									
2609								:ISTRT TRIB IF NOT MAINT STATE	

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GLOBAL SUBROUTINES

```

2610
2611 006374 012703 000003      MOV    #03,R3      ;ELSE;
2612 006400 004537 003162      JSR    R5,CONTIN  ;ISTR THE TRIB
2613                                ; TIME OUT OR READY ERRORS REPORT THIS PC
2614 006404 005737 002402      TST    ERRWRD
2615 006410 100432              BMI    TXRXA      ;EXIT IF ERROR OCCURRED
2616
2617                                ;CHECK FOR RUN STATE
2618
2619 006412 012737 000001 002336  MOV    #01,$GDDAT  ;CHECK FOR CONTROL OUT
2620 006420 004537 003242      JSR    R5,GETOUT  ; AND CORRECT TRIBN
2621 006424 005737 002402      TST    ERRWRD
2622 006430 100422              BMI    TXRXA      ;EXIT IF ERROR OCCURRED
2623 006432 012737 000024 002336  MOV    #24,$GDDAT  ;CHECK FOR RUN STATE
2624 006440 004537 003670      JSR    R5,GETOC  ; IN OUTPUT CODE
2625 006444 005737 002402      TST    ERRWRD
2626 006450 100412              BMI    TXRXA      ;EXIT IF ERROR OCCURRED
2627 006452 042777 000200 173764 BIC    #RDO,@BSEL2 ;CLEAR OUTPUT
2628 006460 000411              BR     TXRXC      ;AND GO TO 20
2629
2630                                ; PUT TRIB IN MAINT STATE
2631
2632 006462 012703 000004      TXRXB: MOV    #04,R3      ;PUT TRIB IN MAINT STATE
2633 006466 004537 003162      JSR    R5,CONTIN  ;
2634                                ; TIME OUT OR READY ERRORS REPORT THIS PC
2635 006472 005737 002402      TXRXA: TST    ERRWRD
2636 006476 100002              BPL    TXRXC
2637 006500 000137 007344      JMP     TXRXEN  ;EXIT IF ERROR OCCURRED
2638
2639                                ;QUEUE RECEIVE BUFFER
2640
2641 006504 052777 000200 173726  TXRXC: BIS    #RQ1,@BSEL0 ;SET REQUEST
2642 006512 004537 002732      JSR    R5,WRDI
2643                                ; TIME OUT OR READY ERROR REPORT THIS PC
2644 006516 005737 002402      TST    ERRWRD
2645 006522 100002              BPL    5$
2646 006524 000137 007344      JMP     TXRXEN  ;EXIT IF ERROR OCCURRED
2647 006530 013777 002422 173712  5$: MOV    RXADD,@BSEL4 ;SET ADDRESS
2648 006536 113777 002360 173702  MOV    TRIBN,@BSEL3 ;SET TRIBN
2649
2650 006544 005737 002376      TST    MODQ22
2651 006550 001411              BEQ    1$
2652                                ;*IS THIS 'Q22 MODE' ?
2653                                ;*
2654 006552 013777 002424 173700  MOV    RXCC,@BSEL10 ;*YES: SET CHARACTER COUNT
2655 006560 005077 173670      CLR    @BSEL6  ;* CLEAR EXTENDED ADDR BITS
2656 006564 112777 000010 173652  MOV    #10,@BSEL2 ;* SET RX BUFFER IN (+Q22 BIT)
2657 006572 000406              BR     2$
2658                                ;* AND CONTINUE...
2659 006574 013777 002424 173652  1$: MOV    RXCC, @BSEL6 ;*NO: SET CHAR COUNT [+BA16/17]
2660 006602 112777 000000 173634  MOV    #0, @BSEL2 ; SET RX BUFFER IN
2661
2662                                ;QUEUE TX BUFFER
2663 006610 004537 002732      2$: JSR    R5,WRDI ;WAIT FOR READY
2664                                ; TIME OUT OR READY ERROR REPORT THIS PC
2665 006614 005737 002402      TST    ERRWRD

```

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GLOBAL SUBROUTINES

```

2666 006620 100002      BPL      35$      ;*
2667 006622 000137 007344  JMP      TXRXEN      ;*EXIT IF ERROR OCCURRED
2668 006626 013777 002420 173614 35$:  MOV      TXADD,@BSEL4      ;SET TX ADD
2669 006634 113777 002360 173604      MOV      TRIBN,@BSEL3      ;SET TRIBN
2670
2671 006642 005737 002376      TST      MODQ22      ;*IS THIS 'Q22 MODE' ?
2672 006646 001414      BEQ      3$      ;*
2673
2674 006650 013777 002426 173602      MOV      TXCC,@BSEL10      ;*YES: SET CHARACTER COUNT
2675 006656 005077 173572      CLR      @BSEL6      ;*      CLEAR EXTENDED ADDR BITS
2676 006662 042777 000200 173550      BIC      #RQ1,@BSEL0      ;*      CLEAR REQUEST
2677 006670 112777 000014 173546      MOV      #14,@BSEL2      ;*      SET UP TX BUFFER (+Q22 BIT)
2678 006676 000411      BR      4$      ;*      AND CONTINUE...
2679
2680 006700 013777 002426 173546 3$:  MOV      TXCC,@BSEL6      ;*NO: SET CHAR COUNT [+BA16/17]
2681 006706 042777 000200 173524      BIC      #RQ1,@BSEL0      ;*      CLEAR REQUEST
2682 006714 112777 000004 173522      MOV      #04,@BSEL2      ;*      SET UP TX BUFFER
2683
2684 006722 032737 040000 002432 4$:  BIT      #BIT14,GENWRD
2685 006730 001402      BEQ      20$
2686 006732 000137 007344      JMP      TXRXEN      ;IF MM GO TO RETURN
2687 006736 005037 007346      CLR      MTLG      ;* CLEAR LOCAL_MAINT_FLAG
2688 006742 005737 002432      TST      GENWRD
2689 006746 100052      BPL      TXRXG      ;GO AHEAD IF NOT MAINT STATE
2690
2691      ;CHECK FOR RX COMPLETED
2692
2693      ; NOTE: IF MAINT STATE THEN CHECK FOR RX AND TX BUFFERS
2694      ; RETURNED (ORDER NOT IMPORTANT).
2695      ; BUT: IF NOT MAINT STATE THEN RX BUFFER MUST BE RETURNED
2696      ; FIRST AND TX BUFFER SECOND (OR ERROR REPORTED).
2697      ;* IF WE ARE IN MAINT STATE ....
2698 006750 004537 002646      JSR      R5,WRDO      ;* WAIT FOR READY_OUT
2699 006754 005737 002402      TST      ERRWRD
2700 006760 100571      BMI      TXRXEN      ;* EXIT IF ERROR
2701 006762 117704 173456      MOV      @BSEL2,R4      ;* GET COMMAND TYPE
2702 006766 042704 177770      BIC      #177770,R4      ;* STRIP EXCESS BITS
2703 006772 022704 000004      CMP      #4,R4      ;* CHECK FOR TX BUFFER RETURNED
2704 006776 001403      BEQ      40$      ;* IF YES: GO CHECK IT
2705 007000 005337 007346      DEC      MTLG      ;* NO: MTLG=(-1) TO INDICATE TXBUF
2706 007004 000433      BR      TXRXG      ;*      RETURNED FIRST
2707
2708 007006 012737 000004 002336 40$:  MOV      #04,$GDDAT
2709 007014 004537 003242      JSR      R5,GETOUT      ;GET OUTPUT CODE
2710 007020 005737 002402      TST      ERRWRD
2711 007024 100547      BMI      TXRXEN      ;EXIT IF ERROR
2712 007026 013737 002426 002336      MOV      TXCC,$GDDAT
2713 007034 004537 003514      JSR      R5,GETCC      ;*ELSE CHECK TX CHAR COUNT
2714 007040 005737 002402      TST      ERRWRD
2715 007044 100537      BMI      TXRXEN      ;*EXIT IF ERROR
2716 007046 013737 002420 002336      MOV      TXADD,$GDDAT
2717 007054 004537 003576      JSR      R5,GETBA      ;IS THE TX BUFFER ADDR RIGHT ?
2718 007060 005737 002402      TST      ERRWRD
2719 007064 100527      BMI      TXRXEN      ;EXIT IF ERROR OCCURED
2720
2721 007066 042777 000200 173350      BIC      #RDO,@BSEL2      ;CLEAR READY OUT

```

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GLOBAL SUBROUTINES

```

2722 007074 012737 000000 002336 TXRXG: MOV #0, $GDDAT ;
2723 007102 004537 003242 JSR R5,GETOUT ;CHECK FOR RX RETURNED
2724 007106 005737 002402 TST ERRWRD ;
2725 007112 100514 BMI TXRXEN ;EXIT IF ERROR OCCURRED
2726 007114 013737 002426 002336 MOV TXCC,$GDDAT ;
2727 007122 004537 003514 JSR R5,GETCC ;IS THE CHAR COUNT CORRECT
2728 007126 005737 002402 TST ERRWRD ;
2729 007132 100504 BMI TXRXEN ;EXIT IF ERROR OCCURRED
2730 007134 013737 002422 002336 MOV RXADD,$GDDAT ;
2731 007142 004537 003576 JSR R5,GETBA ;IS THE BUFFER ADD RIGHT
2732 007146 005737 002402 TST ERRWRD ;
2733 007152 100474 BMI TXRXEN ;EXIT IF ERROR OCCURRED
2734 ;*****
2735 ;DATA CHECK....
2736 007154 013703 002422 MOV RXADD,R3
2737 007160 013701 002420 MOV TXADD,R1 ;SET UP ADDRESS
2738 007164 005004 CLR R4 ;CLEAR R4
2739 007166
2740 007166 112337 002340 25$: MOV (R3)+,$BDDAT ;GET BYTE OF RX
2741 007172 112137 002336 26$: MOV (R1)+,$GDDAT ;GET BYTE OF TX
2742 007176 123737 002340 002336 28$: CMPB $BDDAT,$GDDAT ;ARE THEY THE SAME
2743 007204 001411 BEQ 30$ ;IF SO GO TO 30
2744 007206 005204 INC R4 ;MAKE COUNT RIGHT
2745 007210 104455 TRAP C$ERDF
2746 007212 000022 .WORD 18
2747 007214 012337 .WORD MEF19A
2748 007216 007646 .WORD ERR19
2749 007220 005337 002402 DEC ERRWRD
2750 007224 005304 DEC R4 ;MAKE COUNT RIGHT
2751 007226 000446 BR TXRXEN ;EXIT IF ERROR
2752 007230 005204 30$: INC R4 ;BUMP TO NEXT BYTE
2753 007232 020437 002426 CMP R4,TXCC ;ARE WE DONE?
2754 007236 103753 BLO 25$ ;IF NOT GO BACK
2755 ;*****
2756 007240 005737 007346 TST MFLG ;* CHECK LOCAL_MAINT_FLAG
2757 007244 001401 BEQ 31$ ;* IF CLEARED: GOTO 31$
2758 007246 000403 BR 32$ ;* SET: CHECK EXPECTED TXBUFF RETURN
2759
2760 007250 005737 002432 31$: TST GENWRD ;TEST FOR MAINT STATE
2761 007254 100433 BMI TXRXEN ;RETURN TO CALLER IF MAINT STATE
2762 007256 042777 000200 173160 32$: BIC #RDO,$BSEL2 ;CLEAR OUTPUT
2763 007264 012737 000004 002336 MOV #4,$GDDAT
2764 007272 004537 003242 JSR R5,GETOUT ;CHECK FOR TX BUFF COMP
2765 007276 005737 002402 TST ERRWRD ;
2766 007302 100420 BMI TXRXEN ;*IF ERROR: THEN EXIT
2767 007304 013737 002426 002336 MOV TXCC,$GDDAT ;
2768 007312 004537 003514 JSR R5,GETCC ;*ELSE CHECK TX CHAR COUNT
2769 007316 005737 002402 TST ERRWRD ;
2770 007322 100410 BMI TXRXEN ;*EXIT IF ERROR
2771 007324 013737 002420 002336 MOV TXADD,$GDDAT
2772 007332 004537 003576 JSR R5,GETBA ;IS THE TX BUFFER ADDR RIGHT ?
2773 007336 005737 002402 TST ERRWRD ;
2774 007342 100400 BMI TXRXEN ;EXIT IF ERROR OCCURED
2775 007344 000205 TXRXEN: RTS R5
2776
2777 007346 000000 MFLG: 0 ;* LOCAL_MAINT_FLAG

```

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GLOBAL SUBROUTINES

```
;* (IF MAINT MODE + MTFLG SET THEN TXBUF  
;* RETURN EXPECTED AFTER RXBUF RETURN)
```

```
2778  
2779
```

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GLOBAL ERROR REPORT SECTION

.SBTTL GLOBAL ERROR REPORT SECTION

```

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

```

ERR1::

```

MOV     SEL0,-(SP)
MOV     #MEF1,-(SP)
MOV     #2,-(SP)
MOV     SP,R0
TRAP    C$PNTB
ADD     #6,SP

```

L10003:

```

TRAP    C$MSG

```

;FAILING CODE

ERR3::

```

MOV     @BSEL6,-(SP)
MOV     #MEF3,-(SP)
MOV     #2,-(SP)
MOV     SP,R0
TRAP    C$PNTB
ADD     #6,SP
JSR     PC,STAND

```

L10004:

```

TRAP    C$MSG

```

ERR5::

```

MOV     $BDDAT,-(SP)
MOV     $GDDAT,-(SP)
MOV     #MEF5,-(SP)
MOV     #3,-(SP)
MOV     SP,R0
TRAP    C$PNTB
ADD     #10,SP
JSR     PC,STAND

```

L10005:

```

TRAP    C$MSG

```

ERR6::

```

MOV     $BDDAT,-(SP)
MOV     $GDDAT,-(SP)
MOV     #MEF6,-(SP)
MOV     #3,-(SP)
MOV     SP,R0
TRAP    C$PNTB
ADD     #10,SP
JSR     PC,STAND

```

L10006:

```

TRAP    C$MSG

```

;PRINT FAILED TO SET RDI

```

2780
2781
2782
2783
2784
2785
2786
2787 007350
2788 007350 013746 002440
2789 007354 012746 010675
2790 007360 012746 000002
2791 007364 010600
2792 007366 104414
2793 007370 062706 000006
2794 007374
2795 007374 104423
2796
2797
2798
2799
2800 007376
2801 007376 017746 173052
2802 007402 012746 011105
2803 007406 012746 000002
2804 007412 010600
2805 007414 104414
2806 007416 062706 000006
2807 007422 004737 005140
2808 007426
2809 007426 104423
2810
2811 007430
2812 007430 013746 002340
2813 007434 013746 002336
2814 007440 012746 011243
2815 007444 012746 000003
2816 007450 010600
2817 007452 104414
2818 007454 062706 000010
2819 007460 004737 005140
2820 007464
2821 007464 104423
2822
2823 007466
2824 007466 013746 002340
2825 007472 013746 002336
2826 007476 012746 011336
2827 007502 012746 000003
2828 007506 010600
2829 007510 104414
2830 007512 062706 000010
2831 007514 004737 005140
2832 007522
2833 007522 104423
2834
2835

```

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GLOBAL ERROR REPORT SECTION

```

2836
2837 007524
2838 007524 012746 011660
2839 007530 012746 000001
2840 007534 010600
2841 007536 104414
2842 007540 062706 000004
2843 007544 004737 005140
2844 007550
2845 007550 104423
2846
2847
2848
2849 007552
2850 007552 012746 011704
2851 007556 012746 000001
2852 007562 010600
2853 007564 104414
2854 007566 062706 000004
2855 007572 004737 005140
2856 007576
2857 007576 104423
2858
2859
2860
2861
2862
2863 007600
2864 007600 013746 002406
2865 007604 012746 011611
2866 007610 013746 002340
2867 007614 013746 002336
2868 007620 012746 012301
2869 007624 012746 000005
2870 007630 010600
2871 007632 104414
2872 007634 062706 000014
2873 007640 004737 005140
2874 007644
2875 007644 104423
2876
2877
2878
2879 007646
2880 007646 013746 002340
2881 007652 013746 002336
2882 007656 010446
2883 007660 012746 012372
2884 007664 012746 000004
2885 007670 010600
2886 007672 104414
2887 007674 062706 000012
2888 007700 004737 005140
2889 007704
2890 007704 104423
2891

```

```

ERR9::
      MOV      #MRDI,-(SP)
      MOV      #1,-(SP)
      MOV      SP,R0
      TRAP     C$PNTB
      ADD      #4,SP
      JSR      PC,STAND
L10007:
      TRAP     C$MSG
      ;PRINT FAILED TO SET RDO

ERR10::
      MOV      #MRDO,-(SP)
      MOV      #1,-(SP)
      MOV      SP,R0
      TRAP     C$PNTB
      ADD      #4,SP
      JSR      PC,STAND
L10010:
      TRAP     C$MSG
      ;PRINTS GOOD AND BAD DATA (BYTES) AND
      ;FAILING PC ADDRS AND STANDARD REGS

ERR18::
      MOV      ERRADD,-(SP)
      MOV      #MFPC,-(SP)
      MOV      $BDDAT,-(SP)
      MOV      $GDDAT,-(SP)
      MOV      #MEF18,-(SP)
      MOV      #5,-(SP)
      MOV      SP,R0
      TRAP     C$PNTB
      ADD      #14,SP
      JSR      PC,STAND
L10011:
      TRAP     C$MSG
      ;DATA COMPARE ERROR

ERR19::
      MOV      $BDDAT,-(SP)
      MOV      $GDDAT,-(SP)
      MOV      R4,-(SP)
      MOV      #MEF19,-(SP)
      MOV      #4,-(SP)
      MOV      SP,R0
      TRAP     C$PNTB
      ADD      #12,SP
      JSR      PC,STAND
L10012:
      TRAP     C$MSG

```

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GLOBAL ERROR REPORT SECTION

;NON-EXISTENT MEMORY ERROR

2892
 2893
 2894 007706
 2895 007706 013746 002542
 2896 007712 012746 012633
 2897 007716 012746 000002
 2898 007722 010600
 2899 007724 104414
 2900 007726 062706 000006
 2901 007732 004737 005140
 2902 007736
 2903 007736 104423
 2904
 2905 007740
 2906 007740 012746 012756
 2907 007744 012746 000001
 2908 007750 010600
 2909 007752 104414
 2910 007754 062706 000004
 2911 007760 013746 002340
 2912 007764 013746 002336
 2913 007770 013746 002542
 2914 007774 012746 013045
 2915 010000 012746 000004
 2916 010004 010600
 2917 010006 104414
 2918 010010 062706 000012
 2919 010014 004737 005140
 2920 010020
 2921 010020 104423
 2922
 2923 010022
 2924 010022 012746 013126
 2925 010026 012746 000001
 2926 010032 010600
 2927 010034 104414
 2928 010036 062706 000004
 2929 010042 013746 002542
 2930 010046 012746 013214
 2931 010052 012746 000002
 2932 010056 010600
 2933 010060 104414
 2934 010062 062706 000006
 2935 010066 012746 013303
 2936 010072 012746 000001
 2937 010076 010600
 2938 010100 104414
 2939 010102 062706 000004
 2940 010106 004737 005140
 2941 010112
 2942 010112 104423
 2943
 2944
 2945
 2946
 2947

ERR20::
 MC / \$TMP0,-(SP)
 MOV #TFM20,-(SP)
 MOV #2,-(SP)
 MOV SP,R0
 TRAP C\$PNTB
 ADD #6,SP
 JSR PC,STAND
 L10013:
 TRAP C\$MSG
 ERR21::
 MOV #TFM21,-(SP)
 MOV #1,-(SP)
 MOV SP,R0
 TRAP C\$PN 3
 ADD #4,SP
 MOV \$BDDAT,-(SP)
 MOV \$GDDAT,-(SP)
 MOV \$TMP0,-(SP)
 MOV #TFM2A,-(SP)
 MOV #4,-(SP)
 MOV SP,R0
 TRAP C\$PNTB
 ADD #12,SP
 JSR PC,STAND
 L10014:
 TRAP C\$MSG
 ERR22::
 MOV #TFM22,-(SP)
 MOV #1,-(SP)
 MOV SP,R0
 TRAP C\$PNTB
 ADD #4,SP
 MOV \$TMP0,-(SP)
 MOV #TFM22A,-(SP)
 MOV #2,-(SP)
 MOV SP,R0
 TRAP C\$PNTB
 ADD #6,SP
 MOV #TFM22B,-(SP)
 MOV #1,-(SP)
 MOV SP,R0
 TRAP C\$PNTB
 ADD #4,SP
 JSR PC,STAND
 L10015:
 TRAP C\$MSG

;PRINTS GOOD AND BAD DATA (WORDS) AND
 ;FAILING PC ADDRS AND STANDARD REGS

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GLOBAL ERROR REPORT SECTION

```

2948 010114
2949 010114 013746 002406
2950 010120 012746 011611
2951 010124 013746 002340
2952 010130 013746 002336
2953 010134 012746 012460
2954 010140 012746 000005
2955 010144 010600
2956 010146 104414
2957 010150 062706 000014
2958 010154 004737 005140
2959 010160
2960 010160 104423
2961
2962 010162
2963 010162 013746 002374
2964 010166 013746 002372
2965 010172 013746 002366
2966 010176 012746 013367
2967 010202 012746 000004
2968 010206 010600
2969 010210 104414
2970 010212 062706 000012
2971 010216 004737 005140
2972 010222
2973 010222 104423
2974
2975 010224
2976 010224 013746 002372
2977 010230 013746 002370
2978 010234 013746 002366
2979 010240 012746 013461
2980 010244 012746 000004
2981 010250 010600
2982 010252 104414
2983 010254 062706 000012
2984 010260 004737 005140
2985 010264
2986 010264 104423
2987
2988
2989
2990 010266
2991 010266 013746 002406
2992 010272 012746 011611
2993 010276 012746 011603
2994 010302 012746 000003
2995 010306 010600
2996 010310 104414
2997 010312 062706 000010
2998 010316 004737 005140
2999 010322
3000 010322 104423
3001
3002
3003

```

```

ERR23::
MOV    ERRADD,-(SP)
MOV    #MFPC,-(SP)
MOV    $BDDAT,-(SP)
MOV    $GDDAT,-(SP)
MOV    #MEF23,-(SP)
MOV    #5,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #14,SP
JSR    PC,STAND

```

```

L10016: TRAP   C$MSG

```

```

ERR24::
MOV    CWORD,-(SP)
MOV    WORDT,-(SP)
MOV    ROMN,-(SP)
MOV    #TFM24,-(SP)
MOV    #4,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #12,SP
JSR    PC,STAND

```

```

L10017: TRAP   C$MSG

```

```

ERR25::
MOV    WORDT,-(SP)
MOV    ROMN1,-(SP)
MOV    ROMN,-(SP)
MOV    #TFM25,-(SP)
MOV    #4,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #12,SP
JSR    PC,STAND

```

```

L10020: TRAP   C$MSG

```

```

;PRINTS FAILING PC ADDRESS AND STANARD REGS

```

```

ERR26::
MOV    ERRADD,-(SP)
MOV    #MFPC,-(SP)
MOV    #MEF1A,-(SP)
MOV    #3,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #10,SP
JSR    PC,STAND

```

```

L10021: TRAP   C$MSG

```

```

;PRINTS FAILING PC ADDRESS AND
;CODE IN ERROR FROM CODEW AND

```

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GLOBAL ERROR REPORT SECTION

;STANDARD REGISTERS

ERR27::

```

MOV    ERRADD,-(SP)
MOV    #MFPC,-(SP)
MOV    #MEF1A,-(SP)
MOV    #3,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #10,SP
MOV    $BDDAT,-(SP)
MOV    $GDDAT,-(SP)
MOV    #MGB,-(SP)
MOV    CODEW,-(SP)
MOV    #MEF11,-(SP)
MOV    #5,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #14,SP
JSR    PC,STAND

```

L10022:

TRAP C\$MSG

;PRINTS THE STANDARD REGS

ERR32::

```

MOV    #BASER,-(SP)
MOV    #1,-(SP)
MOV    SP,R0
TRAP   C$PNTB
ADD    #4,SP
JSR    PC,STAND

```

L10023:

TRAP C\$MSG

BASER: .ASCIZ '%ABASIC ERROR''

BADIFM: .ASCIZ '%N%A INCORRECT INTERFACE FOR OPTION SELECTED ''

BADBRM: .ASCIZ '%N%A INCORRECT BAUD RATE FOR INTERFACE SELECTED''

TESTAB: .ASCIZ '%N%A ***** SUBTEST %02%ABORTED ***** ''

```

3004
3005
3006 010324
3007 010324 013746 002406
3008 010330 012746 011611
3009 010334 012746 011603
3010 010340 012746 000003
3011 010344 010600
3012 010346 104414
3013 010350 062706 000010
3014 010354 013746 002340
3015 010360 013746 002336
3016 010364 012746 011730
3017 010370 013746 002430
3018 010374 012746 011536
3019 010400 012746 000005
3020 010404 010600
3021 010406 104414
3022 010410 062706 000014
3023 010414 004737 005140
3024 010420
3025 010420 104423
3026
3027
3028
3029 010422
3030 010422 012746 010450
3031 010426 012746 000001
3032 010432 010600
3033 010434 104414
3034 010436 062706 000004
3035 010442 004737 005140
3036 010446
3037 010446 104423
3038
3039 010450 040445 040502 044523
3040 010456 020103 051105 047522
3041 010464 000122
3042 010466 047045 040445 044440
3043 010474 041516 051117 042522
3044 010502 052103 044440 052116
3045 010510 051105 040506 042503
3046 010516 043040 051117 047440
3047 010524 052120 047511 020116
3048 010532 042523 042514 052103
3049 010540 042105 000040
3050 010544 047045 040445 044440
3051 010552 041516 051117 042522
3052 010560 052103 041040 052501
3053 010566 020104 040522 042524
3054 010574 043040 051117 044440
3055 010602 052116 051105 040506
3056 010610 042503 051440 046105
3057 010616 041505 042524 000104
3058 010624 047045 040445 025040
3059 010632 025052 025052 020052

```

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GLOBAL ERROR REPORT SECTION

3060	010640	052523	052102	051505	
3061	010646	020124	047445	022462	
3062	010654	020101	041101	051117	
3063	010662	042524	020104	025052	
3064	010670	025052	020052	000	
3065					
3066	010675	045	020101	042101	MEF1: .ASCIIZ '%A ADDRESSING PROBLEM UNIT ADDRESS %06%N'
3067	010702	051104	051505	044523	
3068	010710	043516	050040	047522	
3069	010716	046102	046505	052440	
3070	010724	044516	020124	042101	
3071	010732	051104	051505	020123	
3072	010740	047445	022466	000116	
3073	010746	042101	051104	051505	EMT0: .ASCIIZ /ADDRESS ERROR -TRAP 4/
3074	010754	020123	051105	047522	
3075	010762	020122	052055	040522	
3076	010770	020120	000064		
3077	010774	051445	022463	041501	FMT0: .ASCIIZ /%S3%ACSR (SEL%D1%A) DOES NOT RESPOND%N/
3078	011002	051123	024040	042523	
3079	011010	022514	030504	040445	
3080	011016	020051	047504	051505	
3081	011024	047040	052117	051040	
3082	011032	051505	047520	042116	
3083	011040	047045	000		
3084	011043	111	052116	051105	MEF3A: .ASCIIZ /INTERNAL DMP-11 DIAGNOSTIC FAILED/
3085	011050	040516	020114	046504	
3086	011056	026520	030461	042040	
3087	011064	040511	047107	051517	
3088	011072	044524	020103	040506	
3089	011100	046111	042105	000	
3090	011105	045	052101	051505	MEF3: .ASCII '%ATEST CODE- %03''
3091	011112	020124	047503	042504	
3092	011120	020055	047445	063	
3093	011125	045	022516	044501	MEF4: .ASCIIZ /%N%AINTERNAL DMP-11-LINE UNIT TEST FAILURE/
3094	011132	052116	051105	040516	
3095	011140	020114	046504	026520	
3096	011146	030461	046055	047111	
3097	011154	020105	047125	052111	
3098	011162	052040	051505	020124	
3099	011170	040506	046111	051125	
3100	011176	000105			
3101	011200	047111	042524	043122	MEFC: .ASCIIZ /INTERFACE MICRO-DIAGNOSTIC FAILURE/
3102	011206	041501	020105	044515	
3103	011214	051103	026517	044504	
3104	011222	043501	047516	052123	
3105	011230	041511	043040	044501	
3106	011236	052514	042522	000	
3107	011243	045	020101	052515	MEF5: .ASCII '%A MULTIPORT RAM WRITE/READ ERROR%N'
3108	011250	052114	050111	051117	
3109	011256	020124	040522	020115	
3110	011264	051127	052111	027505	
3111	011272	042522	042101	042440	
3112	011300	051122	051117	047045	
3113	011306	040445	043440	047517	.ASCIIZ '%A GOOD= %03%A BAD= %03''
3114	011314	036504	022440	031517	
3115	011322	040445	041040	042101	

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GLOBAL ERROR REPORT SECTION

3116	011330	020075	047445	000063	
3117					
3118	011336	040445	047040	051120	MEF6: .ASCII '%A NPR TRANSFER TEST'
3119	011344	052040	040522	051516	
3120	011352	042506	020122	042524	
3121	011360	052123			
3122	011362	047045	040445	043440	.ASCIIZ '%N%A GOOD= %06%A BAD= %06''
3123	011370	047517	036504	022440	
3124	011376	033117	040445	041040	
3125	011404	042101	020075	047445	
3126	011412	000066			
3127					
3128	011414	047125	054105	042520	MEF7: .ASCIIZ /UNEXPECTED TEST LOOP HANG/
3129	011422	052103	042105	052040	
3130	011430	051505	020124	047514	
3131	011436	050117	044040	047101	
3132	011444	000107			
3133	011446	046504	020120	047111	MEF8: .ASCIIZ /DMP INTERRUPTED TO WRONG VECTOR/
3134	011454	042524	051122	050125	
3135	011462	042524	020104	047524	
3136	011470	053440	047522	043516	
3137	011476	053040	041505	047524	
3138	011504	000122			
3139	011506	047111	047503	051122	EROIC: .ASCIIZ /INCORRECT CODE RETURNED/
3140	011514	041505	020124	047503	
3141	011522	042504	051040	052105	
3142	011530	051125	042516	000104	
3143	011536	047045	052045	040445	MEF11: .ASCIIZ '%N%T%A CODE INCORRECT%N%T%N%06%S3%06'
3144	011544	041440	042117	020105	
3145	011552	047111	047503	051122	
3146	011560	041505	022524	022516	
3147	011566	022524	022516	033117	
3148	011574	051445	022463	033117	
3149	011602	000			
3150	011603	045	022524	033117	MEF1A: .ASCIIZ '%T%06'
3151	011610	000			
3152	011611	106	044501	052514	MFPC: .ASCIIZ 'FAILURE AT PC '
3153	011616	042522	040440	020124	
3154	011624	041520	000040		
3155					
3156	011630	047522	020115	052506	MRFT: .ASCIIZ 'ROM FUNCTION TEST ERROR'
3157	011636	041516	044524	047117	
3158	011644	052040	051505	020124	
3159	011652	051105	047522	000122	
3160	011660	040445	042122	020111	MRDI: .ASCIIZ '%ARDI FAILED TO SET'
3161	011666	040506	046111	042105	
3162	011674	052040	020117	042523	
3163	011702	000124			
3164	011704	040445	042122	020117	MRDO: .ASCIIZ '%ARDO FAILED TO SET'
3165	011712	040506	046111	042105	
3166	011720	052040	020117	042523	
3167	011726	000124			
3168	011730	047507	042117	020040	MGB: .ASCIIZ 'GOOD BAD'
3169	011736	020040	020040	041040	
3170	011744	042101	000		
3171	011747	122	052105	051125	M12F: .ASCIIZ 'RETURN KEY'

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GLOBAL ERROR REPORT SECTION

3172	011754	020116	042513	000131		
3173	011762	051105	047522	000122	M13F:	.ASCIZ 'ERROR'
3174	011770	042122	000117		MFRO:	.ASCIZ 'RDO'
3175	011774	042122	000111		MFRI:	.ASCIZ 'RDI'
3176	012000	052517	050124	052125	M18F:	.ASCIZ 'OUTPUT'
3177	012006	000				
3178	012007	124	050131	000105	M28F:	.ASCIZ 'TYPE'
3179	012014	040504	040524	000	M30F:	.ASCIZ 'DATA'
3180	012021	122	044504	051440	MEF14:	.ASCIZ 'RDI SET WHEN EXPECTING RDO TO BE SET'
3181	012026	052105	053440	042510		
3182	012034	020116	054105	042520		
3183	012042	052103	047111	020107		
3184	012050	042122	020117	047524		
3185	012056	041040	020105	042523		
3186	012064	000124				
3187	012066	042122	020117	042523	MEF15:	.ASCIZ 'RDO SET WHEN EXPECTING RDI TO BE SET'
3188	012074	020124	044127	047105		
3189	012102	042440	050130	041505		
3190	012110	044524	043516	051040		
3191	012116	044504	052040	020117		
3192	012124	042502	051440	052105		
3193	012132	000				
3194	012133	111	041516	051117	MEF16A:	.ASCIZ /INCORRECT CHARACTER COUNT RETURNED/
3195	012140	042522	052103	041440		
3196	012146	040510	040522	052103		
3197	012154	051105	041440	052517		
3198	012162	052116	051040	052105		
3199	012170	051125	042516	000104		
3200	012176	047111	047503	051122	MEF17A:	.ASCIZ /INCORRECT REC BUFFER ADDR. RETURNED/
3201	012204	041505	020124	042522		
3202	012212	020103	052502	043106		
3203	012220	051105	040440	042104		
3204	012226	027122	051040	052105		
3205	012234	051125	042516	000104		
3206	012242	047111	047503	051122	MEF18A:	.ASCIZ /INCORRECT TRIB NUMBER RETURNED/
3207	012250	041505	020124	051124		
3208	012256	041111	047040	046525		
3209	012264	042502	020122	042522		
3210	012272	052524	047122	042105		
3211	012300	000				
3212	012301	045	043501	047517	MEF18:	.ASCII '%AGOOD= %03%A BAD- %03''
3213	012306	036504	022440	031517		
3214	012314	040445	041040	042101		
3215	012322	020075	047445	063		
3216	012327	045	022516	022524		.ASCIZ '%N%T%06''
3217	012334	033117	000			
3218	012337	115	051505	040523	MEF19A:	.ASCIZ /MESSAGE DA' , COMPARE ERROR/
3219	012344	042507	042040	052101		
3220	012352	020101	047503	050115		
3221	012360	051101	020105	051105		
3222	012366	047522	000122			
3223	012372	040445	044103	051101	MEF19:	.ASCII '%A CHARACTER# %03%A SENT CODE''
3224	012400	041501	042524	021522		
3225	012406	022440	031517	040445		
3226	012414	051440	047105	020124		
3227	012422	047503	042504			

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GLOBAL ERROR REPORT SECTION

3228	012426	022440	031517	040445		.ASCIZ '' %03%A RECEIVED CODES %03''
3229	012434	051040	041505	044505		
3230	012442	042526	020104	047503		
3231	012450	042504	020123	047445		
3232	012456	000063				
3233	012460	040445	047507	042117	MEF23:	.ASCII '%AGOOD= %06%A BAD= %06''
3234	012466	020075	047445	022466		
3235	012474	020101	040502	036504		
3236	012502	022440	033117			
3237	012506	047045	052045	047445		.ASCIZ '%N%T%06''
3238	012514	000066				
3239	012516	042122	020117	046111	MEF30:	.ASCIZ '/RDO ILLEGALLY SET/'
3240	012524	042514	040507	046114		
3241	012532	020131	042523	000124		
3242	012540	047522	020115	042526	MEF31:	.ASCIZ '/ROM VERSION INCORRECT/'
3243	012546	051522	047511	020116		
3244	012554	047111	047503	051122		
3245	012562	041505	000124			
3246	012566	053440	047522	043516	MEF32:	.ASCIZ '/ WRONG OPTION TYPE SELECTED IN TABLE/'
3247	012574	047440	052120	047511		
3248	012602	020116	054524	042520		
3249	012610	051440	046105	041505		
3250	012616	042524	020104	047111		
3251	012624	052040	041101	042514		
3252	012632	000				
3253	012633	045	052501	044516	TFM20:	.ASCII '%AUNIT RETURNED NON-EXISTENT MEM ERR FOR ADD'
3254	012640	020124	042522	052524		
3255	012646	047122	042105	047040		
3256	012654	047117	042455	044530		
3257	012662	052123	047105	020124		
3258	012670	042515	020115	051105		
3259	012676	020122	047506	020122		
3260	012704	042101	104			
3261	012707	040	047445	022462		.ASCIZ ' %02%A000000%N%A-MEMORY DOES NOT EXIST!'
3262	012714	030101	030060	030060		
3263	012722	047045	040445	046455		
3264	012730	046505	051117	020131		
3265	012736	047504	051505	047040		
3266	012744	052117	042440	044530		
3267	012752	052123	000041			
3268	012756	040445	040504	040524	TFM21:	.ASCIZ '%ADATA ERROR IN TRANSFER TO RECEIVE BUFFER AT ADDRESS '
3269	012764	042440	051122	051117		
3270	012772	044440	020116	051124		
3271	013000	047101	043123	051105		
3272	013006	052040	020117	042522		
3273	013014	042503	053111	020105		
3274	013022	052502	043106	051105		
3275	013030	040440	020124	042101		
3276	013036	051104	051505	020123		
3277	013044	000				
3278	013045	045	031117	040445	TFM2A:	.ASCII '%02%A000000%N%ADATA SENT = %06'
3279	013052	030060	030060	022460		
3280	013060	022516	042101	052101		
3281	013066	020101	042523	052116		
3282	013074	036440	022440	033117		
3283	013102	040445	020054	040504		.ASCIZ '%A, DATA RECD = %06'

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GLOBAL ERROR REPORT SECTION

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3284 013110 040524 051040 041505
3285 013116 020104 020075 047445
3286 013124 000066
3287 013126 040445 047125 052111
3288 013134 043040 044501 042514
3289 013142 020104 047524 042040
3290 013150 052105 041505 020124
3291 013156 047516 026516 054105
3292 013164 051511 042524 052116
3293 013172 046440 046505 051117
3294 013200 026131 040440 042104
3295 013206 042522 051523 000040
3296 013214 047445 022462 030101
3297 013222 030060 030060 047045
3298 013230 040445 053440 040440
3299 013236 051040 047040 044440
3300 013244 047040 043440 020040
3301 013252 040520 052122 020123
3302 013260 043117 052040 044510
3303 013266 020123 044504 043501
3304 013274 047516 052123 041511
3305 013302 000
3306 013303 045 020101 040515
3307 013310 020131 040510 042526
3308 013316 041040 042505 020116
3309 013324 047045 040445 042504
3310 013332 052123 047522 042531
3311 013340 020104 054502 052040
3312 013346 042510 047040 051120
3313 013354 052040 040522 051516
3314 013362 042506 020522 000
3315 013367 045 041501 041522
3316 013374 042440 051122 051117
3317 013402 044440 020116 047522
3318 013410 020115 022505 031117
3319 013416 040445 051040 040505
3320 013424 020104 020075 047445
3321 013432 022466 020101 020073
3322 013440 040503 041514 046125
3323 013446 052101 042105 036440
3324 013454 022440 033117 000
3325 013461 045 042501 051122
3326 013466 051117 044440 020116
3327 013474 047522 020115 022505
3328 013502 031117 040445 020054
3329 013510 044123 052517 042114
3330 013516 041040 020105 047522
3331 013524 020115 047516 035056
3332 013532 020040 052045 040445
3333 013540 020054 047516 020056
3334 013546 042522 042101 044440
3335 013554 035123 022440 000124
3336 013562 047045 052045 047045
3337 013570 052045 047045 000
3338 013575 045 031517 051445
3339 013602 022465 031517 051445

```

TFM22: .ASCIZ '%AUNIT FAILED TO DETECT NON-EXISTENT MEMORY, ADDRESS '

TFM22A: .ASCIZ '%02%A000000%N%A W A R N I N G PARTS OF THIS DIAGNOSTIC'

TFM22B: .ASCIZ '%A MAY HAVE BEEN %N%ADESTROYED BY THE NPR TRANSFER!'

TFM24: .ASCIZ '%ACRC ERROR IN ROM E%02%A READ = %06%A ; CALCULATED = %06''

TFM25: .ASCII '%AERROR IN ROM E%02%A, ''

.ASCIZ ''SHOULD BE ROM NO.: %T%A, NO. READ IS: %T''

DFMT4: .ASCIZ '/%N%T%N%T%N/'

DFMT5: .ASCIZ '/%03%S5%03%S5%03%S5%03%N/'

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3340	013610	022465	031517	051445
3341	013616	022465	031517	047045
3342	013624	000		
3343	013625	045	032123	047445
3344	013632	022463	032523	047445
3345	013640	022463	032523	047445
3346	013646	022463	032523	047445
3347	013654	022463	000116	
3348	013660	052045	047045	000
3349	013665	045	022516	020101
3350	013672	047125	052111	047040
3351	013700	046525	042502	035122
3352	013706	022440	032504	040445
3353	013714	051040	046517	047040
3354	013722	046525	042502	020122
3355	013730	051511	020072	052045
3356	013736	040445	020040	042522
3357	013744	027126	047040	027117
3358	013752	044440	035123	022440
3359	013760	000124		
3360				
3361	013762	000	000	
3362	013764	000	000	
3363				

DFMT6: .ASCIIZ /%S4%03%S5%03%S5%03%S5%03%N/

DFMT9: .ASCIIZ /%T%N/

ROMMSG: .ASCIIZ '%N%A UNIT NUMBER: %D5%A ROM NUMBER IS: %T%A REV. NO. IS: %T''

.EVEN
 ROMNO: .BYTE 0,0
 REVNO: .BYTE 0,0
 .EVEN

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REPORT CODING SECTION

.SBTTL REPORT CODING SECTION

```
*****  
: THE REPORT CODING SECTION CONTAINS THE  
: 'PRINTS' CALLS THAT GENERATE STATISTICAL REPORTS.  
:--
```

L\$RPT::

```
.WORD JSJMP  
.WORD L10024-2-
```

L10024:

TRAP C\$RPT

```
3364  
3365  
3366  
3367  
3368  
3369  
3370  
3371  
3372 013766  
3373  
3374  
3375 013766 000167  
3376 013770 000000  
3377  
3378  
3379 013772  
3380 013772 104425  
3381  
3382  
3383  
3384  
3385
```

INITIALIZE SECTION

```

.SBTTL  INITIALIZE SECTION

```

[illegible]

LSINIT::

```

MOV      SP,STACK          ;SAVE BASE-LEVEL STACK POINTER
CLR      SUBRPC            ;CLEAR SUBR CALL PC
CLR      ERROR1            ;CLEAR ERROR FLAGS
CLR      MODQ22            ;CLEAR DMV Q22 FORMAT FLAG.
CLR      EXLOOP           ;CLEAR DMV EXTERNAL LOOP FLAG
TST      FRSTIM            ;SEE IF FIRST TIME THROUGH AFTER LOAD
BNE      6$               ;BR IF NOT
MOV      @#4,SAVE4         ;SAVE ERROR TRAP VECTOR
MOV      @#6,SAVE6
BR       9$
6$:      MOV      SAVE4,@#4      ;RESTORE ERROR TRAP VECTOR
MOV      SAVE6,@#6
9$:      MOV      #1,FRSTIM      ;MARK FLAG FOR NEXT TIME THROUGH
;SEE IF PROGRAM JUST STARTED, BR IF YES
MOV      #EF.START,R0
TRAP     C$REFG
BCS      STARST
;SEE IF PROGRAM JUST RESTARTED, BR IF YES
MOV      #EF.RESTART,R0
TRAP     C$REFG
BCS      STARST
;SEE IF THIS IS A NEW PASS, BR IF YES
MOV      #EF.NEW,R0
TRAP     C$REFG
BCS      NEWST
;SEE IF PROGRAM WAS JUST CONTINUED
MOV      #EF.CONTINUE,R0
TRAP     C$REFG
BCS      ENDIT
BR       GETPRM
STARST:  CLR      STARES          ;CLEAR FLAG TO SHOW JUST HAD STA OR RES
;CLEAR DEVICE MAP
CLR      DEVMAP
NEWST:   MOV      #-1,LOGDEV      ;RESET LOGICAL DEVICE TO -1
INC      FRSPAS                ;INCREMENT NO. OF PASSES AFTER LOAD
INC      STARES                ;INCREMENT NO. OF PASSES SINCE STA OR RES
MOV      #BIT0,DEVPTR          ;INIT DEVICE MAP BIT POINTER
; GET UNIBUS ADDRESS, VECTOR, PRIORITY LEVEL, SWITCH PACKS, TEST
; CONNECTOR INFORMATION FOR THIS LOGICAL DEVICE
GETPRM:  INC      LOGDEV          ;INCREMENT LOGICAL DEVICE NUMBER
CMP      LOGDEV,L$UNIT          ;SEE IF MAXIMUM UNIT NO. EXCEEDED
BGE      NEWST                  ;BR IF YES....
MOV      LOGDEV,R0
TRAP     C$GPHRD

```

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INITIALIZE SECTION

3442	014206	010001		MOV	R0,R1	
3443	014210	103403		BCS	10\$	
3444	014212	006337	002352	ASL	DEVPTR	;SHIFT DEVICE MAP BIT POINTER
3445	014216	000762		BR	GETPRM	;SKIP THIS DEVICE
3446	014220					
3447	014220	053737	002352 002350	10\$: BIS	DEVPTR,DEVMAP	;SHIFT DEVICE MAP BIT POINTER
3448	014226	006337	002352	ASL	DEVPTR	
3449	014232	012137	002472	MOV	(R1)+,OPTYP	;SET THE OPTION TYPE
3450	014236	011137	002440	MOV	(R1),MPCSR	;STORE POINTER TO M8200,4,7 CSR'S
3451	014242	011137	002442	MOV	(R1),BSEL1	
3452	014246	005237	002442	INC	BSEL1	;GET POINTER TO BSEL1 (MAINTENANCE REGISTER)
3453	014252	011137	002450	MOV	(R1),SEL4	
3454	014256	062737	000004 002450	ADD	#4,SEL4	;GET POINTER TO SEL4
3455	014264	011137	002444	MOV	(R1),SEL2	
3456	014270	062737	000002 002444	ADD	#2,SEL2	
3457	014276	011137	002446	MOV	(R1),BSEL3	
3458	014302	062737	000003 002446	ADD	#3,BSEL3	
3459	014310	011137	002452	MOV	(R1),BSEL5	
3460	014314	062737	000005 002452	ADD	#5,BSEL5	
3461	014322	011137	002456	MOV	(R1),BSEL7	
3462	014326	062737	000007 002456	ADD	#7,BSEL7	
3463	014334	011137	002460	MOV	(R1),BSEL10	;FOR DMV
3464	014340	062737	000010 002460	ADD	#10,BSEL10	
3465	014346	012137	002454	MOV	(R1)+,SEL6	
3466	014352	062737	000006 002454	ADD	#6,SEL6	;STORE POINTER TO SEL6
3467	014360	011137	002462	MOV	(R1),MPIVEC	;GET M8200,4,7 INPUT INTRPT VECTOR
3468	014364	012137	002464	MOV	(R1)+,MPOVEC	
3469	014370	062737	000004 002464	ADD	#4,MPOVEC	;GET M8200,4,7 OUTPUT INTRPT VECTOR
3470	014376	012137	002470	MOV	(R1)+,MPRIOR	;GET M8200,4,7 DEVICE PRIORITY
3471	014402	062701	000010	ADD	#10,R1	;POINT TO TEST CON
3472	014406	012137	002476	MOV	(R1)+,TSTCON	;GET TEST CONNECTOR INDICATOR
3473	014412	012137	002466	MOV	(R1)+,SPEEDM	;GET SPEED
3474	014416	012137	002474	MOV	(R1)+,IFTYP	
3475	014422	012137	002474	MOV	(R1)+,IFTYP	;FIRST TIME SKIP RUN WORD;THEN LOAD
3476						;INTERFACE TYPE
3477	014426			ENDIT:		
3478	014426			L10025:		
3479	014426	104411		TRAP	C\$INIT	
3480						
3481						
3482	014430			L\$AUTO::		
3483	014430	004737	004456	JSR	PC,MINITR	;INITIALIZE
3484	014434	005037	002342	CLR	C\$INT	;+COUNTER
3485						
3486	014440	004737	004244	1\$: JSR	PC,WAIT50	;STALL
3487	014444	005777	165770	TST	@SEL0	;HAS IT STARTED?
3488	014450	100406		BMI	4\$	
3489	014452	105337	002342	DECB	COUNT	;TIME UP?
3490	014456	001370		BNE	1\$	;NO LOOP
3491	014460	013700	002332	MOV	LOGDEV,R0	
3492	014464	104451		TRAP	C\$DODU	
3493						
3494	014466			4\$:		
3495	014466	104433		TRAP	C\$RESET	
3496	014470			L10026:		
3497	014470	104461		TRAP	C\$AUTO	

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INITIALIZE SECTION

' 3498

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CLEANUP CODING SECTION

.SBTTL CLEANUP CODING SECTION

```
:/
// THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
// AT THE END OF THE TEST SEQUENCE ON A PARTICULAR UNIT.
:/
```

```
L$CLEAN::
      TRAP    C$RESET
```

```
L10027:
      TRAP    C$CLEAN
```

```
3499
3500
3501
3502
3503
3504
3505
3506 014472
3507 014472 104433
3508
3509 014474
3510 014474 104412
3511
3512
3513
3514
3515
```

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DROP UNIT SECTION

3516
3517
3518
3519
3520
3521
3522
3523
3524
3525
3526
3527
3528
3529
3530
3531
3532

.SBTTL DROP UNIT SECTION

:////////////////////
:// THE DROP-UNIT SECTION CONTAINS THE CODING THAT CAUSES A DEVICE
:// TO NO LONGER BE TESTED.
:////////////////////L\$DU::
:ISSUE UNIBUS RESET TO CLEAN UP
TRAP C\$RESET
L10030:
TRAP C\$DU014476
014476 104433
014500
014500 104453

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ADD UNIT SECTION

.SBTTL ADD UNIT SECTION

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

L\$AU::

L10031:

TRAP C\$AU

3533
3534
3535
3536
3537
3538
3539
3540
3541
3542
3543
3544

014502

014502

014502 104452

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ADD UNIT SECTION

3545
3546
3547
3548
3549

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HARDWARE TESTS

.SBTTL HARDWARE TESTS

```

3550
3551
3552
3553
3554
3555
3556
3557
3558 014504
3559
3560
3561
3562
3563
3564
3565
3566
3567
3568
3569
3570 014504
3571 014504 012746 000340
3572 014510 012746 014616
3573 014514 012746 000004
3574 014520 012746 000003
3575 014524 104437
3576 014526 062706 000010
3577 014532 005037 014614
3578 014536 005001
3579 014540 005777 165674
3580 014544 012701 000002
3581 014550 005777 165670
3582 014554 012701 000004
3583 014560 005777 165664
3584 014564 012701 000006
3585 014570 005777 165660
3586 014574 005737 014614
3587 014600 001401
3588 014602 104444
3589 014604
3590 014604 012700 000004
3591 014610 104436
3592
3593 014612
3594 014612 104401
3595
3596 014614 000000
3597
3598 014616
3599 014616 005737 014614
3600 014622 001006
3601 014624 104455
3602 014626 000023
3603 014630 010746
3604 014632 007350
3605 014634 005237 014614

```

```

.SBTTL ***** TEST 1 *****
.SBTTL * ADDRES TEST-VERIFY THAT ALL MCPU ADDRESSES RESPOND
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 *****
T1::
MOV      #PRI07,-(SP)
MOV      #ECBINT,-(SP)
MOV      #4,-(SP)
MOV      #3,-(SP)
TRAP     C$SVEC
ADD      #10,SP
CLR      JMO                      ;CLEAR FLAG
CLR      R1
TST      @SEL0                    ;TEST CSR 0
MOV      #2,R1                    ;SAVE OFFSET FOR NEXT CSR
TST      @SEL2                    ;TEST CSR 2
MOV      #4,R1                    ;SAVE OFFSET
TST      @SEL4                    ;TEST CSR 4
MOV      #6,R1                    ;SAVE OFFSET
TST      @SEL6                    ;TEST CSR 6
TST      JMO                      ;WAS THERE A NXM TRAP
BEQ      10$                      ;IF NOT EXIT CLEANLY
TRAP     C$DCLN
10$:
MOV      #4,R0
TRAP     C$CVEC
L10032:
TRAP     C$ETST
JMO:      .WORD 0                  ;FLAG FOR O'CONNOR CODE
ECBINT::
TST      JMO                      ;HAVE WE HAD AT LEAST 1 TRAP
BNE      10$
TRAP     C$ERDF
.WORD    19
.WORD    EMT0
.WORD    ERR1
INC      JMO                      ;SET FLAG

```

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

3606 014640
3607 014640 010146
3608 014642 012746 010774
3609 014646 012746 000002
3610 014652 010600
3611 014654 104415
3612 014656 062706 000006
3613 014662
3614 014662 000002
3615
3616
3617

10\$:

MOV R1,-(SP)
MOV #FMT0,-(SP)
MOV #2,-(SP)
MOV SP,R0
TRAP C\$PNTX
ADD #6,SP

L10033:

RTI

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```

***** TEST 2 *****
.SBTTL ***** TEST 2 *****
.SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 3
ZZ
;* THIS TEST DONE FOR DMP ONLY
;*
;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 3
;*
.SBTTL ***** TEST 2 *****
;--CROMT-
T2::
3627 014664 022737 000000 002472      CMP      #0,OPTYP      ;IS THIS AN 8207 DMP
3628 014664 001150 000000 002472      BNE      60$          ;IF NOT END.....
3629 014672 001150 000003 002366      MCV      #3,ROMN      ;ROM NUMBER
3630 014674 012737 000000 002366      MOV      #0,CADDR      ;GET STARTING ADDR.
3631 014702 012737 000000 002404
3632
3633 014710 012737 177777 002374      MOV      #-1,CWORD      ;INIT CRC WORD.
3634
3635 014716 004737 004274 002372      10$:      JSR      PC,GWORD      ;GET FIRST BYTE.
3636 014722 117737 165526 002372      MOV      @SEL6,WORDT      ;STORE FIRST BYTE.
3637 014730 005237 002404 002372      INC      CADDR      ;UPDATE ADDR.
3638 014734 004737 004274 002372      JSR      PC,GWORD      ;GET NEXT BYTE.
3639 014740 117737 165510 002373      MOV      @SEL6,WORDT+1      ;STORE IN HIGH BYTE OF WORDT
3640 014746 005237 002404 002373      INC      CADDR      ;UPDATE ADDR.
3641 014752 023727 002404 004000      CMP      CADDR,#3777+1      ;AT END?
3642 014760 001403 002404 004000      BEQ      20$          ;YES,EXIT LOOP.
3643
3644 014762 004737 004376 004000      JSR      PC,CRCR      ;NO-CALCULATE CRC ON THIS WORD.
3645 014766 000753 004376 004000      BR      10$          ;LOOP.
3646
3647 014770 005137 002374 002372      20$:      COM      CWORD      ;STORED CRC WORD IS COMPLEMENT.
3648 014774 023737 002374 002372      CMP      CWORD,WORDT      ;EQUAL?
3649 015002 001404 002374 002372      BEQ      30$          ;ROM CRC WORD BAD.
3650
3651
3652 015004 104455 002374 002372      TRAP      C$ERDF      ;SET ROM NUMBER ADDRESS
3653 015006 000024 002374 002372      .WORD      20          ;ROM NUMBER
3654 015010 000000 002374 002372      .WORD      0          ;READ ROM NUMBER
3655 015012 010162 002374 002372      .WORD      ERR24      ;STORE BYTE
3656 015014 012737 003775 002404      30$:      MOV      #3777-2,CADDR      ;GOOD?
3657 015022 012737 000060 002370      MOV      #60,ROMN1
3658 015030 004737 004274 002372      JSR      PC,GWORD
3659 015034 117737 165414 002372      MOV      @SEL6,WORDT
3660 015042 123737 002370 002372      CMP      ROMN1,WORDT
3661 015050 001404 002370 002372      BEQ      40$
3662 015052 104455 002370 002372      TRAP      C$ERDF
3663 015054 000025 002370 002372      .WORD      21
3664 015056 000000 002370 002372      .WORD      0
3665 015060 010224 002370 002372      .WORD      ERR25
3666
3667 015062 022737 000001 002346      40$:      CMP      #1,STARES      ;IS THIS FIRST PASS
3668 015070 001031 000001 002346      BNE      50$          ;IF NOT THEN GO TO 50
3669 015072 113737 002372 013762      MOV      WORDT,ROMNO      ;PUT ROM NO IN PRINT CONDITION
3670 015100 012737 003774 002404      MOV      #3777-3,CADDR
3671 015106 004737 004274 002404      JSR      PC,GWORD
3672 015112 117737 165336 013764      MOV      @SEL6,REVNO      ;READ REV NO.
3673 015120 012746 013764 013764      MOV      #REVNO,-(SP)      ;STORE BYTE

```

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

3674	015124	012746	013762			MOV	#ROMNO,-(SP)	
3675	015130	013746	002332			MOV	LOGDEV,-(SP)	
3676	015134	012746	013665			MOV	#ROMMSG,-(SP)	
3677	015140	012746	000004			MOV	#4,-(SP)	
3678	015144	010600				MOV	SP,R0	
3679	015146	104417				TRAP	C\$PNTF	
3680	015150	062706	000012			ADD	#12,SP	
3681	015154	012737	003773	002404	50\$:	MOV	#3777-4,CADDR	:GET VERSION
3682	015162	004737	004274			JSR	PC,GWORD	:READ IT
3683	015166	117737	165262	002372		MOVB	@SEL6,WORDT	
3684	015174	122737	000131	002372		CMPB	#131,WORDT	
3685	015202	001404				BEQ	60\$	
3686	015204	104455				TRAP	C\$ERDF	
3687	015206	000026				.WORD	22	
3688	015210	012540				.WORD	MEF31	
3689	015212	010422				.WORD	ERR32	
3690	015214				60\$:			
3691	015214				L10034:			
3692	015214	104401				TRAP	C\$ETST	

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:***** TEST 3 *****

3693
 3694
 3695 015216
 3696
 3697
 3698
 3699
 3700
 3701
 3702 015216
 3703 015216 022737 000000 002472
 3704 015224 001150
 3705 015226 012737 000002 002366
 3706 015234 012737 000000 002404
 3707
 3708 015242 012737 177777 002374
 3709
 3710 015250 004737 004274
 3711 015254 117737 165176 002372
 3712 015262 005237 002404
 3713 015266 004737 004274
 3714 015272 117737 165160 002373
 3715 015300 005237 002404
 3716 015304 023727 002404 004000
 3717 015312 001403
 3718
 3719 015314 004737 004376
 3720 015320 000753
 3721
 3722 015322 005137 002374
 3723 015326 023737 002374 002372
 3724 015334 001404
 3725
 3726
 3727 015336 104455
 3728 015340 000024
 3729 015342 000000
 3730 015344 010162
 3731 015346 012737 003775 002404
 3732 015354 012737 000061 002370
 3733 015362 004737 004274
 3734 015366 117737 165064 002372
 3735 015374 123737 002370 002372
 3736 015402 001404
 3737 015404 104455
 3738 015406 000025
 3739 015410 000000
 3740 015412 010224
 3741 015414
 3742 015414 022737 000001 002346
 3743 015422 001031
 3744 015424 113737 002372 013762
 3745 015432 012737 003774 002404
 3746 015440 004737 004274
 3747 015444 117737 165006 013764
 3748 015452 012746 013764

.SBTTL :***** TEST 3 *****
 .SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 2
 ZZ
 ;* THIS TEST DONE FOR DMP ONLY
 ;*
 ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 2
 ;*
 .SBTTL :***** TEST 3 *****
 ;-CROMT-
 T3::
 CMP #0,OPTYP ;IS THIS AN 8207 DMP
 BNE 60\$;IF NOT END.....
 MOV #2,ROMN ;ROM NUMBER
 MOV #0,CADDR ;GET STARTING ADDR.
 MOV #-1,CWORD ;INIT CRC WORD.
 10\$: JSR PC,GWORD ;GET FIRST BYTE.
 MOVB @BSEL7,WORDT ;STORE FIRST BYTE.
 INC CADDR ;UPDATE ADDR.
 JSR PC,GWORD ;GET NEXT BYTE.
 MOVB @BSEL7,WORDT+1 ;STORE IN HIGH BYTE OF WORDT.
 INC CADDR ;UPDATE ADDR.
 CMP CADDR,#3777+1 ;AT END?
 BEQ 20\$;YES,EXIT LOOP.
 JSR PC,CRCR ;NO-CALCULATE CRC ON THIS WORD.
 BR 10\$;LOOP.
 20\$: COM CWORD ;STORED CRC WORD IS COMPLEMENT.
 CMP CWORD,WORDT ;EQUAL?
 BEQ 30\$
 ;ROM CRC WORD BAD.
 TRAP C\$ERDF
 .WORD 20
 .WORD 0
 .WORD ERR24
 30\$: MOV #3777-2,CADDR ;SET ROM NUMBER ADDRESS
 MOV #61,ROMN1 ;ROM NUMBER
 JSR PC,GWORD ;READ ROM NUMBER
 MOVB @BSEL7,WORDT ;STORE BYTE
 CMPS ROMN1,WORDT ;GOOD?
 BEQ 40\$
 TRAP C\$ERDF
 .WORD 21
 .WORD 0
 .WORD ERR25
 40\$: CMP #1,STARES ;IS THIS FIRST PASS
 BNE 50\$;IF NOT THEN GO TO 50
 MOVB WORDT,ROMNO ;PUT ROM NO IN PRINT CONDITION
 MOV #3777-3,CADDR
 JSR PC,GWORD ;READ REV NO.
 MOVB @BSEL7,REVNO ;STORE BYTE
 MOV #REVNO,-(SP)

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

3749	015456	012746	013762			MOV	#ROMNO,-(SP)	
3750	015462	013746	002332			MOV	LOGDEV,-(SP)	
3751	015466	012746	013665			MOV	#ROMMSG,-(SP)	
3752	015472	012746	000004			MOV	#4,-(SP)	
3753	015476	010600				MOV	SP,R0	
3754	015500	104417				TRAP	C\$PNTF	
3755	015502	062706	000012			ADD	#12,SP	
3756	015506	012737	003773	002404	50\$:	MOV	#3777-4,CADDR	;GET VERSION
3757	015514	004737	004274			JSR	PC,GWORD	;READ IT
3758	015520	117737	164732	002372		MOVB	@BSEL7,WORDT	
3759	015526	122737	000131	002372		CMPB	#131,WORDT	
3760	015534	001404				BEQ	60\$	
3761	015536	104455				TRAP	C\$ERDF	
3762	015540	000026				.WORD	22	
3763	015542	012540				.WORD	MEF31	
3764	015544	010422				.WORD	ERR32	
3765	015546				60\$:			
3766	015546				L10035:			
3767	015546	104401				TRAP	C\$ETST	

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

3768
3769
3770 015550
3771
3772
3773
3774
3775
3776
3777 015550
3778 015550 022737 000000 002472
3779 015556 001150
3780 015560 012737 000004 002366
3781 015566 012737 004000 002404
3782
3783 015574 012737 177777 002374
3784
3785 015602 004737 004274
3786 015606 117737 164642 002372
3787 015614 005237 002404
3788 015620 004737 004274
3789 015624 117737 164624 002373
3790 015632 005237 002404
3791 015636 023727 002404 010000
3792 015644 001403
3793
3794 015646 004737 004376
3795 015652 000753
3796
3797 015654 005137 002374
3798 015660 023737 002374 002372
3799 015666 001404
3800
3801
3802 015670 104455
3803 015672 000024
3804 015674 000000
3805 015676 010162
3806 015700 012737 007775 002404
3807 015706 012737 000062 002370
3808 015714 004737 004274
3809 015720 117737 164530 002372
3810 015726 123737 002370 002372
3811 015734 001404
3812 015736 104455
3813 015740 000025
3814 015742 000000
3815 015744 010224
3816 015746
3817 015746 022737 000001 002346
3818 015754 001031
3819 015756 113737 002372 013762
3820 015764 012737 007774 002404
3821 015772 004737 004274
3822 015776 117737 164452 013764
3823 016004 012746 013764

.SBTTL ;***** TEST 4 *****
.SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 4
ZZ
;* THIS TEST DONE FOR DMP ONLY
;*
;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 4
;*
.SBTTL ;***** TEST 4 *****
;-CROMT-
T4::
CMP #0,OPTYP ;IS THIS AN 8207 DMP
BNE 60\$;IF NOT END.....
MOV #4,ROMN ;ROM NUMBER
MOV #4000,CADDR ;GET STARTING ADDR.
MOV #-1,CWORD ;INIT CRC WORD.
10\$: JSR PC,GWORD ;GET FIRST BYTE.
MOVB @SEL6,WORDT ;STORE FIRST BYTE.
INC CADDR ;UPDATE ADDR.
JSR PC,GWORD ;GET NEXT BYTE.
MOVB @SEL6,WORDT+1 ;STORE IN HIGH BYTE OF WORDT
INC CADDR ;UPDATE ADDR.
CMP CADDR,#7777+1 ;AT END?
BEQ 20\$;YES,EXIT LOOP.
JSR PC,CRCR ;NO-CALCULATE CRC ON THIS WORD.
BR 10\$;LOOP.
20\$: COM CWORD ;STORED CRC WORD IS COMPLEMENT.
CMP CWORD,WORDT ;EQUAL?
BEQ 30\$
;ROM CRC WORD BAD.
30\$: TRAP C\$ERDF
.WORD 20
.WORD 0
.WORD ERR24
MOV #7777-2,CADDR ;SET ROM NUMBER ADDRESS
MOV #62,ROMN1 ;ROM NUMBER
JSR PC,GWORD ;READ ROM NUMBER
MOVB @SEL6,WORDT ;STORE BYTE
CMPB ROMN1,WORDT ;GOOD?
BEQ 40\$
TRAP C\$ERDF
.WORD 21
.WORD 0
.WORD ERR25
40\$: CMP #1,STARES ;IS THIS FIRST PASS
BNE 50\$;IF NOT THEN GO TO 50
MOVB WORDT,ROMNO ;PUT ROM NO IN PRINT CONDITION
MOV #7777-3,CADDR
JSR PC,GWORD ;READ REV NO.
MOVB @SEL6,REVNO ;STORE BYTE
MOV #REVNO,-(SP)

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

3824	016010	012746	013762			MOV	#ROMNO,-(SP)		
3825	016014	013746	002332			MOV	LOGDEV,-(SP)		
3826	016020	012746	013665			MOV	#ROMMSG,-(SP)		
3827	016024	012746	000004			MOV	#4,-(SP)		
3828	016030	010600				MOV	SP,R0		
3829	016032	104417				TRAP	C\$PNTF		
3830	016034	062706	000012			ADD	#12,SP		
3831	016040	012737	007773	002404	50\$:	MOV	#7777-4,CADDR		;GET VERSION
3832	016046	004737	004274			JSR	PC,GWORD		;READ IT
3833	016052	117737	164376	002372		MOVB	@SEL6,WORDT		
3834	016060	122737	000131	002372		CMPB	#131,WORDT		
3835	016066	001404				BEQ	60\$		
3836	016070	104455				TRAP	C\$ERDF		
3837	016072	000026				.WORD	22		
3838	016074	012540				.WORD	MEF31		
3839	016076	010422				.WORD	ERR32		
3840	016100				60\$:				
3841	016100				L10036:				
3842	016100	104401				TRAP	C\$ETST		

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

```

3843 .SBTTL ;***** TEST 5 *****
3844 .SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 1
3845 016102 ZZ
3846 ;* THIS TEST DONE FOR DMP ONLY
3847 ;*
3848 ;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 1
3849 ;*
3850 .SBTTL ;***** TEST 5 *****
3851 ;:-CROMT-
3852 016102 T5::
3853 016102 022737 000000 002472 CMP #0,OPTYP ;IS THIS AN 8207 DMP
3854 016110 001150 BNE 60$ ;IF NOT END.....
3855 016112 012737 000001 002366 MOV #1,ROMN ;ROM NUMBER
3856 016120 012737 004000 002404 MOV #4000,CADDR ;GET STARTING ADDR.
3857
3858 016126 012737 177777 002374 MOV #1,CWORD ;INIT CRC WORD.
3859
3860 016134 004737 004274 10$: JSR PC,GWORD ;GET FIRST BYTE.
3861 016140 117737 164312 002372 MOV B @BSEL7,WORDT ;STORE FIRST BYTE.
3862 016146 005237 002404 INC CADDR ;UPDATE ADDR.
3863 016152 004737 004274 JSR PC,GWORD ;GET NEXT BYTE.
3864 016156 117737 164274 002373 MOV B @BSEL7,WORDT+1 ;STORE IN HIGH BYTE OF WORDT.
3865 016164 005237 002404 INC CADDR ;UPDATE ADDR.
3866 016170 023727 002404 010000 CMP CADDR,#7777+1 ;AT END?
3867 016176 001403 BEQ 20$ ;YES,EXIT LOOP.
3868
3869 016200 004737 004376 JSR PC,CRCR ;NO-CALCULATE CRC ON THIS WORD.
3870 016204 000753 BR 10$ ;LOOP.
3871
3872 016206 005137 002374 20$: COM CWORD ;STORED CRC WORD IS COMPLEMENT.
3873 016212 023737 002374 002372 CMP CWORD,WORDT ;EQUAL?
3874 016220 001404 BEQ 30$
3875
3876 ;ROM CRC WORD BAD.
3877 016222 104455 TRAP C$ERDF
3878 016224 000024 .WORD 20
3879 016226 000000 .WORD 0
3880 016230 010162 .WORD ERR24
3881 016232 012737 007775 002404 30$: MOV #7777-2,CADDR ;SET ROM NUMBER ADDRESS
3882 016240 012737 000063 002370 MOV #63,ROMN1 ;ROM NUMBER
3883 016246 004737 004274 JSR PC,GWORD ;READ ROM NUMBER
3884 016252 117737 164200 002372 MOV B @BSEL7,WORDT ;STORE BYTE
3885 016260 123737 002370 002372 CMPB ROMN1,WORDT ;GOOD?
3886 016266 001404 BEQ 40$
3887 016270 104455 TRAP C$ERDF
3888 016272 000025 .WORD 21
3889 016274 000000 .WORD 0
3890 016276 010224 .WORD ERR25
3891 016300 40$:
3892 016300 022737 000001 002346 CMP #1,STARES ;IS THIS FIRST PASS
3893 016306 001031 BNE 50$ ;IF NOT THEN GO TO 50
3894 016310 113737 002372 013762 MOV B WORDT,ROMNO ;PUT ROM NO IN PRINT CONDITION
3895 016316 012737 007774 002404 MOV #7777-3,CADDR
3896 016324 004737 004274 JSR PC,GWORD ;READ REV NO.
3897 016330 117737 164122 013764 MOV B @BSEL7,REVNO ;STORE BYTE
3898 016336 012746 013764 MOV #REVNO,-(SP)

```

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

3899	016342	012746	013762			MOV	#ROMNO,-(SP)	
3900	016346	013746	002332			MOV	LOGDEV,-(SP)	
3901	016352	012746	013665			MOV	#ROMMSG,-(SP)	
3902	016356	012746	000004			MOV	#4,-(SP)	
3903	016362	010600				MOV	SP,R0	
3904	016364	104417				TRAP	C\$PNTF	
3905	016366	062706	000012			ADD	#12,SP	
3906	016372	012737	007773	002404	50\$:	MOV	#7777-4,CADDR	;GET VERSION
3907	016400	004737	004274			JSR	PC,GWORD	;READ IT
3908	016404	117737	164046	002372		MOVB	@BSEL7,WORDT	
3909	016412	122737	000131	002372		CMPB	#131,WORDT	
3910	016420	001404				BEQ	60\$	
3911	016422	104455				TRAP	C\$ERDF	
3912	016424	000026				.WORD	22	
3913	016426	012540				.WORD	MEF31	
3914	016430	010422				.WORD	ERR32	
3915	016432				60\$:			
3916	016432				L10037:			
3917	016432	104401				TRAP	C\$ETST	

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

```

.SBTTL ;***** TEST 6 *****
.SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 5
ZZ
;* THIS TEST DONE FOR DMP ONLY
;*
;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 5
;*

```

```

.SBTTL ;***** TEST 6 *****
;--CROMT-

```

T6::

```

CMP #0,OPTYP ;IS THIS AN 8207 DMP
BNE 60$ ;IF NOT END.....
MOV #5,ROMN ;ROM NUMBER
MOV #10000,CADDR ;GET STARTING ADDR.

```

```

MOV #-1,CWORD ;INIT CRC WORD.

```

10\$:

```

JSR PC,GWORD ;GET FIRST BYTE.
MOVB @SEL6,WORDT ;STORE FIRST BYTE.
INC CADDR ;UPDATE ADDR.
JSR PC,GWORD ;GET NEXT BYTE.
MOVB @SEL6,WORDT+1 ;STORE IN HIGH BYTE OF WORDT
INC CADDR ;UPDATE ADDR.
CMP CADDR,#13777+1 ;AT END?
BEQ 20$ ;YES,EXIT LOOP.

```

```

JSR PC,CRCR ;NO-CALCULATE CRC ON THIS WORD.
BR 10$ ;LOOP.

```

20\$:

```

COM CWORD ;STORED CRC WORD IS COMPLEMENT.
CMP CWORD,WORDT ;EQUAL?
BEQ 30$

```

;ROM CRC WORD BAD.

30\$:

```

TRAP C$ERDF
.WORD 20
.WORD 0
.WORD ERR24
MOV #13777-2,CADDR ;SET ROM NUMBER ADDRESS
MOV #64,ROMN1 ;ROM NUMBER
JSR PC,GWORD ;READ ROM NUMBER
MOVB @SEL6,WORDT ;STORE BYTE
CMPB ROMN1,WORDT ;GOOD?
BEQ 40$

```

```

TRAP C$ERDF
.WORD 21
.WORD 0
.WORD ERR25

```

40\$:

```

CMP #1,STARES ;IS THIS FIRST PASS
BNE 50$ ;IF NOT THEN GO TO 50
MOVB WORDT,ROMNO ;PUT ROM NO IN PRINT CONDITION
MOV #13777-3,CADDR
JSR PC,GWORD ;READ REV NO.
MOVB @SEL6,REVNO ;STORE BYTE
MOV #REVNO,-(SP)

```

```

3918
3919
3920 016434
3921
3922
3923
3924
3925
3926
3927 016434
3928 016434 022737 000000 002472
3929 016442 001150
3930 016444 012737 000005 002366
3931 016452 012737 010000 002404
3932
3933 016460 012737 177777 002374
3934
3935 016466 004737 004274
3936 016472 117737 163756 002372
3937 016500 005237 002404
3938 016504 004737 004274
3939 016510 117737 163740 002373
3940 016516 005237 002404
3941 016522 023727 002404 014000
3942 016530 001403
3943
3944 016532 004737 004376
3945 016536 000753
3946
3947 016540 005137 002374
3948 016544 023737 002374 002372
3949 016552 001404
3950
3951
3952 016554 104455
3953 016556 000024
3954 016560 000000
3955 016562 010162
3956 016564 012737 013775 002404
3957 016572 012737 000064 002370
3958 016600 004737 004274
3959 016604 117737 163644 002372
3960 016612 123737 002370 002372
3961 016620 001404
3962 016622 104455
3963 016624 000025
3964 016626 000000
3965 016630 010224
3966 016632
3967 016632 022737 000001 002346
3968 016640 001031
3969 016642 113737 002372 013762
3970 016650 012737 013774 002404
3971 016656 004737 004274
3972 016662 117737 163566 013764
3973 016670 012746 013764

```

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:***** TEST 6 *****

3974	016674	012746	013762		MOV	#ROMNO,-(SP)	
3975	016700	013746	002332		MOV	LOGDEV,-(SP)	
3976	016704	012746	013665		MOV	#ROMMSG,-(SP)	
3977	016710	012746	000004		MOV	#4,-(SP)	
3978	016714	010600			MOV	SP,R0	
3979	016716	104417			TRAP	C\$PNTF	
3980	016720	062706	000012		ADD	#12,SP	
3981	016724	012737	013773	002404	MOV	#13777-4,CADDR	;GET VERSION
3982	016732	004737	004274		JSR	PC,GWORD	;READ IT
3983	016736	117737	163512	002372	MOVB	@SEL6,WORDT	
3984	016744	122737	000131	002372	CMPB	#131,WORDT	
3985	016752	001404			BEQ	60\$	
3986	016754	104455			TRAP	C\$ERDF	
3987	016756	000026			.WORD	22	
3988	016760	012540			.WORD	MEF31	
3989	016762	010422			.WORD	ERR32	
3990	016764			60\$:			
3991	016764			L10040:			
3992	016764	104401			TRAP	C\$ETST	

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:***** TEST 7 *****

```

3993
3994
3995 016766
3996
3997
3998
3999
4000
4001
4002 016766
4003 016766 022737 000000 002472
4004 016774 001150
4005 016776 012737 000014 002366
4006 017004 012737 010000 002404
4007
4008 017012 012737 177777 002374
4009
4010 017020 004737 004274
4011 017024 117737 163426 002372
4012 017032 005237 002404
4013 017036 004737 004274
4014 017042 117737 163410 002373
4015 017050 005237 002404
4016 017054 023727 002404 014000
4017 017062 001403
4018
4019 017064 004737 004376
4020 017070 000753
4021
4022 017072 005137 002374
4023 017076 023737 002374 002372
4024 017104 001404
4025
4026
4027 017106 104455
4028 017110 000024
4029 017112 000000
4030 017114 010162
4031 017116 012737 013775 002404
4032 017124 012737 000065 002370
4033 017132 004737 004274
4034 017136 117737 163314 002372
4035 017144 123737 002370 002372
4036 017152 001404
4037 017154 104455
4038 017156 000025
4039 017160 000000
4040 017162 010224
4041 017164
4042 017164 022737 000001 002346
4043 017172 001031
4044 017174 113737 002372 013762
4045 017202 012737 013774 002404
4046 017210 004737 004274
4047 017214 117737 163236 013764
4048 017222 012746 013764

```

```

.SBTTL :***** TEST 7 *****
.SBTTL *DMP ONLY VERIFY CONTENTS OF ROM 14
ZZ
;* THIS TEST DONE FOR DMP ONLY
;*
;* IN THIS TEST WE'LL VERIFY THE CONTENTS OF ROM 14
.SBTTL :***** TEST 7 *****
      :-CROMT-
T7::
      CMP      #0,OPTYP      ;IS THIS AN 8207 DMP
      BNE      60$           ;IF NOT END.....
      MOV      #14,ROMN      ;ROM NUMBER
      MOV      #10000,CADDR   ;GET STARTING ADDR.
      MOV      #-1,CWORD      ;INIT CRC WORD.
10$:
      JSR      PC,GWORD      ;GET FIRST BYTE.
      MOVB     @BSEL7,WORDT    ;STORE FIRST BYTE.
      INC      CADDR          ;UPDATE ADDR.
      JSR      PC,GWORD      ;GET NEXT BYTE.
      MOVB     @BSEL7,WORDT+1  ;STORE IN HIGH BYTE OF WORDT.
      INC      CADDR          ;UPDATE ADDR.
      CMP      CADDR,#13777+1 ;AT END?
      BEQ      20$           ;YES,EXIT LOOP.
      JSR      PC,CRCR      ;NO-CALCULATE CRC ON THIS WORD.
      BR       10$          ;LOOP.
20$:
      COM      CWORD          ;STORED CRC WORD IS COMPLEMENT.
      CMP      CWORD,WORDT    ;EQUAL?
      BEQ      30$
      ;ROM CRC WORD BAD.
30$:
      TRAP     C$ERDF
      .WORD    20
      .WORD    0
      .WORD    ERR24
      MOV      #13777-2,CADDR ;SET ROM NUMBER ADDRESS
      MOV      #65,ROMN1      ;ROM NUMBER
      JSR      PC,GWORD      ;READ ROM NUMBER
      MOVB     @BSEL7,WORDT    ;STORE BYTE
      CMPB     ROMN1,WORDT     ;GOOD?
      BEQ      40$
      TRAP     C$ERDF
      .WORD    21
      .WORD    0
      .WORD    ERR25
40$:
      CMP      #1,STARES      ;IS THIS FIRST PASS
      BNE      50$           ;IF NOT THEN GO TO 50
      MOVB     WORDT,ROMNO     ;PUT ROM NO IN PRINT CONDITION
      MOV      #13777-3,CADDR
      JSR      PC,GWORD      ;READ REV NO.
      MOVB     @BSEL7,REVNO    ;STORE BYTE
      MOV      #REVNO,-(SP)

```

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

4049	017226	012746	013762		MOV	#ROMNO,-(SP)	
4050	017232	013746	002332		MOV	LOGDEV,-(SP)	
4051	017236	012746	013665		MOV	#ROMMSG,-(SP)	
4052	017242	012746	000004		MOV	#4,-(SP)	
4053	017246	010600			MOV	SP,R0	
4054	017250	104417			TRAP	C\$PNTF	
4055	017252	062706	000012		ADD	#12,SP	
4056	017256	012737	013773	002404	50\$: MOV	#13777-4,CADDR	;GET VERSION
4057	017264	004737	004274		JSR	PC,GWORD	;READ IT
4058	017270	117737	163162	002372	MOVB	@BSEL7,WORDT	
4059	017276	122737	000131	002372	CMPB	#131,WORDT	
4060	017304	001404			BEQ	60\$	
4061	017306	104455			TRAP	C\$ERDF	
4062	017310	000026			.WORD	22	
4063	017312	012540			.WORD	MEF31	
4064	017314	010422			.WORD	ERR32	
4065	017316			60\$:			
4066	017316			L10041:			
4067	017316	104401			TRAP	C\$ETST	

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;***** TEST 8 *****

4068
 4069
 4070 017320
 4071
 4072
 4073
 4074
 4075
 4076
 4077
 4078 017320
 4079 017320 032737 000003 002472
 4080 017326 001453
 4081 017330 012737 000001 002366
 4082 017336 012737 000060 002370
 4083 017344 012737 140000 002436
 4084 017352 004537 005472
 4085 017356 005037 002402
 4086 017362 104410
 4087 017364 000072
 4088 017366 022737 000001 002346
 4089 017374 001030
 4090
 4091 017376 023737 013762 002370
 4092 017404 001406
 4093 017406 104455
 4094 017410 000027
 4095 017412 000000
 4096 017414 010224
 4097
 4098 017416 104410
 4099 017420 000036
 4100 017422
 4101 017422 012746 013764
 4102 017426 012746 013762
 4103 017432 013746 002332
 4104 017436 012746 013665
 4105 017442 012746 000004
 4106 017446 010600
 4107 017450 104417
 4108 017452 062706 000012
 4109
 4110
 4111
 4112 017456
 4113 017456
 4114 017456 104401

.SBTTL ;***** TEST 8 *****
 .SBTTL * ROM VERIFY ROM 1 DMV
 ZZ
 ;*
 ;*
 ;*
 ;* THIS TEST IS USED TO VERIFY THE CONTENTS OF ROM 1
 ;* THIS TEST IS NOT DONE FOR DMP
 ;*-
 .SBTTL ;***** TEST 8 *****
 T8::
 BIT #3,OPTYP ;IS THIS DMV
 BEQ RDVEX ;IF NOT EXIT
 MOV #1,ROMN
 MOV #60,ROMN1 ;SET UP ROM NUMBER(ASCII 0)
 MOV #140000,ROMADD ;SET UP 1ST ROM ADDRESS
 JSR R5,RMVRT ;GO CHECK ROM CRC
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10042-
 CMP #1,STARES ;IS IT FIRST PASS
 BNE RDVEX ;IF NOT EXIT
 CMP ROMNO,ROMN1 ;COMPARE ROM NUMBER
 BEQ 10\$
 TRAP C\$ERDF
 .WORD 23
 .WORD 0
 .WORD ERR25
 TRAP C\$ESCAPE
 .WORD L10042-
 10\$:
 MOV #REVNO,-(SP)
 MOV #ROMNO,-(SP)
 MOV LOGDEV,-(SP)
 MOV #ROMMSG,-(SP)
 MOV #4,-(SP)
 MOV SP,RC
 TRAP C\$PNTF
 ADD #12,SP
 RDVEX:
 L10042:
 TRAP C\$ETST

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:***** TEST 9 *****

4115
 4116
 4117 017460
 4118
 4119
 4120
 4121
 4122
 4123
 4124 017460
 4125 017460 032737 000003 002472
 4126 017466 001453
 4127 017470 012737 000002 002366
 4128 017476 012737 000061 002370
 4129 017504 012737 160000 002436
 4130 017512 004537 005472
 4131 017516 005037 002402
 4132 017522 104410
 4133 017524 000072
 4134 017526 022737 000001 002346
 4135 017534 001030
 4136
 4137 017536 123737 013762 002370
 4138 017544 001406
 4139 017546 104455
 4140 017550 000030
 4141 017552 000000
 4142 017554 010224
 4143 017556 104410
 4144 017560 000036
 4145 017562
 4146 017562 012746 013764
 4147 017566 012746 013762
 4148 017572 013746 002332
 4149 017576 012746 013665
 4150 017602 012746 000004
 4151 017606 010600
 4152 017610 104417
 4153 017612 062706 000012
 4154
 4155
 4156 017616
 4157 017616
 4158 017616 104401
 4159

.SBTTL :***** TEST 9 *****
 .SBTTL * ROM VERIFY ROM 2 DMV ONLY
 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 *****
 T9::
 BIT #3,OPTYP ;IS THIS DMV
 BEQ RDVEX2 ;IF NOT EXIT
 MOV #2,ROMN
 MOV #61,ROMN1 ;SETUP ROM NUMBER(ASCII 1)
 MOV #160000,ROMADD ;SETUP 1ST ROM ADDRESS
 JSR R5,RMVRT ;GO CHECK ROM CRC
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10043-
 CMP #1,STARES
 BNE RDVEX2 ;IF NOT FIRST PASS EXIT
 CMPB ROMNO,ROMN1 ;CHECK ROM #
 BEQ 10\$
 TRAP C\$ERDF
 .WORD 24
 .WORD 0
 .WORD ERR25
 TRAP C\$ESCAPE
 .WORD L10043-
 10\$:
 MOV #REVNO,-(SP)
 MOV #ROMNO,-(SP)
 MOV LOGDEV,-(SP)
 MOV #ROMMSG,-(SP)
 MOV #4,-(SP)
 MOV SP,R0
 TRAP C\$PNTF
 ADD #12,SP
 RDVEX2:
 L10043:
 TRAP C\$ETST

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***** TEST 10 *****

4160
4161
4162 017620.SBTTL ***** TEST 10 *****
.SBTTL *INITIALIZATION TEST (INTERNAL DIAGNOSTICS)

ZZ

* IN THIS TEST WE'LL START OUT BY SETTING THE MASTER CLEAR BIT (BIT 14 OF SELO)
 * THE LOGIC CLEARS AND STARTS THE MICRO DIAGNOSTICS. IF THE MICRO-DIAGNOSTICS
 * PASS, THE RUN BIT (BIT15 OF SELO) 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

 4170
4171
4172
4173
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4204
4205
4206
4207
4208
4209
4210
4211
4212 017620
4213
4214 017620 012737 000000 002342
4215 017626 004737 004456

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
T10::

***** TEST 10 *****

 MOV #0,COUNT
 JSR PC,MINITR

;CLEAR COUNTER

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

4216 017632
 4217 017632 004737 004244
 4218 017636 005777 162576
 4219 017642 100411
 4220 017644 005337 002342
 4221 017650 001370

10\$:

JSR PC, WAIT50
 TST @SELO ;TEST DONE?
 BMI 20\$;YES TEST FOR ERROR
 DEC COUNT ;UPDATE COUNT IF NOT TOO LONG
 BNE 10\$;IN THIS WAIT LOOP, GO BACK

;INTERNAL DIAG FAILED

4222
 4223
 4224
 4225 017652 104455
 4226 017654 000031
 4227 017656 011043
 4228 017660 007376
 4229 017662 104410
 4230 017664 000116
 4231 017666 122777 000305 162560 20\$:
 4232 017674 001420
 4233 017676 122777 000264 162550
 4234 017704 001406

TRAP C\$ERDF
 .WORD 25
 .WORD MEF3A
 .WORD ERR3
 TRAP C\$ESCAPE
 .WORD L10044-
 CMPB #305, @BSEL6
 BEQ 40\$;LEGAL TEST COMPLETE CODE?
 CMPB #264, @BSEL6
 BEQ 30\$;LINE UNIT TEST FAILURE?

4235
 4236 017706 104455
 4237 017710 000032
 4238 017712 011043
 4239 017714 007376

TRAP C\$ERDF
 .WORD 26
 .WORD MEF3A
 .WORD ERR3

;UNKNOWN ERROR WHILE INITIALLING
 ;DMP-11

4240
 4241
 4242 017716 104410
 4243 017720 000062

TRAP C\$ESCAPE
 .WORD L10044-

4244
 4245 017722
 4246 017722 104455
 4247 017724 000033
 4248 017726 011125
 4249 017730 010422
 4250 017732 104410
 4251 017734 000046

30\$:

TRAP C\$ERDF
 .WORD 27
 .WORD MEF4
 .WORD ERR32
 TRAP C\$ESCAPE
 .WORD L10044-

;MODULE FAULT

4252
 4253 017736
 4254 017736 112777 000200 162474
 4255 017744 012737 017766 002406
 4256 017752
 4257 017752 004537 005070
 4258 017756 005037 002402
 4259 017762 104410
 4260 017764 000016
 4261 017766

40\$:

MOVB #RQI, @BSELO ;SET RQI AND THEN WAIT FOR RDI TO SET.
 MOV #ERLB1, ERRADD ;SET UP ERROR ADD.

TLB1:

JSR R5, TOUT
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10044-

ERLB1:

.....
 ; TIME OUT ERROR REPORTS THIS ADDRESS
 ;*****

4262
 4263
 4264
 4265 017766 032777 000020 162450 47\$:
 4266 017774 001766

47\$:

BIT #RDI, @BSEL2 ;DID RDI SET?
 BEQ TLB1

50\$:

TRAP C\$ESCAPE
 .WORD L10044-

L10044:

TRAP C\$ETST

4267 017776
 4268 017776 104410
 4269 020000 000002
 4270 020002
 4271 020002 104401

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

4272
4273
4274
4275
4276 020004
4277
4278
4279
4280
4281
4282
4283
4284
4285
4286
4287
4288
4289
4290
4291 020004
4292
4293 020004 032737 000003 002472
4294 020012 001402
4295 020014 000137 021134
4296 020020
4297 020020
4298 020020 004737 004522
4299
4300
4301
4302 020024 005037 002402
4303 020030 104410
4304 020032 001102
4305 020034 105077 162416
4306 020040 112777 000200 162372
4307 020046
4308 020046 004537 002732
4309
4310 020052 005037 002402
4311 020056 104410
4312 020060 001054
4313
4314
4315
4316
4317 020062 105077 162352
4318 020066 112777 000022 162360
4319 020074 105077 162356
4320 020100 112777 000001 162336
4321
4322 020106
4323 020106 012737 020130 002406
4324 020114 004537 005070
4325 020120 005037 002402
4326 020124 104410
4327 020126 001006

```

.SBTTL ***** TEST 11 *****
.SBTTL * MICRO-DIAGNOSTIC-INTERFACE TESTING DMP , ,
ZZ
;* DMP ONLY THIS TEST...
;* THIS TEST WILL EXERCISE THE MICRO-CPU' 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 PERFORMED
;* 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 *****

T11::
      BIT      #3,OPTYP      ;IS THIS DMV
      BEQ      10$,          ;IF NOT GO TO 10;ELSE
      JMP      EXMDT         ;EXIT TEST

10$:
T9BG:
      JSR      PC,MINITS
      ;****
      ; JUMP TO END OF TEST IF ERROR
      ;***
      CLR      ERRWRD
      TRAP     C$ESCAPE
      .WORD    L10045-.
      CLRB     @BSEL7
      MOVB     #DRUN,@BSEL0      ;REQUEST INTERFACE DIAGNOSTICS

25$:
      JSR      R5,WRDI          ;WAIT FOR RDI TO SET

      CLR      ERRWRD          ;CLEAR ERROR
      TRAP     C$ESCAPE
      .WORD    L10045-.
      ;*****
      ; TIME OUT OR READY ERROR REPORTS THIS
      ; ADDRESS AS FAILING PC
      ;*****
      CLRB     @BSEL0          ;NO MORE REQUESTS.
      MOVB     #22,@BSEL6      ;DIAGNOSTIC CODE.
      CLRB     @BSEL7          ;CLEAR BSEL7
      MOVB     #1,@BSEL2       ;START.!

TLB2:
      MOV      #ERLB2,ERRADD   ;SET UP ERROR ADDRESS
      JSR      R5,TOUT
      CLR      ERRWRD
      TRAP     C$ESCAPE
      .WORD    L10045-.

```

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

```

4328 020130 ERLB2:
4329
4330      ; TIME OUT ERROR REPORTS THIS ADDRESS
4331
4332 020130 122777 000377 162320 26$: CMPB    #377,@BSEL7 ;LOOK FOR SYNC OF CODE 377 IN LAST REG
4333 020136 001363      BNE    TLB2      ;IF 'HANG' OCCURS HERE THEN ITS POSSIBLE
4334      ;THAT EITHER THE DATA PATHS ARE BAD OR
4335      ;THAT THE MCPU FAILED TO START
4336
4337 020140 012737 000377 002336      MOV    #377,$GDDAT ;EXPECT 377 BACK FROM ALL REGS
4338 020146 013701 002440      MOV    BSEL0,R1 ;EXPECT REG 1 (MAINTENANCE)
4339 020152 012737 000000 002344      MOV    #0,REG
4340 020160 111137 002340 4$:  MOV    (R1),$BDDAT ;READ REG, EXPECT 377
4341 020164 123737 002340 002336      MOV    $BDDAT,$GDDAT ;OK?
4342 020172 001412      BEQ    5$      ;YES-CONTINUE
4343 020174 022737 000001 002344      CMP    #1,REG ;NO ERROR? (EXCEPT REG 1)
4344 020202 001406      BEQ    5$      ;IF REG 1, SKIP
4345
4346 020204 104455      TRAP    C$ERDF
4347 020206 000034      .WORD    28
4348 020210 011200      .WORD    MEFC
4349 020212 007430      .WORD    ERR5
4350 020214 104410      TRAP    C$ESCAPE
4351 020216 000716      .WORD    L10045-
4352 020220 005237 002344 5$:  INC    REG ;UPDATE REGISTER #
4353 020224 005201      INC    R1 ;AND ADDRESS
4354 020226 023727 002344 000010      CMP    REG, #10 ;DONE ALL REGS?
4355 020234 001351      BNE    4$
4356 020236 105077 162176      CLRB   @BSEL0 ;CAUSES MCPU TO EXIT TSTA
4357
4358
4359      ;TEST B
4360
4361
4362 020242      TLB3:
4363 020242 012737 020264 002406      MOV    #ERLB3,ERRADD ;SET ERROR ADDRESS
4364 020250 004537 005070      JSR    R5,TOUT
4365 020254 005037 002402      CLR    ERRWRD
4366 020260 104410      TRAP    C$ESCAPE
4367 020262 000652      .WORD    L10045-
4368 020264      ERLB3:
4369      ; TIME OUT ERROR REPORTS THIS ADDRESS
4370
4371
4372 020264 105777 162166 27$:  TSTB   @BSEL7 ;LOOK FOR A ZERO IN BSEL7
4373 020270 001364      BNE    TLB3
4374
4375 020272 005037 002336      CLR    $GDDAT ;EXPECT ALL ZEROS EXCEPT SBEL1
4376 020276 013701 002440      MOV    BSEL0,R1 ;GET ADDR OF MCPU.
4377 020302 012737 000000 002344      MOV    #0,REG
4378 020310 005037 002340 7$:  CLR    $BDDAT
4379 020314 111137 002340      MOV    (R1),$BDDAT ;READ REG
4380 020320 001412      BEQ    8$ ;IF ZERO-CONTINUE
4381 020322 022737 000001 002344      CMP    #1,REG ;IF REG #1 CONTINUE
4382 020330 001406      BEQ    8$
4383

```

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

```

4384 020332 104455      TRAP    C$ERDF
4385 020334 000035      .WORD   29
4386 020336 011200      .WORD   MEFC
4387 020340 007430      .WORD   ERR5
4388 020342 104410      TRAP    C$ESCAPE
4389 020344 000570      .WORD   L10045-.
4390 020346 005237 002344 8$:    INC    REG      ;UPDATE REGISTER #
4391 020352 005201      INC    R1      ;AND ADDRESS
4392 020354 122737 000010 002344 CMPB   #10,REG  ;DONE ALL REGS (0-7)?
4393 020362 001354      BNE     7$      ;NO-DO NEXT ONE
4394
4395 020364 000404      BR      9$      ;REPLACE THIS INSTRUCTION WITH CODE 240
4396                                     ;(NOP) IF YOU WITH TO COOP IN
4397                                     ;TESTS A&B
4398 020366 112777 000200 162044 MOVB   #200,@BSEL0 ;ALL MICRO-CODE TO LOOP
4399 020374 000611      BR      T9BG    ;LOOP
4400
4401 020376 112777 000377 162034 9$: MOVB   #377,@BSEL0 ;TELL MICRO-CODE TO EXIT TEST B,
4402                                     ;PROCEED TO TEST C.
4403
4404
4405      ;TEST    C
4406
4407 020404 017746 162060      MOV     @KMRVLV,-(SP)
4408 020410 012746 021044      MOV     #INTC0,-(SP)
4409 020414 013746 002462      MOV     KMRVEC,-(SP)
4410 020420 012746 000003      MOV     #3,-(SP)
4411 020424 104437      TRAP    C$SVEC
4412 020426 062706 000010      ADD     #10,SP
4413
4414                                     ;INTERRUPT VECTOR
4415
4416 020432 017746 162032      MOV     @KMTLVL,-(SP)
4417 020436 012746 021060      MOV     #INTC4,-(SP)
4418 020442 013746 002464      MOV     KMTVEC,-(SP)
4419 020446 012746 000003      MOV     #3,-(SP)
4420 020452 104437      TRAP    C$SVEC
4421 020454 062706 000010      ADD     #10,SP
4422
4423                                     ;ILLEGAL INTERRUPT TO WRONG VECTOR
4424
4425 020460 005037 002334      CLR     IFLAG
4426 020464 112777 000377 161754 MOVB   #377,@BSEL3 ;TELL MICRO-CODE TO FORCE INTERRUPT
4427 020472 012700 000000      MOV     #0,R0
4428 020476 104441      TRAP    C$SPRI
4429
4430 020500      TLB4:      MOV     #ERLB4,ERRADD ;SET UP ERROR ADDRESS
4431 020506 012737 020522 002406 JSR     R5,TOUT
4432 020512 004537 005070      CLR     ERRWRD
4433 020516 005037 002402      TRAP    C$ESCAPE
4434 020520 000414      .WORD   L10045-.
4435      ERLB4:
4436      ;*****
4437      ; TIME OUT REPORTS THIS ADDRESS
4438      ;*****
4439 020522 005737 002334      TST     IFLAG      ;IFLAG=1 SET BY INTERRUPT SERVICE ROUTINE
4440 020526 001764      BEQ     TLB4    ;LOOP UNIT DONE

```

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

;NOTE: IF HANGS HERE, MCPU FAILS TO
;GENERATE INTERRUPT TO PDP-11.

```

4440
4441
4442
4443
4444
4445
4446 020530 017746 161734
4447 020534 012746 021100
4448 020540 013746 002462
4449 020544 012746 000003
4450 020550 104437
4451 020552 062706 000010
4452 020556 017746 161706
4453 020562 012746 021120
4454 020566 013746 002464
4455 020572 012746 000003
4456 020576 104437
4457 020600 062706 000010
4458
4459 020604 005037 002334
4460 020610 012700 000000
4461 020614 104441
4462 020616 105077 161624
4463
4464 020622
4465 020622 012737 020644 002406
4466 020630 004537 005070
4467 020634 005037 002402
4468 020640 104410
4469 020642 000272
4470 020644
4471
4472
4473
4474 020644 005737 002334
4475 020650 001764
4476
4477
4478
4479
4480
4481 020652 013700 002462
4482 020656 104436
4483 020660 013700 002464
4484 020664 104436
4485
4486
4487
4488
4489
4490 020666 012701 033714
4491 020672 152777 000010 161542
4492
4493 020700 011137 002336
4494 020704 010177 161540
4495 020710 012777 002340 161536

;TEST D
MOV @KMRVLVL,-(SP)
MOV #INTD0,-(SP)
MOV KMRVEC,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP
MOV @KMTLVL,-(SP)
MOV #INTD4,-(SP)
MOV KMTVEC,-(SP)
MOV #3,-(SP)
TRAP C$SVEC
ADD #10,SP

CLR IFLAG ;NO INTERRUPT INDICATOR
MOV #0,R0
TRAP C$SPRI
CLRB @BSEL3 ;TELL MCPU TO INTERRUPT

TLB5: MOV #ERLB5,ERRADD ;SET UP ERROR ADDRESS
JSR R5,TOUT
CLR ERRWRD
TRAP C$ESCAPE
WORD L10045-

ERLB5:
;TIME OUT REPORTS THIS ADDRESS
;*****
29$: TST IFLAG ;DID MCPU INTERRUPT (IFLAG NOT 0)?
BEQ TLB5 ;NO - LOOP
;NOTE: IF PROGRAM 'HANGS' HERE, MCPU
;FAILED TO INTERRUPT TO VECTOR XX4
;WE KNOW MCPU IS ABLE TO INTERRUPT
;TO XX0 (TEST C)

MOV KMRVEC,R0
TRAP C$CVEC
MOV KMTVEC,R0
TRAP C$CVEC

;TEST E NPR TEST

MOV #DATLST,R1 ;GET DATA LIST
BISB #BIT3,@BSEL1 ;SET INDICATOR THAT WE ARE STILL IN TEST.

TLB6A: MOV (R1),$GDDAT ;GET NEXT PATTERN
MOV R1,@BSEL4 ;SET NPR IN ADDR
MOV #BDDAT,@BSEL6 ;SET NPR OUT ADDR

```

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

```

4496 020716 105077 161516          CLRB      @BSELO          ;TELL MCPU TO DO NPRS
4497
4498 020722
4499 020722 012737 020744 002406  TLB6:  MOV      #ERLB6,ERRADD  ;SET ERROR ADDRESS
4500 020730 004537 005070          JSR      R5,TOUT
4501 020734 005037 002402          CLR      ERRWRD
4502 020740 104410          TRAP     C$ESCAPE
4503 020742 000172          .WORD    L10045-
4504 020744          ERLB6:
4505          ;TIME OUT ERROR REPORTS THIS ADDRESS
4506
4507          ;*****
4508 020744 132777 000010 161470 30$:  BITB     #BIT3,@BSEL1  ;DID WE ACCIDENTILY ESCAPE THIS TEST???
4509 020752 001006          BNE      135$
4510 020754 104455          TRAP     C$ERDF
4511 020756 000036          .WORD    30
4512 020760 011414          .WORD    MEF7
4513 020762 010422          .WORD    ERR32
4514          ;UNKNOWN MCPU ERROR CAUSED ABORT OF TEST.
4515 020764 104410          TRAP     C$ESCAPE
4516 020766 000146          .WORD    L10045-
4517 020770          135$:
4518
4519 020770 122777 000377 161442  CMPB     #377,@BSELO  ;WHEN MCPU DONE, IT PUTS 377 INTO BSELO
4520 020776 001351          BNE      TLB6      ;IF WE 'HANG' HERE, MCPU FAILS TO DO
4521          ;EITHER NPR IN OR NPR OUT
4522
4523 021000 023737 002336 002340  CMP      $GDDAT,$BDDAT ;NPRED FRO PATTERN LIST TO $BDDAT
4524          ;DID XFER OCCUR SUCCESSFULLY?
4525 021006 001406          BEQ      14$
4526
4527 021010 104455          TRAP     C$ERDF
4528 021012 000037          .WORD    31
4529 021014 011200          .WORD    MEF7
4530 021016 007466          .WORD    ERR6
4531 021020 104410          TRAP     C$ESCAPE
4532 021022 000112          .WORD    L10045-
4533 021024 022721 000562 14$:  CMP      #562,(R1)+  ;IS IT THE LAST PATTERN (562) IS TERM)?
4534 021030 001323          BNE      TLB6A
4535 021032 112777 000200 161400  MOVB     #200,@BSELO  ;TELL MCPU TO EXIT TEST
4536 021040 104432          TRAP     C$EXIT
4537 021042 000072          .WORD    L10045-
4538
4539 021044          INTC0::
4540 021044 013700 000006          MOV      6,R0
4541 021050 104441          TRAP     C$SPRI
4542 021052 005237 002334          INC      IFLAG
4543 021056          L10046:
4544 021056 000002          RTI
4545
4546 021060          INTC4::
4547 021060 013700 000006          MOV      6,R0
4548 021064 104441          TRAP     C$SPRI
4549 021066 104455          TRAP     C$ERDF
4550 021070 000040          .WORD    32
4551 021072 011446          .WORD    MEF8

```

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

4552 021074 010422
 4553 021076
 4554 021076 000002
 4555
 4556 021100
 4557 021100 013700 000006
 4558 021104 104441
 4559 021106 104455
 4560 021110 000041
 4561 021112 011446
 4562 021114 010422
 4563 021116
 4564 021116 000002
 4565
 4566 021120
 4567 021120 013700 000006
 4568 021124 104441
 4569 021126 005237 002334
 4570 021132
 4571 021132 000002
 4572
 4573 021134
 4574
 4575 021134
 4576 021134 104401
 4577
 4578

L10047: .WORD ERR32
 RTI
 INTD0::
 MOV 6,R0
 TRAP C\$SPRI
 TRAP C\$ERDF
 .WORD 33
 .WORD MEI 8
 .WORD ERR32
 L10050:
 RTI
 INTD4::
 MOV 6,R0
 TRAP C\$SPRI
 INC IFLAG
 L10051:
 RTI
 EXMDT:
 L10045:
 TRAP C\$ETST

;CORRECT VECTOR (XX4)

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

```

4579 .SBTTL ;***** TEST 12 *****
4580 .SBTTL RDI REMAINS SET TEST
4581 021136 ZZ
4582 ;
4583 ;*ROM FUNCTION TEST IN THIS TEST, WE'RE GOING TO SET RQI, GET A
4584 ; RDI, DO A CONTROL IN COMMAND WITH A REQUEST
4585 ; KEY OF 00 (NO REQUEST). NEXT WE'LL WAIT
4586 ; FOR RDI TO SET AGAIN SINCE RQI WAS
4587 ; LEFT SET
4588 ;
4589 .SBTTL ;***** TEST 12 *****
4590 T12::
4591 021136
4592 021136 004737 004522 JSR PC,MINITS ;INITIALIZE & START MCPU
4593
4594 021142 005037 002402 CLR ERRWRD
4595 021146 104410 TRAP C$ESCAPE
4596 021150 000076 .WORD L10052-.
4597
4598 ; JUMP TO END OF TEST IF ERROR
4599 ;
4600
4601 021152 7$:
4602
4603 021152 052777 000200 161260 BIS #RQI,@BSEL0 ;SET RQI
4604
4605 021160 10$:
4606 021160 004537 002732 JSR R5,WRDI ;WAIT FOR RDI TO SET
4607
4608 021164 005037 002402 CLR ERRWRD ;CLEAR ERROR
4609 021170 104410 TRAP C$ESCAPE
4610 021172 000054 .WORD L10052-.
4611
4612 ; TIME OUT - OR READY ERROR REPORTS
4613 ; THIS ADDRESS
4614 ;
4615
4616 021174 005077 161254 20$: CLR @BSEL6 ;CLEAR RDI, ISSUE REQUEST OF NO REQUEST
4617 ;THIS SHOULD CAUSE RDI TO SET AGAIN
4618 ;SINCE RQI HAD REMAINED SET
4619 021200 112777 000001 161236 MOVB #1,@BSEL2 ;START
4620
4621 021206 004737 004244 JSR PC,WAIT50 ;WAIT THIS SHORT TIME SO THAT THE
4622 021212 004737 004244 JSR PC,WAIT50 ;DMP MICRO-CODE MAY RESET 'RDI' IF
4623 021216 004737 004244 JSR PC,WAIT50
4624 021222 004737 004244 JSR PC,WAIT50
4625
4626 ;IT IS GOING TO
4627 021226 032777 000020 161210 BIT #RDI,@BSEL2 ;IS RDI SET?
4628 021234 001004 BNE 30$
4629
4630 021236 104455 TRAP C$ERDF
4631 021240 000042 .WORD 34
4632 021242 011630 .WORD MRFT
4633 021244 007524 .WORD ERR9
4634 ;COMPLETING A 'NO REQUEST' CONTROL

```

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:***** TEST 12 *****

;IN COMMAND

4635
4636
4637 021246
4638 021246
4639 021246 104401

30\$:
L10052: TRAP C\$ETST

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

4640
 4641
 4642
 4643 021250
 4644
 4645
 4646
 4647
 4648
 4649
 4650 021250
 4651
 4652 021250 004737 004522
 4653
 4654 021254 005037 002402
 4655 021260 104410
 4656 021262 000174
 4657
 4658
 4659
 4660
 4661 021264 052777 000200 161146
 4662 021272 004537 002732
 4663
 4664 021276 005037 002402
 4665 021302 104410
 4666 021304 000152
 4667
 4668
 4669
 4670
 4671 021306 042777 000200 161124 20\$:
 4672 021314 012777 000020 161132
 4673 021322 112777 000001 161114
 4674
 4675 021330 004737 004244
 4676 021334 004737 004244
 4677
 4678 021340 032777 000200 161076
 4679 021346 001006
 4680
 4681 021350 104455
 4682 021352 000043
 4683 021354 011630
 4684 021356 007552
 4685
 4686 021360 104410
 4687 021362 000074
 4688
 4689 021364 117737 161054 002340 30\$:
 4690 021372 042737 177770 002340
 4691 021400 012737 000002 002336
 4692 021406 023737 002336 002340
 4693 021414 001411
 4694 021416 012737 012007 002430
 4695 021424 104455

.SBTTL ;***** TEST 13 *****
 .SBTTL *ROM FUNC TEST. VERIFY RDO SETS
 ZZ
 ;*ROM FUNC IN THIS TEST WE'LL DO A CONTROL IN WITH
 ;* READ MODEM AS THE REQUEST KEY. WE'LL MAKE
 ;* SURE THAT RDO SETS. WE SHOULD GET A
 ;* RETURN KEY OF 10 'RETURN MODEM'
 .SBTTL ;***** TEST 13 *****
 T13::
 JSR PC,MINITS ;INIT & START MCPU
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10053-
 ; JUMP TO END OF TEST IF ERROR
 BIS #RQ1,@BSEL0 ;SET REQUEST IN
 JSR R5,WRDI ;WAIT FOR RDI TO SET
 CLR ERRWRD ;CLEAR ERROR
 TRAP C\$ESCAPE
 .WORD L10053-
 ; TIME OUT OR READY ERROR REPORTS
 ; THIS ADDRESS AS FAILING PC
 BIC #RQ1,@BSEL0 ;DROP REQUEST
 MOV #20,@BSEL6 ;READ MODEM
 MOVB #1,@BSEL2
 JSR PC,WAIT50 ;STALL
 JSR PC,WAIT50
 BIT #RDO,@BSEL2 ;DID 'RDO' SET?
 BNE 30\$
 TRAP C\$ERDF
 .WORD 35
 .WORD MRFT
 .WORD ERR10
 ;REQUEST FOR READ MODEM
 TRAP C\$ESCAPE
 .WORD L10053-
 MOVB @BSEL2,\$BDDAT ;NOW GET CSR AND
 BIC #^C<7>,\$BDDAT ;STRIP FOR
 MOV #2,\$GDDAT ;TYPE CODE OF INFORMATION OUT
 CMP \$GDDAT,\$BDDAT
 BEQ 40\$
 MOV #M28F,CODEW
 TRAP C\$ERDF

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

4696	021426	000044			.WORD	36	
4697	021430	011506			.WORD	EROIC	
4698	021432	010324			.WORD	ERR27	
4699							;IN RDO
4700	021434	104410			TRAP	C\$ESCAPE	
4701	021436	000020			.WORD	L10053-	
4702							
4703	021440						
4704	021440	112737	000010	002336	40\$:	MOVB	#10, \$GDDAT ;SHOULD=10 'RETURN MODFM'
4705	021446	004537	003372			JSR	R5,GETRKY ;GO GET AND CHECK RETURN KEY
4706							
4707	021452	005037	002402			CLR	ERRWRD
4708	021456				L10053:		
4709	021456	104401				TRAP	C\$ETST

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:***** TEST 14 *****

4710
4711
4712 021460.SBTTL :***** TEST 14 *****
.SBTTL :NON-MODE DEF AFTER MC PROCEDURE ERR CHECK4713
4714
4715
4716
4717
4718ZZ
:
:
:
: THIS TEST CHECKS FOR PROCEDURE ERROR WHEN
: NON-MODE DEFINITION IS DONE AFTER MC
:
:-4719
4720 021460.SBTTL :***** TEST 14 *****
T14::4721
4722 021460 112777 000100 160754
4723 021466 022737 000004 002472
4724 021474 001003
4725 021476 112777 000200 160736MOVB #100,28SEL1 :MASTER CLEAR
CMP #4,OPTYP :8206
BNE TLB10 :IF NOT GO TO TLB10
MOVB #200,28SEL1 :SET RUN 82064726
4727 021504
4728 021504 004537 005070
4729 021510 005037 002402

TLB10:

JSR R5,TOUT
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10054-4730 021514 104410
4731 021516 000204
4732 021520 005777 160714
4733 021524 100367
4734 021526 052777 000200 160704
4735 021534 004537 002732

ERLB10:

TST 28SELO
BPL TLB10 :LOOP IF NOT RUN
BIS #R01,28SELO :SET REQUEST
JSR R5,WRDI :WAIT FOR RDI TO SET4736
4737 021540 005037 002402
4738 021544 104410
4739 021546 000154
4740 021550 105077 160664
4741 021554 105077 160666
4742 021560 112777 000052 160666
4743 021566 112777 000001 160650
4744 021574 004537 002646
4745 021600 005037 002402CLR ERRWRD :CLEAR ERROR
TRAP C\$ESCAPE
.WORD L10054-
CLRB 28SELO :CLEAR REQUEST
CLRB 28SEL3 :MAKE TRIB ADD 0
MOVB #52,28SEL6 :READ TSS
MOVB #01,28SEL2 :EXECUTE CONTROL IN
JSR R5,WRDO :WAIT FOR RDO
CLR ERRWRD4746 021604 104410
4747 021606 000114
4748 021610 117737 160630 002340
4749 021616 042737 177770 002340
4750 021624 022737 000002 002340TRAP C\$ESCAPE
.WORD L10054-
MOVB 28SEL2,\$BDDAT
BIC #<C<7>,\$BDDAT :STRIP TO COMMAND CODE
CMP #2,\$BDDAT :IS IT INFO OUT
BEQ T14EX :IF YES EXIT TEST
CMP #01,\$BDDAT :IF NOT IS IT CONTROL OUT
BEQ T14A :
MOV #18F,CODEW4751 021632 001433
4752 021634 022737 000001 002340
4753 021642 001411
4754 021644 012737 012000 002430TRAP C\$ERDF
.WORD 374755 021652 104455
4756 021654 000045
4757 021656 011506
4758 021660 010324.WORD EROIC
.WORD ERR27
TRAP C\$ESCAPE4759 021662 104410
4760 021664 000036
4761 021666 117737 160562 002340
4762 021674 022737 000100 002340

T14A:

.WORD L10054-
MOVB 28SEL6,\$BDDAT :IS IT '00
CMP #100,\$BDDAT :IF SO END TEST ELSE ERROR
BEQ T14EX
MOV #13F,CODEW
TRAP C\$ERDF4763 021702 001407
4764 021704 012737 011762 002430
4765 021712 104455

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:..... TEST 14

4766 021714 000046
4767 021716 011506
4768 021720 010324
4769 021722
4770 021722
4771 021722 10440'
4772

.WORD 38
.WORD ERGIC
.WORD ERR27
T14EX:
L10054:
TRAP CSETST

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

4773
 4774
 4775
 4776 021724
 4777
 4778
 4779
 4780
 4781
 4782
 4783
 4784
 4785
 4786
 4787 021724
 4788
 4789 021724 004737 004522
 4790
 4791
 4792 021730 005037 002402
 4793 021734 104410
 4794 021736 000174
 4795
 4796
 4797
 4798 021740 004737 004244
 4799
 4800 021744 004737 004244
 4801 021750 142777 000010 160464
 4802 021756 022737 000004 002476
 4803 021764 001027
 4804 021766 032777 000200 160450
 4805 021774 001423
 4806 021776 012737 000304 002336
 4807 022004 117737 160444 002340
 4808 022012 023737 002340 002336
 4809 022020 001406
 4810 022022 104455
 4811 022024 000047
 4812 022026 012516
 4813 022030 010422
 4814 022032 104432
 4815 022034 000076
 4816 022036
 4817 022036 042777 000200 160400
 4818 022044 052777 000200 160366
 4819 022052 004537 002732
 4820
 4821 022056 005037 002402
 4822 022062 104410
 4823 022064 000046
 4824 022066 043777 000200 160344
 4825 022074 012777 000007 160352
 4826 022102 012777 000002 160334
 4827 022110 012737 000104 002410
 4828

.SBTTL :***** TEST 15 *****
 .SBTTL * MODE DEF,MODE DEF PROCEDURE ERROR
 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
 :
 :
 : *
 : ***** TEST 15 *****
 .SBTTL
 T15::
 JSR PC,MINITS ;DO MC,MODE DEF(CONT STA/FD)
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10055-.
 :
 : JUMP TO END OF TEST IF ERROR
 :
 JSR PC,WAIT50 ;WAIT A WHILE TO BE SURE MODEM READY
 ;IS SET
 JSR PC,WAIT50
 BICB #BIT3,@BSEL1 ;CLEAR LU LOOP
 CMP #4,TSTCON ;IS THIS NO LOOPBACK
 BNE 20\$;IF LOOPBACK GO TO 20
 BIT #RDO,@BSEL2 ;IS RDO SET?
 BEQ 20\$;IF NOT GO TO 20
 MOV #304,\$GDDAT
 MOV @BSEL6,\$BDDAT ;IF YES.IS IT 304
 CMP \$BDDAT,\$GDDAT
 BEQ 25\$;IF EQUAL GO TO 25
 TRAP C\$ERDF
 .WORD 39
 .WORD MEF30
 .WORD ERR32
 TRAP C\$EXIT
 .WORD L10055-.
 25\$: BIC #RDO,@BSEL2 ;CLEAR RDO
 20\$: BIS #RQI,@BSELO ;SET REQUEST
 JSR R5,WRDI ;WAIT FOR RDI TO SET
 CLR ERRWRD ;CLEAR ERROR
 TRAP C\$ESCAPE
 .WORD L10055-.
 BIC RQI,@BSELO ; CLEAR REQUEST
 MOV #7,@BSEL6 ;SET MODE FOR TRIB/FD
 MOV #02,@BSEL2 ;DO MODE DEF
 MOV #104,PERR ;SET PROCEDURE ERROR OF
 ; 104 TO BE CHECKED

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

4829 022116 004537 003016

JSR R5,WFPE

;WAIT FOR PROCEDURE ERROR

4830
4831 022122 005037 002402

CLR ERRWRD

4832 022126 104410

TRAP C\$ESCAPE

4833 022130 000002

.WORD L10055-

4834

:::~::~

4835

: ESCAPE TEST IF ERROR

4836

:::~::~

4837

; ERROR,OR TIME OUT.

4838

4839 022132

L10055:

4840 022132 104401

TRAP C\$ETST

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

4841
 4842
 4843
 4844 022134
 4845
 4846
 4847
 4848
 4849
 4850
 4851
 4852 022134
 4853
 4854 022134 004737 004522
 4855 022140 004737 004244
 4856
 4857 022144 005037 002402
 4858 022150 104410
 4859 022152 000212
 4860
 4861
 4862
 4863
 4864 022154 022737 000003 002476
 4865 022162 001011
 4866 022164 012704 000104
 4867 022170 012703 000021
 4868 022174 004537 003162
 4869
 4870 022200 005737 002402
 4871 022204 100467
 4872
 4873 022206 142777 000010 160226 2\$:
 4874
 4875 022214 004737 004244
 4876 022220 004737 004244
 4877 022224 022737 000004 002476
 4878 022232 001020
 4879 022234 032777 000200 160202
 4880 022242 001414
 4881 022244 012737 000304 002410
 4882 022252 004537 003016
 4883
 4884 022256 005037 002402
 4885 022262 104410
 4886 022264 000100
 4887
 4888
 4889
 4890 022266 042777 000200 160150
 4891 022274 052777 000200 160136 20\$:
 4892 022302 004537 002732
 4893
 4894 022306 005037 002402
 4895 022312 104410
 4896 022314 000050

.SBTTL ;***** TEST 16 *****
 .SBTTL * MODE DEF ,MODE DEF CHANGE DUPLEX ONLY.
 ZZ
 ;*
 ;*
 ;* THIS CHECKS THAT YOU CAN CHANGE THE DUPLEX PORTION
 ;* OF A MODE DEF
 ;*
 ;*-
 .SBTTL ;***** TEST 16 *****
 T16::
 JSR PC,MINITS ;MC,MODE DEF(CONT/FD)
 JSR PC,WAIT50 ;DELAY
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10056-.
 ; JUMP TO END OF TEST IF ERROR
 CMP #3,TSTCON ;IS IT REMOTE MODEM
 BNE 2\$;IF NOT THEN GO TO 2A
 MOV #104,R4
 MOV #21,R3
 JSR R5,CONTIN ; WRITE MODEM WITH CORRECT
 ; TYPE OF LOOP CODE
 TST ERRWRD
 BMI 10\$;EXIT IF ERROR
 BICB #BIT3,@BSEL1 ;CLEAR LU LOOP
 JSR PC,WAIT50 ;WAIT A WHILE
 JSR PC,WAIT50
 CMP #4,TSTCON
 BNE 20\$;IF LOOPBACK GO TO 20
 BIT #RDO,@BSEL2 ;ELSE SEE IF READY OUT
 BEQ 20\$;IF NOT GO TO 20
 MOV #304,PERR
 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10056-.
 ;*****
 ; ESCAPE TEST IF ERROR
 ;*****
 BIC #RDO,@BSEL2 ;CLEAR OUTPUT
 BIS #RQI,@BSEL0 ;SET REQUEST
 JSR R5,WRDI ;WAIT FOR RDI TO SET
 CLR ERRWRD ;CLEAR ERROR
 TRAP C\$ESCAPE
 .WORD L10056-.

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;***** TEST 16 *****

```

4897      ;:TIME OUT OR READY ERRORS REPORT THIS PC
4898      ;:*****
4899      ;:*****
4900      022316 043777 000200 160114      BIC      RQ1,@BS[L0      ;NO MORE REQUESTS
4901      022324 112777 000004 160122      MOVB     #04,@BS[L6      ;CONT/FD FOR MODE
4902      022332 112777 000002 160104      MOVB     #02,@BS[L2      ;DO MODE DEF
4903      022340 004737 004244      JSR      PC,WAIT50      ;DELAY A WHILE
4904      022344 032777 000200 160072      BIT      #RDO,@BS[L2      ;IS RDO SET
4905      022352 001404      BEQ      10$      ;BRANCH IF NOT
4906      022354 104455      TRAP     C$ERDF
4907      022356 000050      .WORD    40
4908      022360 012516      .WORD    MEF30
4909      022362 010422      .WORD    ERR32
4910      022364      10$:
4911      022364      L10056:
4912      022364 104401      TRAP     C$ETST
4913

```

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;***** TEST 17 *****

4914
4915
4916 022366
4917
4918
4919
4920
4921
4922
4923
4924
4925
4926
4927 022366
4928 022366 012737 000040 002362
4929 022374 032737 000003 002472
4930 022402 001403
4931 022404 012737 000014 002362
4932 022412
4933
4934 022412 112737 000161 002360
4935 022420 112737 000161 002364
4936 022426 063737 002362 002364
4937
4938 022434 004737 004522
4939
4940 022440 005037 002402
4941 022444 104410
4942 022446 000150
4943
4944
4945
4946 022450
4947 022450 112703 000001
4948 022454 004537 003162
4949
4950
4951
4952
4953 022460 005037 002402
4954 022464 104410
4955 022466 000130
4956
4957
4958
4959 022470 005237 002360
4960 022474 023737 002364 002360
4961 022502 001362
4962
4963 022504
4964 022504 112703 000001
4965 022510 004537 003162
4966
4967
4968
4969

.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 *****
T17::
MOV #32.,TRIBMX ;SET MAX TRIB TO 32
BIT #3.OPTYP ;IS THIS DMV
BEQ XX ;IF NOT BRANCH
MOV #12.,TRIBMX ;ELSE SET THE MAX TO 12
XX:
MOVB #161,TRIBN ;NUMBER OF TRIBUTARY,
MOVB #161,TRIBH ;START TRIB HIGH AT SAME AS TRIBN
ADD TRIBMX,TRIBH ;ADD MAX NUMBER OF TRIBS TO TRIBH
JSR PC,MINITS ;INITIALIZE
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10057-
; JUMP TO END OF TEST IF ERROR
; JUMP TO END OF TEST IF ERROR
30\$:
MOVB #01,R3 ;SET ESTABLISH TRIB
JSR R5,CONTIN ;
; READY OR TIME OUT ERRORS REPORT THIS PC
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10057-
; JUMP TO END OF TEST IF ERROR
; JUMP TO END OF TEST IF ERROR
INC TRIBN ;UPDATE TRIB#
CMP TRIBH, TRIBN ;ONLY ALLOW MAX TRIBS TO BE SET
BNE 30\$
37\$:
MOVB #01, R3 ;ESTABLISH MAX +1 TRIBS
JSR R5,CONTIN ; DO IT
; READY OR TIME OUT ERRORS REPORT THIS PC

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;***** TEST 17 *****

```

4970 022514 005037 002402      CLR      ERRWRD
4971 022520 104410      TRAP      C$ESCAPE
4972 022522 000074      .WORD      L10057-.
4973                      ;*****:
4974                      ; JUMP TO END OF TEST IF ERROR
4975                      ;*****:
4976
4977 022524 012737 000114 002410  MOV      #114,  PERR      ;SHOULD READ 114, PROCEDURE ERROR
4978                      ;TRYING TO ESTABLISH MAX+1 TRIBUTARIES
4979
4980 022532 004537 003016      JSR      R5,WFPE      ;WAIT FOR PROCEDURE ERROR
4981
4982 022536 005037 002402      CLR      ERRWRD
4983 022542 104410      TRAP      C$ESCAPE
4984 022544 000052      .WORD      L10057-.
4985                      ;*****:
4986                      ; ESCAPE TEST IF ERROR
4987                      ;*****:
4988 022546                      60$:
4989 022546 042777 000200 157670  BIC      #RDO, @BSEL2      ;CLEAR RDO
4990 022554 005337 002360      DEC      TRIBN      ;DEC TRIB NUMBER
4991 022560 112703 000001      MOV      #01,  R3      ;SET ESTABLISH TRIB
4992 022564 004537 003162      JSR      R5,CONTIN      ;DO IT
4993                      ;*****:
4994                      ;: READY OR TIME OUT ERRORS REPORT THIS PC
4995                      ;*****:
4996
4997 022570 005037 002402      CLR      ERRWRD
4998 022574 104410      TRAP      C$ESCAPE
4999 022576 000020      .WORD      L10057-.
5000                      ;*****:
5001                      ; JUMP TO END OF TEST IF ERROR
5002                      ;*****:
5003
5004 022600 112737 000116 002410  MOV      #116,  PERR      ;SHOULD BE PROCEDURE ERROR
5005                      ;: OF 116 ESTABLISH ALREADY
5006                      ;ESTABLISHED TRIB.
5007 022606 004537 003016      JSR      R5,WFPE      ;GO CHECK FOR PROCEDURE ERROR
5008 022612 005037 002402      CLR      ERRWRD
5009 022616
5010 022616
5011 022616 104401      70$:
5012                      L10057: TRAP      C$ETST

```

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```

***** TEST 18 *****
.SBTTL ***** TEST 18 *****
.SBTTL * READ/WRITE TSS TEST
ZZ
*
*
* THIS TEST CHECKS THAT A TRIB STATUS SLOT CAN
* BE WRITTEN AND READ
*
*
.SBTTL ***** TEST 18 *****
T18::
MOV #30,TSSADD ;START ADD AT 30
NEWSLT: CLR R2 ;CLEAR R2
NEWPAT: JSR PC,MINITS ;MASTER CLEAR MODE DEF
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10060-.
; JUMP TO END OF TEST IF ERROR
; JUMP TO END OF TEST IF ERROR
MOV #55,TRIBN ;PUT 55 IN TRIB NUMBER
MOV #01,R3 ;THIS WILL ESTABLISH
JSR R5,CONTIN ; A TRIB
; TIME OUT AND READY ERRORS REPORT THIS PC
; JUMP TO END OF TEST IF ERROR
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10060-.
; JUMP TO END OF TEST IF ERROR
; JUMP TO END OF TEST IF ERROR
MOV DATLST(R2),R4 ;PATTERN TO BE WRITTEN
MOV TSSADD,R3 ;WRITE TO TSS
BIS #BIT7,R3 ;SET THE WRITE BIT
JSR R5,CONTIN ; GO DO IT!!!
; TIME OUT AND READY ERRORS REPORT THIS PC
; JUMP TO END OF TEST IF ERROR
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10060-.
; JUMP TO END OF TEST IF ERROR
; JUMP TO END OF TEST IF ERROR
MOV TSSADD,R3 ;SET UP TO READ SLOT
BIS #BIT5,R3 ;SET THE READ BIT
JSR R5,CONTIN ;DO CONTROL IN
; JUMP TO END OF TEST IF ERROR

```

```

5013
5014
5015 022620
5016
5017
5018
5019
5020
5021
5022
5023 022620
5024 022620 012737 000030 002412
5025 022626 005002
5026
5027 022630 004737 004522
5028
5029 022634 005037 002402
5030 022640 104410
5031 022642 000240
5032
5033
5034
5035
5036 022644 012737 000055 002360
5037 022652 012703 000001
5038 022656 004537 003162
5039
5040
5041
5042
5043 022662 005037 002402
5044 022666 104410
5045 022670 000212
5046
5047
5048
5049
5050 022672 016204 033714
5051 022676 013703 002412
5052 022702 052703 000200
5053 022706 004537 003162
5054
5055
5056
5057
5058 022712 005037 002402
5059 022716 104410
5060 022720 000162
5061
5062
5063
5064
5065 022722 013703 002412
5066 022726 052703 000040
5067 022732 004537 003162
5068

```

: ***** TEST 18 *****

```

5069 ; TIME OUT AND READY ERRORS REPORT THIS PC
5070 ;::::::::::::::::::
5071
5072 022736 005037 002402 CLR ERRWRD
5073 022742 104410 TRAP C$ESCAPE
5074 022744 000136 .WORD L10060-.
5075 ;::::::::::::::::::
5076 ; JUMP TO END OF TEST IF ERROR
5077 ;::::::::::::::::::
5078 022746 012737 000002 002336 MOV #02,$GDDAT ; COMPARE FOR A INFO OUT
5079 022754 004537 003242 JSR R5,GETOUT ; CHECK FOR INFO OUT AND
5080 ;CORRECT TRIB NO. IF ERROR
5081 ;REPORT THIS PC.
5082 022760 005037 002402 CLR ERRWRD
5083 022764 104410 TRAP C$ESCAPE
5084 022766 000114 .WORD L10060-.
5085 ;::::::::::::::::::
5086 ; JUMP TO END OF TEST IF ERROR
5087 ;::::::::::::::::::
5088
5089 022770 013737 002412 002336 MOV TSSADD,$GDDAT ;MOVE EXPECTED ADDRESS TO GDDAT
5090 022776 052737 000040 002336 BIS #BIT5,$GDDAT ;SET THE READ TSS BIT IN EXPECTED
5091 023004 004537 003372 JSR R5,GETRKY ; GO CHECK FOR GOOD RETURN KEY
5092
5093 023010 005037 002402 CLR ERRWRD
5094 023014 104410 TRAP C$ESCAPE
5095 023016 000064 .WORD L10060-.
5096 ;::::::::::::::::::
5097 ; JUMP TO END OF TEST IF ERROR
5098 ;::::::::::::::::::
5099
5100 023020 016237 033714 002336 30$: MOV DATLST(R2),$GDDAT ;MOVE EXPECTED PATTERN
5101 023026 004537 003446 JSR R5,GETDAT ;GET DATA RETURNED.
5102 ;IF ERROR REPORT THIS PC.
5103 023032 005037 002402 CLR ERRWRD
5104 023036 104410 TRAP C$ESCAPE
5105 023040 000042 .WORD L10060-.
5106 ;::::::::::::::::::
5107 ; JUMP TO END OF TEST IF ERROR
5108 ;::::::::::::::::::
5109
5110 023042 022762 000562 033714 CMP #562,DATLST(R2) ;ARE WE DONE WITH PATTERN
5111 023050 001404 BEQ 50$ ;IF SO DO NEXT SLOT
5112 023052 062702 ADD #2,R2 ;BUMP LIST POINTER
5113 023056 000137 022630 JMP NEWPAT ;GO BACK FOR THIS PATTERN.
5114 023062 022737 000037 002412 50$: CMP #37,TSSADD ;IS THIS THE LAST SLOT
5115 023070 001404 BEQ 60$ ;IF SO END TEST
5116 023072 005237 002412 INC TSSADD ;ELSE BUMP ADD
5117 023076 000137 022626 JMP NEWSLT ; AND DO NEXT SLOT
5118 023102 60$:
5119
5120 023102 L10060:
5121 023102 104401 TRAP C$ETST
5122

```

:***** TEST 18 *****

```

.SBTTL ***** TEST 19 *****
.SBTTL *WRITE RESERVED AREA OF TSS. P.E. 132
ZZ
*
*
* THIS TEST CHECKS FOR PROCEDURE ERROR
* ON WRITING TO ILLEGAL SLOT
*
*
.SBTTL ***** TEST 19 *****
T19::

JSR      PC,MINITS          ;MASTER CLEAR MODE DEF

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10061-.
: JUMP TO END OF TEST IF ERROR
:
:
MOV      #22,TRIBN          ;SET TRIB NUMBER TO 22
MOV      #01,R3
JSR      R5,CONTIN          ;ESTABLISH TRIB
: TIME OUT OR READY ERRORS REPORT THIS PC
:
:
CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10061-.
: JUMP TO END OF TEST IF ERROR
:
:
MOV      #204,R3             ;SEL6=204
JSR      R5,CONTIN          ;WRITE TSS (ILLEGAL)
: TIME OUT OR READY ERROR REPORT THIS PC
:
:
CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10061-.
: JUMP TO END OF TEST IF ERROR
:
:
MOV      #132,PERR          ;CHECK FOR PROCEDURE ERROR
JSR      R5,WFPD            ;WAIT FOR PROCEDURE ERROR

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10061-.
:
:

```

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

5179

5180

5181

5182 023210

5183 023210 104401

5184

; ESCAPE TEST IF ERROR

:*****

L10061:

TRAP CSETST

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:***** TEST 19 *****

5185
 5186
 5187
 5188 023212
 5189
 5190
 5191
 5192
 5193
 5194
 5195
 5196 023212
 5197
 5198 023212 004737 004522
 5199
 5200 023216 005037 002402
 5201 023222 104410
 5202 023224 000072
 5203
 5204
 5205
 5206
 5207 023226 012737 000077 002360
 5208 023234 012703 000001
 5209 023240 004537 003162
 5210
 5211
 5212
 5213
 5214 023244 005037 002402
 5215 023250 104410
 5216 023252 000044
 5217
 5218
 5219
 5220
 5221 023254 012703 000106
 5222 023260 004537 003162
 5223
 5224
 5225
 5226
 5227 023264 005037 002402
 5228 023270 104410
 5229 023272 000024
 5230
 5231
 5232
 5233
 5234 023274 012737 000132 002410
 5235
 5236 023302 004537 003016
 5237
 5238 023306 005037 002402
 5239 023312 104410
 5240 023314 000002

.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 *****
 120::
 JSR PC,MINITS ;MASTER CLEAR MODE DEF
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10062-
 :
 : JUMP TO END OF TEST IF ERROR
 :
 MOV #77,TRIBN ;MAKE TRIBN 77
 MOV #01,R3 ;ESTABLISH TRIB
 JSR R5,CONTIN
 :
 : TIME OUT OR READY ERROR REPORTS THIS PC
 :
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10062-
 :
 : JUMP TO END OF TEST IF ERROR
 :
 MOV #106,R3
 JSR R5,CONTIN ;READ/CLEAR ADD 6
 :
 : TIME OUT OR READY ERRORS REPORT THIS PC
 :
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10062-
 :
 : JUMP TO END OF TEST IF ERROR
 :
 MOV #132,PEER ;SET PROCEDURE ERROR TO
 ;BE CHECKED TO 132
 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10062-

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;..... TEST 20

5241
5242
5243
5244
5245
5246023316
023316 104401:.....
: ESCAPE TEST IF ERROR
:.....

L10062:

TRAP CBETST

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:..... TEST 20

```

5247
5248
5249
5250
5251 023320
5252
5253
5254
5255
5256
5257
5258 023320
5259
5260 023320 004737 004522
5261
5262 023324 005037 002402
5263 023330 104410
5264 023332 000100
5265
5266
5267
5268
5269 023334 012737 000003 002360
5270 023342 012703 000001
5271 023346 004537 003162
5272
5273
5274
5275
5276 023352 005037 002402
5277 023356 104410
5278 023360 000052
5279
5280
5281
5282
5283 023362 012703 000107
5284 023366 004537 003162
5285
5286
5287
5288
5289 023372 005037 002402
5290 023376 104410
5291 023400 000032
5292
5293
5294
5295
5296 023402 004737 004244
5297 023406 004737 004244
5298 023412 032777 000200 157024
5299 023420 001004
5300
5301 023422 104455
5302 023424 000051

```

```

.SBTTL :..... TEST 21 .....
.SBTTL READ/CLEAR TSS
ZZ
:
:
: THIS TEST THAT READ CLEAR WORKS
:
:
.SBTTL :..... TEST 21 .....
T21::
JSR PC,MINITS ;MASTER CLEAR MODE-DEF
CLR ERRWRD
TRAP C$ESCAPE
WORD L10063-
:
: JUMP TO END OF TEST IF ERROR
:
MOV #03,TRIBN ;SET TRIB NUMBER
MOV #01,R3
JSR R5,CONTIN ;ESTABLISH TRIB
:
: TIME OUT OR READY ERRORS REPORT THIS PC
:
CLR ERRWRD
TRAP C$ESCAPE
WORD L10063-
:
: JUMP TO END OF TEST IF ERROR
:
MOV #107,R3
JSR R5,CONTIN ;READ/CLEAR ADD 7
:
: TIME OUT OR READY ERRORS REPORT THIS PC
:
CLR ERRWRD
TRAP C$ESCAPE
WORD L10063-
:
: JUMP TO END OF TEST IF ERROR
:
JSR PC,WAIT50
JSR PC,WAIT50 ;DELAY
BIT #RDO,0BSEL2
BNE 10$ ;IF RDO THEN END
;ELSE ERROR
TRAP C$ERDF
WORD 41

```

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***** TEST 21 *****

5303 023426 011630
5304 023430 007552
5305
5306 023432
5307 023432
5308 023432 104401

.WORD MRFT
.WORD ERR10

10\$:
L10063:
TRAP C\$ETST

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:***** TEST 22 *****

5309
5310
5311 023434.SBTTL :***** TEST 22 *****
.SBTTL *GLOBAL STATUS SLOT TESTS5312
5313
5314
5315
5316

ZZ

: *
: THIS TEST CHECKS THAT GLOBAL STATUS
: SLOTS RESPOND TO COMMANDS
: *5317
5318 023434
5319.SBTTL :***** TEST 22 *****
T22::5320 023434
5321 023434 104402

T22.1:

TRAP C\$BSUB

5322
5323
5324
5325: READ ALL SLOTS TEST :
: :
: :5326 023436 005037 002412
5327 023442 005037 002360CLR TSSADD ;CLEAR ADD
CLR TRIBN ;MAKE TRIB #0(GLOBAL COMM)5328 023446
5329 023446 004737 004522

5\$:

JSR PC,MINITS ;MASTER CLEAR INIT

5330
5331 023452 005037 002402
5332 023456 104410
5333 023460 000114CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10065-5334
5335
5336
5337: :
: JUMP TO END OF TEST IF ERROR
: :5338 023462 013703 002412
5339 023466 052703 000040
5340 023472 004537 003162MOV TSSADD,R3
BIS #BIT5,R3 ;SET UP READ GSS COMMAND
JSR R5,CONTIN ;GO DO IT5341
5342 023476 005037 002402
5343 023502 104410
5344 023504 000070CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10065-5345
5346
5347
5348: :
: JUMP TO END OF TEST IF ERROR
: :5349 023506 012737 000002 002336
5350 023514 004537 003242MOV #2,\$GDDAT
JSR R5,GETOUT ;CHECK CORRECT TYPE AND
; TRIB NO.5351
5352
5353 023520 005037 002402
5354 023524 104410
5355 023526 000046CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10065-5356
5357
5358
5359: :
: ESCAPE SUB IF ERROR
: :5360 023530
5361 023530 013737 002412 002336
5362 023536 052737 000040 002336
5363 023544 004537 003372
5364

10\$:

MOV TSSADD,\$GDDAT
BIS #BIT5,\$GDDAT ;SET THE READ TSS BIT
JSR R5,GETRKY ;CHECK RETURN KEY

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:***** TEST 22 *****

```

5365 023550 005037 002402          CLR    ERRWRD
5366 023554 104410          TRAP    C$ESCAPE
5367 023556 000016          .WORD   L10065-.
5368                               :*****
5369                               : GO TO END OF SUB IF ERROR
5370                               :*****
5371
5372
5373 023560 005237 002412          30$: INC    TSSADD          ;BUMP ADDRESS
5374 023564 022737 000040 002412  CMP    #40,TSSADD      ; ARE WE ALL DONE
5375 023572 001325          BNE     5$          ; IF NOT GO BACK
5376                               ;ELSE END SUBTEST
5377 023574          L10065: TRAP    C$ESUB
5378 023574 104403          T22.2:
5379 023576 104402          TRAP    C$BSUB
5380
5381          :*****
5382          : WRITE ALL SLOTS TEST ;
5383          :*****
5384
5385 023600 012737 000034 002412          MOV    #34,TSSADD      ;START WITH FIRST WRITABLE ADD
5386 023606 005037 002360          CLR    TRIBN          ;AND TRIBN AT ZERO
5387 023612 004737 004522          40$: JSR    PC,MINITS .      ;MASTER CLEAR INT
5388
5389 023616 005037 002402          CLR    ERRWRD
5390 023622 104410          TRAP    C$ESCAPE
5391 023624 000226          .WORD   L10066-.
5392          :*****
5393          : JUMP TO END OF SUB IF ERROR
5394          :*****
5395
5396 023626 013703 002412          45$: MOV    TSSADD,R3
5397 023632 052703 000200          BIS    #BIT7,R3          ;WRITE TSS(GLOBAL BECAUSE TRIBN=0)
5398 023636 013704 002412          MOV    TSSADD,R4          ;PUT IN ADD FOR DATA
5399 023642 004537 003162          JSR    R5,CONTIN          ;DO IT
5400
5401 023646 005037 002402          CLR    ERRWRD
5402 023652 104410          TRAP    C$ESCAPE
5403 023654 000176          .WORD   L10066-.
5404          :*****
5405          : JUMP TO END OF SUB IF ERROR
5406          :*****
5407
5408 023656 005237 002412          INC    TSSADD          ;BUMP ADD
5409 023662 022737 000040 002412  CMP    #40,TSSADD      ;DONE ALL
5410 023670 001356          BNE     45$          ;NO GO FINISH!!!
5411 023672 012703 000227          MOV    #227,R3
5412 023676 013704 002412          MOV    TSSADD,R4
5413 023702 004537 003162          JSR    R5,CONTIN          ; TRY TO WRITE BAD ADDRESS
5414
5415 023706 005037 002402          CLR    ERRWRD
5416 023712 104410          TRAP    C$ESCAPE
5417 023714 000136          .WORD   L10066-.
5418          :*****
5419          : JUMP TO END OF SUB IF ERROR
5420          :*****

```

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

```

5421 023716 012737 000132 002410      MOV    #132,PERR
5422 023724 004537 003016              JSR    R5,WFPD      ;WAIT FOR PROCEDURE ERROR
5423
5424 023730 005037 002402              CLR    ERRWRD
5425 023734 104410              TRAP   C$ESCAPE
5426 023736 000222              .WORD  L10064-.
5427
5428
5429
5430
5431 023740 042777 000200 156476 GSSREP: BIC    #RDO,ABSEL2      ;CLEAR OUTPUT
5432 023746 005337 002412              DEC    TSSADD      ;GET TSSADD BACK TO MAX
5433 023752 013703 002412              MOV    TSSADD,R3
5434 023756 052703 000040              BIS    #BIT5,R3      ;SET READ BIT
5435 023762 004537 003162              JSR    R5,CONTIN      ;READ TSS
5436
5437 023766 005037 002402              CLR    ERRWRD
5438 023772 104410              TRAP   C$ESCAPE
5439 023774 000056              .WORD  L10066-.
5440
5441
5442
5443
5444 023776 012737 000002 002336      MOV    #2,$GDDAT
5445 024004 004537 003242              JSR    R5,GETOUT      ;CHECK FOR INFOR. OUT AND
5446
5447 024010 005037 002402              CLR    ERRWRD
5448
5449 024014 104410              TRAP   C$ESCAPE
5450 024016 000034              .WORD  L10066-.
5451
5452
5453
5454 024020 013737 002412 002336 60$:  MOV    TSSADD,$GDDAT
5455 024026 004537 003446              JSR    R5,GETDAT      ;CHECK FOR GOOD DATA
5456
5457 024032 005037 002402              CLR    ERRWRD
5458 024036 104410              TRAP   C$ESCAPE
5459 024040 000012              .WORD  L10066-.
5460
5461
5462
5463
5464 024042 022737 000034 002412 70$:  CMP    #34,TSSADD      ;ARE WE ALL DONE
5465 024050 001333              BNE    GSSREP          ;GO BACK IF NOT
5466
5467 024052              L10066:
5468 024052 104403              TRAP   C$ESUB
5469 024054              T22.3:
5470 024054 104402              TRAP   C$BSUB
5471
5472
5473
5474
5475 024056 004737 004522              JSR    PC,MINITS      ;MASTER CLEAR MODE DEF
5476

```

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

5477	024062	005037	002402	CLR	ERRWRD	
5478	024066	104410		TRAP	C\$ESCAPE	
5479	024070	000066		.WORD	L10067-	
5480				.....		
5481				:JUMP	TO END OF SUB IF ERROR	
5482				.....		
5483						
5484	024072	005037	002360	CLR	TRIBN	
5485	024076	012703	000117	MOV	#117,R3	
5486	024102	004537	003162	JSR	R5,CONTIN	;READ CLEAR SLOT
5487						
5488	024106	005037	002402	CLR	ERRWRD	
5489	024112	104410		TRAP	C\$ESCAPE	
5490	024114	000042		.WORD	L10067-	
5491				.....		
5492				:JUMP	TO END OF SUB IF ERROR	
5493				.....		
5494						
5495	024116	012737	000002 002336	MOV	#02,\$GDDAT	
5496	024124	004537	003242	JSR	R5,GETOUT	;CHECK FOR INFO OUT
5497						;AND CORRECT TRIBN.
5498	024130	005037	002402	CLR	ERRWRD	
5499	024134	104410		TRAP	C\$ESCAPE	
5500	024136	000020		.WORD	L10067-	
5501				.....		
5502				:JUMP	TO END OF SUB IF ERROR	
5503				.....		
5504						
5505	024140	012737	000117 002336	MOV	#117,\$GDDAT	
5506	024146	004537	003372	JSR	R5,GETRKY	;CHECK FOR CORRECT RETURN KEY
5507						
5508	024152	005037	002402	CLR	ERRWRD	
5509	024156			L10067:		
5510	024156	104403		TRAP	C\$ESUB	
5511	024160			L10064:		
5512	024160	104401		TRAP	C\$ETST	
5513						

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

```

5514
5515
5516
5517 024162
5518
5519
5520
5521
5522
5523
5524
5525 024162
5526
5527 024162 004737 004522
5528 024166 005037 002402
5529 024172 104410
5530 024174 000412
5531 024176 012737 000036 002360
5532 024204 012703 000001
5533 024210 004537 003162
5534
5535
5536
5537
5538 024214 005037 002402
5539 024220 104410
5540 024222 000364
5541 024224 012703 000003
5542 024230 004537 003162
5543
5544
5545
5546 024234 005037 002402
5547 024240 104410
5548 024242 000344
5549 024244 012737 000001 002336
5550 024252 004537 003242
5551
5552
5553
5554 024256 005037 002402
5555 024262 104410
5556 024264 000322
5557 024266 012737 000024 002336
5558 024274 004537 003670
5559 024300 005037 002402
5560 024304 104410
5561 024306 000300
5562
5563
5564
5565 024310 042777 000200 156126 20$:
5566 024316 052777 000200 156114
5567
5568 024324 004537 002732
5569

```

.SBTTL :***** TEST 23 *****
 .SBTTL *HALT TRIB COMMAND TEST
 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 *****
 T23::

JSR PC,MINITS ;MASTER CLEAR -MODE DEF
 CLR ERRWRD ;IF ERROR GO TO END TEST
 TRAP C\$ESCAPE
 .WORD L10070-
 MOV #36,TRIBN ;SET TRIBN
 MOV #01,R3
 JSR R5,CONTIN ;ESTABLISH TRIB

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

 CLR ERRWRD ; JUMP TO END OF TEST IF ERROR
 TRAP C\$ESCAPE
 .WORD L10070-
 MOV #03,R3
 JSR R5,CONTIN ;ISTRIB TRIB

 ;IF TIME OUT OR READY ERRORS THE PROGRAM WILL
 ;REPORT THIS PC AS FAILING PC
 CLR ERRWRD ; JUMP TO END OF TEST IF ERROR
 TRAP C\$ESCAPE
 .WORD L10070-
 MOV #01,\$GDDAT ;CHECK
 JSR R5,GETOUT ;FOR CONTROL OUT AND
 ;CORRECT TRIBN
 ;IF ERROR REPORT
 ;THIS PC AND ESCAPE TEST
 ; JUMP TO END OF TEST IF ERROR

 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10070-
 MOV #24,\$GDDAT
 JSR R5,GETOC ;CHECK FOR GOOD OUTPUT CODE
 CLR ERRWRD ; JUMP TO END OF TEST IF ERROR
 TRAP C\$ESCAPE
 .WORD L10070-

 ; QUE REC BUFFER WITH 100 DECIMAL LOCATIONS

 BIC #RDO,@BSEL2 ;CLEAR READY OUT
 BIS #RQI,@BSEL0 ;SET REQUEST IN
 ;WAIT FOR READY IN
 JSR R5,WRDI ;WAIT FOR RDI TO SET

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

5570	024330	005037	002402		CLR	ERRWRD	;CLEAR ERROR
5571	024334	104410			TRAP	C\$ESCAPE	
5572	024336	000250			.WORD	L10070-	
5573	024340	042777	000200	156072	BIC	#RQI,@BSEL0	;CLEAR REQUEST IN
5574	024346	012777	033734	156074	MOV	#RECBU1,@BSEL4	;
5575	024354	012777	000144	156072	MOV	#100,@BSEL6	
5576	024362	113777	002360	156056	MOVB	TRIBN,@BSEL3	
5577	024370	105077	156050		CLRB	@BSEL2	;QUE UP BUFF
5578	024374	012703	000005		MOV	#05,R3	
5579	024400	004537	003162		JSR	R5,CONTIN	;HALT TRIB
5580							;IF TIME OUT OR READY ERRORS THE PROGRAM WILL
5581							;REPORT THIS PC AS FAILING PC
5582							
5583	024404	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5584	024410	104410			TRAP	C\$ESCAPE	
5585	024412	000174			.WORD	L10070-	
5586	024414	012737	000003	002336	MOV	#03,\$GDDAT	
5587	024422	004537	003242		JSR	R5,GETOUT	;CHECK FOR BUFFER UNUSED
5588							;AND CORRECT TRIBN.
5589	024426	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5590	024432	104410			TRAP	C\$ESCAPE	
5591	024434	000152			.WORD	L10070-	
5592	024436	012737	000144	002336	MOV	#100,\$GDDAT	
5593	024444	004537	003514		JSR	R5,GETCC	;CHECK FOR GOOD CHAR.COUNT
5594	024450	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5595	024454	104410			TRAP	C\$ESCAPE	
5596	024456	000130			.WORD	L10070-	
5597	024460	012737	033734	002336	MOV	#RECBU1,\$GDDAT	
5598	024466	004537	003576		JSR	R5,GETBA	;CHECK FOR GOOD BUFF. ADD.
5599	024472	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5600	024476	104410			TRAP	C\$ESCAPE	
5601	024500	000106			.WORD	L10070-	
5602	024502	042777	000200	155734	BIC	#RDO,@BSEL2	;CLEAR OUTPUT AND LOOK FOR NEXT
5603	024510	012737	000002	002336	MOV	#2,\$GDDAT	
5604	024516	004537	003242		JSR	R5,GETOUT	;NEXT GET INFO OUT
5605	024522	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5606	024526	104410			TRAP	C\$ESCAPE	
5607	024530	000056			.WORD	L10070-	
5608	024532	012737	000020	002336	MOV	#20,\$GDDAT	
5609	024540	004537	003372		JSR	R5,GETRKY	;CHECK FOR GOOD RETURN KEY
5610							; BUFFER RETURN COMPLETE
5611	024544	005037	002402		CLR	ERRWRD	; JUMP TO END OF TEST IF ERROR
5612	024550	104410			TRAP	C\$ESCAPE	
5613	024552	000034			.WORD	L10070-	
5614	024554	042777	000200	155662	BIC	#RDO,@BSEL2	;CLEAR OUTPUT
5615	024562	004737	004244		JSR	PC,WAIT50	
5616	024566	004737	004244		JSR	PC,WAIT50	;WAIT A WHILE
5617	024572	012703	000000		MOV	#0,R3	;DO A NO REQUEST
5618	024576	004537	003162		JSR	R5,CONTIN	
5619	024602	005037	002402		CLR	ERRWRD	;IF ERROR OCCURS THE SECOND
5620							;HALT TRIB CAUSED AN OUTPUT
5621							;AND SHOULD NOT HAVE.
5622	024606				L10070:		
5623	024606	104401			TRAP	C\$ETST	

***** TEST 23 *****

```

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

JSR      PC,MINITS

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10071-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

MOV      #143,TRIBN      ;SET TRIB NUMBER
MOV      #01,R3
JSR      R5,CONTIN      ;ESTABLISH TRIB
;*****
; TIME OUT OR READY ERRORS REPORT THIS P
;*****

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10071-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

MOV      #41,R3
JSR      R5,CONTIN      ;READ TRIB STATUS SLOT 1
;*****
; TIME OUT OR READY ERRORS REPORT THIS PC
;*****

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10071-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

MOV      #02,$GDDAT      ;SET TYPE FOR INFO OUT
JSR      R5,GETOUT      ;CHECK FOR INFO OUT AND
                        ;CORRECT TRIBN.

CLR      ERRWRD
TRAP     C$ESCAPE
.WORD    L10071-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

```

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

```

5680
5681 024714 000377 155530 20$: SWAB @BSEL4 ;SWAB BYTES
5682 024720 117737 155524 002340 MOV @BSEL4,$BDDAT ;MOVE TRIB ADD TO BDDAT
5683 024726 113737 002360 002336 MOV TRIB,$GDDAT ;MOVE TRIB NUMBER TO GDDAT
5684 024734 123737 002336 002340 CMPB $GDDAT,$BDDAT ;COMPARE
5685 024742 001407 BEQ 30$ ;IF OK GO TO 30
5686 ;ELSE ERROR
5687 024744 012737 012014 002430 MOV #M30F, CODEW
5688 024752 104455 TRAP C$ERDF
5689 024754 000052 .WORD 42
5690 024756 011506 .WORD EROIC
5691 024760 010324 .WORD ERR27
5692
5693 024762 042777 000200 155454 30$: BIC #RDO,@BSEL2 ;CLEAR OUTPUT
5694 024770 012703 000004 MOV #04,R3
5695 024774 004537 003162 JSR R5,CONTIN ;MAINT STATE TRIB
5696 ;TIME OUT OR READY ERRORS REPORT THIS PC
5697 ;*****
5698 ;*****
5699
5700 025000 005037 002402 CLR ERRWRD
5701 025004 104410 TRAP C$ESCAPE
5702 025006 000226 .WORD L10071-.
5703 ;*****
5704 ; JUMP TO END OF TEST IF ERROR
5705 ;*****
5706
5707 025010 012703 000002 MOV #02,R3
5708 025014 004537 003162 JSR R5,CONTIN ;KILL TRIB
5709 ;TIME OUT OR READY ERRORS REPORT THIS PC
5710 ;*****
5711 ;*****
5712
5713 025020 005037 002402 CLR ERRWRD
5714 025024 104410 TRAP C$ESCAPE
5715 025026 000206 .WORD L10071-.
5716 ;*****
5717 ; JUMP TO END OF TEST IF ERROR
5718 ;*****
5719
5720 025030 012737 000112 002410 MOV #112,PERR ;CHECK FOR KILL TO UNHALTED
5721 025036 004537 003016 JSR R5,WFE ;WAIT FOR PROCEDURE ERROR
5722
5723 025042 005037 002402 CLR ERRWRD
5724 025046 104410 TRAP C$ESCAPE
5725 025050 000164 .WORD L10071-.
5726 ;*****
5727 ; ESCAPE TEST IF ERROR
5728 ;*****
5729 025052 042777 000200 155364 BIC #RDO,@BSEL2 ;CLEAR OUTPUT
5730 025060 012703 000005 MOV #05,R3
5731 025064 004537 003162 JSR R5,CONTIN ;HALT TRIB
5732 ;TIME OUT OR READY ERRORS REPORT THIS PC
5733 ;*****
5734 ;*****
5735

```

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

5736	025070	005037	002402		CLR	ERRWRD	
5737	025074	104410			TRAP	C\$ESCAPE	
5738	025076	000136			.WORD	L10071-	
5739					.....		
5740					: JUMP	TO END OF TEST IF ERROR	
5741					.....		
5742							
5743	025100	012737	000002	002336	MOV	#2,\$GDDAT	
5744	025106	004537	003242		JSR	R5,GETOUT	:CHECK FOR INFO OUT
5745							:AND CORRECT PC
5746							
5747	025112	005037	002402		CLR	ERRWRD	
5748	025116	104410			TRAP	C\$ESCAPE	
5749	025120	000114			.WORD	L10071-	
5750					.....		
5751					: JUMP	TO END OF TEST IF ERROR	
5752					.....		
5753							
5754	025122	012737	000020	002336	MOV	#20,\$GDDAT	
5755	025130	004537	003372		JSR	R5,GETRKY	:CHECK FOR GOOD RETURN KEY
5756							
5757							
5758	025134	005037	002402		CLR	ERRWRD	
5759	025140	104410			TRAP	C\$ESCAPE	
5760	025142	000072			.WORD	L10071-	
5761					.....		
5762					: JUMP	TO END OF TEST IF ERROR	
5763					.....		
5764							
5765	025144	042777	000200	155272 2\$:	BIC	#RDO,0BSEL2	:CLEAR OUTPUT
5766	025152	012703	000002		MOV	#02,R3	:KILL TRIB
5767	025156	004537	003162		JSR	R5,CONTIN	
5768					.....		
5769					: TIME OUT OR READY ERRORS REPORT THIS PC		
5770					.....		
5771							
5772	025162	005037	002402		CLR	ERRWRD	
5773	025166	104410			TRAP	C\$ESCAPE	
5774	025170	000044			.WORD	L10071-	
5775					.....		
5776					: JUMP	TO END OF TEST IF ERROR	
5777					.....		
5778							
5779	025172	012703	000041		MOV	#41,R3	:READ SLOT 1
5780	025176	004537	003162		JSR	R5,CONTIN	
5781					.....		
5782					: TIME OUT OR READY ERRORS REPORT THIS PC		
5783					.....		
5784							
5785	025202	005037	002402		CLR	ERRWRD	
5786	025206	104410			TRAP	C\$ESCAPE	
5787	025210	000024			.WORD	L10071-	
5788							
5789					: JUMP	TO END OF TEST IF ERROR	
5790							
5791							

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

5792 025212 012737 000106 002410
5793 025220 004537 003016MOV #106,PERR
JSR R5,WFPE;CHECK FOR PROCEDURE 106 ERROR
;WAIT FOR PROCEDURE ERROR5794
5795 025224 005037 002402
5796 025230 104410
5797 025232 000002CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10071-;:;:;:;
;: ESCAPE TEST IF ERROR
;:;:;:;5798
5799
5800
5801
5802 025234
5803 025234 104401
5804
5805

L10071:

TRAP C\$ETST

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:***** TEST 24 *****

5806
5807
5808
5809 025236
5810
5811
5812
5813
5814
5815
5816
5817
5818 025236
5819 025236 012702 002414
5820
5821 025242 004737 004522
5822
5823 025246 005037 002402
5824 025252 104410
5825 025254 000074
5826
5827
5828
5829
5830 025256 052777 000200 155154
5831 025264 004537 002732
5832
5833 025270 005037 002402
5834 025274 104410
5835 025276 000052
5836 025300 042777 000200 155132
5837 025306 112277 155132
5838 025312 012737 000102 002410
5839 025320 004537 003016
5840
5841 025324 005037 002402
5842 025330 104410
5843 025332 000016
5844
5845
5846
5847 025334 042777 000200 155102
5848 025342 022702 002420
5849 025346 001335
5850
5851
5852 025350
5853 025350 104401
5854

```

.SBTTL :***** TEST 25 *****
.SBTTL :CHECK FOR PROCEDURE ERROR 102
ZZ
:
:
:      THIS TEST CHECKS THAT ILLEGAL TYPE CODES
:      ON INPUT COMMANDS WILL PRODUCE PROCEDURE
:      ERRORS.
:
:***** TEST 25 *****
T25::
MOV     #TYLST,R2      ;SET R2 TO START OF LIST
108:    JSR     PC,MINITS ;MASTER CLEAR-MODE DEF

CLR     ERRWRD
TRAP    C$ESCAPE
.WORD   L10072-

:*****
: JUMP TO END OF TEST IF ERROR
:*****
BIS     #RQ1,ABSELO    ;SET REQUEST
JSR     R5,WRDI        ;WAIT FOR RDI TO SET

CLR     ERRWRD        ;CLEAR ERROR
TRAP    C$ESCAPE
.WORD   L10072-

BIC     #RQ1,ABSELO    ;CLEAR REQUEST
MOVB    (R2)+,ABSEL2   ;DO FIRST BAD CODE
MOV     #102,PERR
JSR     R5,WFE         ;WAIT FOR PROCEDURE ERROR

CLR     ERRWRD
TRAP    C$ESCAPE
.WORD   L10072-

:*****
: ESCAPE TEST IF ERROR
:*****
BIC     #RDO,ABSEL2    ;CLEAR READY OUT
CMP     #TYEND,R2      ;IS IT END
BNE     108            ;IF NOT GO BACK

L10072:
TRAP    C$ETST

```

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:..... TEST 25

5855
 5856
 5857
 5858 025352
 5859
 5860
 5861
 5862
 5863
 5864
 5865
 5866 025352
 5867
 5868 025352 004737 004522
 5869
 5870 025356 005037 002402
 5871 025362 104410
 5872 025364 000050
 5873
 5874
 5875
 5876
 5877 025366 005037 002360
 5878 025372 012703 000001
 5879 025376 004537 003162
 5880
 5881 025402 005037 002402
 5882 025406 104410
 5883 025410 000024
 5884
 5885
 5886
 5887
 5888 025412 012737 000110 002410
 5889 025420 004537 003016
 5890
 5891 025424 005037 002402
 5892 025430 104410
 5893 025432 000002
 5894
 5895
 5896
 5897
 5898 025434
 5899 025434 104401

.SBTTL :..... TEST 26

.SBTTL * CHECK FOR PROCEDURE ERROR 110

22

THIS TEST CHECKS FOR THE PROCEDURE ERROR
 NON-GLOBAL COMMAND TO TRIB ADDRESS OF 0

.SBTTL :..... TEST 26

126::

JSR PC,MINITS ;MASTER CLEAR -MODE-DEF

CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10073-.

.....
 : JUMP TO END OF TEST IF ERROR

CLR TRIBN ;MAKE TRIB ADDRESS 0
 MOV #01,R3
 JSR R5,CONTIN ;TRY TO DO ISTR

CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10073-.

.....
 : JUMP TO END OF TEST IF ERROR

MOV #110,PERR ;CHECK FOR PE OF 110
 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR

CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10073-.

.....
 : ESCAPE TEST IF ERROR

L10073:
 TRAP C\$ETST

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

5900
 5901
 5902
 5903
 5904 025436
 5905
 5906
 5907
 5908
 5909
 5910
 5911
 5912
 5913 025436
 5914
 5915 025436 004737 004522
 5916
 5917 025442 005037 002402
 5918 025446 104410
 5919 025450 000212
 5920
 5921
 5922
 5923
 5924 025452 012737 000003 002360
 5925 025460 012703 000001
 5926 025464 004537 003162
 5927
 5928
 5929
 5930
 5931 025470 005037 002402
 5932 025474 104410
 5933 025476 000164
 5934
 5935
 5936
 5937
 5938 025500 012703 000007
 5939 025504 004537 003162
 5940
 5941 025510 005037 002402
 5942 025514 104410
 5943 025516 000144
 5944
 5945
 5946
 5947
 5948 025520 012737 000120 002410
 5949 025526 004537 003016
 5950
 5951 025532 005037 002402
 5952 025536 104410
 5953 025540 000122
 5954
 5955

.SBTTL ;***** TEST 27 *****
 .SBTTL * CHECKS FOR PROCEDURE ERROR 120
 ZZ
 ;*
 ;*
 ;* THIS TEST ISSUES A CONTROL IN WITH A REQUEST
 ;* KEY OF 7 AND LOOKS FOR A PROCEDURE ERROR OF
 ;* ILLEGAL REQUEST KEY ON CONTROL IN (120)
 ;*
 ;*
 .SBTTL ;***** TEST 27 *****
 T27::
 JSR PC,MINITS ;MASTER CLEAR - MODE DEF
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10074-.
 ;*
 ;* JUMP TO END OF TEST IF ERROR
 ;*
 MOV #3,TRIBN
 MOV #01,R3
 JSR R5,CONTIN ;ESTABLISH TRIB
 ;*
 ;* TIME OUT OR READY ERRORS REPORT HERE
 ;*
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10074-.
 ;*
 ;* JUMP TO END OF TEST IF ERROR
 ;*
 MOV #07,R3
 JSR R5,CONTIN ;DO CONTROL IN WITH KEY OF 07
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10074-.
 ;*
 ;* JUMP TO END OF TEST IF ERROR
 ;*
 MOV #120,PERR ;LOOK FOR ERROR
 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10074-.
 ;*
 ;* ESCAPE TEST IF ERROR

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;***** TEST 27 *****

```

5956          ;:
5957 025542 042777 000200 154674 BIC      #RDO,@BSEL2 ;CLEAR RDO
5958 025550 012703 000017      MOV      #17,R3 ;MOV 17 TO KEY WORD
5959 025554 004537 003162      JSR      R5,CONTIN ;DO CONTROL IN WITH KEY OF 17
5960          ;:
5961 025560 005037 002402      CLR      ERRWRD
5962 025564 104410      TRAP     C$ESCAPE
5963 025566 000074      .WORD     L10074-.
5964          ;:
5965          ; JUMP TO END OF TEST IF ERROR
5966          ;:
5967          ;:
5968 025570 012737 000120 002410 MOV      #120,PERR ;LOOK FOR ERROR
5969 025576 004537 003016      JSR      R5,WFPE ;WAIT FOR PROCEDURE ERROR
5970          ;:
5971 025602 005037 002402      CLR      ERRWRD
5972 025606 104410      TRAP     C$ESCAPE
5973 025610 000052      .WORD     L10074-.
5974          ;:
5975          ; ESCAPE TEST IF ERROR
5976          ;:
5977 025612 042777 000200 154624 BIC      #RDO,@BSEL2 ;CLEAR OUTPUT
5978 025620 005003      CLR      R3
5979 025622 004537 003162      JSR      R5,CONTIN ;DO A NO REQUEST
5980          ;:
5981 025626 005037 002402      CLR      ERRWRD
5982 025632 104410      TRAP     C$ESCAPE
5983 025634 000026      .WORD     L10074-.
5984          ;:
5985          ; JUMP TO END OF TEST IF ERROR
5986          ;:
5987          ;:
5988 025636 004737 004244      JSR      PC,WAIT50 ;THEN DELAY
5989 025642 032777 000200 154574 BIT      #RDO,@BSEL2
5990 025650 001404      BEQ      10$ ;IF NOT SET THEN END
5991          ;ELSE ERROR
5992 025652 104455      TRAP     C$ERDF
5993 025654 000053      .WORD     43
5994 025656 012516      .WORD     MEF30
5995 025660 010422      .WORD     ERR32
5996          ;
5997          10$:
5998          L10074:
5999          TRAP     C$ETST

```

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```

;*****;*****;***** TEST 28 *****;*****
.SBTTL ;*****;*****;***** TEST 28 *****;*****
.SBTTL * CHECK FOR PROCEDURE ERROR 134
ZZ
;
;
; THIS TEST CHECKS FOR PROCEDURE ERROR OF USING
; RESERVED BITS IN BSEL7 ON CONTROL IN
;
;
.SBTTL ;*****;*****;***** TEST 28 *****;*****
T28::
JSR PC,MINITS ;MASTER CLEAR MODE DEF

CLR ERRWRD
TRAP C$ESCAPE
.WORD L10075-.
;
; JUMP TO END OF TEST IF ERROR
;
MOV #5,TRIBN
MOV #1,R3
JSR R5,CONTIN ;ESTABLISH TRIB
;
; TIME OUT OR READY ERRORS REPORT THIS PC
;
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10075-.
;
; JUMP TO END OF TEST IF ERROR
;
MOV #100000,R3 ;SET BIT 7
JSR R5,CONTIN

CLR ERRWRD
TRAP C$ESCAPE
.WORD L10075-.
;
; JUMP TO END OF TEST IF ERROR
;
MOV #134,PERR
JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR

CLR ERRWRD
TRAP C$ESCAPE
.WORD L10075-.
;
; ESCAPE TEST IF ERROR
;
BIC #RDO,@BSEL2 ;CLEAR OUTPUT
MOV #46000,R3 ;SET 6 3 AND2

```

```

6000
6001
6002 025664
6003
6004
6005
6006
6007
6008
6009
6010 025664
6011
6012 025664 004737 004522
6013
6014 025670 005037 002402
6015 025674 104410
6016 025676 000212
6017
6018
6019
6020
6021 025700 012737 000005 002360
6022 025706 012703 000001
6023 025712 004537 003162
6024
6025
6026
6027
6028 025716 005037 002402
6029 025722 104410
6030 025724 000164
6031
6032
6033
6034
6035 025726 012703 100000
6036 025732 004537 003162
6037
6038 025736 005037 002402
6039 025742 104410
6040 025744 000144
6041
6042
6043
6044
6045 025746 012737 000134 002410
6046 025754 004537 003016
6047
6048 025760 005037 002402
6049 025764 104410
6050 025766 000122
6051
6052
6053
6054 025770 042777 000200 154446
6055 025776 012703 046000

```

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

```

6056 026002 004537 003162      JSR      R5,CONTIN      ;DO CONTROL IN
6057
6058 026006 005037 002402      CLR      ERRWRD
6059 026012 104410              TRAP     C$ESCAPE
6060 026014 000074              .WORD    L10075-.
6061
6062
6063
6064
6065 026016 012737 000134 002410  MOV     #134,PERR
6066 026024 004537 003016      JSR      R5,WFPE      ;WAIT FOR PROCEDURE ERROR
6067
6068 026030 005037 002402      CLR      ERRWRD
6069 026034 104410              TRAP     C$ESCAPE
6070 026036 000052              .WORD    L10075-.
6071
6072
6073
6074 026040 005003              CLR      R3
6075 026042 042777 000200 154374  BIC     #RDO,@BSEL2    ;CLEAR OUTPUT
6076 026050 004537 003162      JSR      R5,CONTIN      ;DO CONTROL IN
6077
6078 026054 005037 002402      CLR      ERRWRD
6079 026060 104410              TRAP     C$ESCAPE
6080 026062 000026              .WORD    L10075-.
6081
6082
6083
6084
6085 026064 004737 004244      JSR      PC,WAIT50    ;WAIT A WHILE
6086 026070 032777 000200 154346  BIT     #RDO,@BSEL2    ;IS RDO SET NOW
6087 026076 001404              BEQ     10$           ;IF NOT THEN GO ON
6088
6089
6089 026100 104455              TRAP     C$ERDF
6090 026102 000054              .WORD    44
6091 026104 012516              .WORD    MEF30
6092 026106 010422              .WORD    ERR32
6093 026110
6094 026110
6095 026110 104401
6096

```

10\$:
L10075:

TRAP C\$ETST

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

6097
 6098
 6099 026112
 6100
 6101
 6102
 6103
 6104
 6105
 6106
 6107
 6108
 6109 026112
 6110
 6111 026112 004737 004522
 6112
 6113 026116 005037 002402
 6114 026122 104410
 6115 026124 000312
 6116
 6117
 6118
 6119
 6120 026126 012737 000027 002360
 6121 026134 012703 000001
 6122 026140 004537 003162
 6123
 6124
 6125
 6126
 6127 026144 005037 002402
 6128 026150 104410
 6129 026152 000264
 6130
 6131
 6132
 6133
 6134 026154 012704 000003
 6135 026160 012703 020000
 6136 026164 004537 003162
 6137
 6138
 6139
 6140
 6141 026170 005037 002402
 6142 026174 104410
 6143 026176 000240
 6144
 6145
 6146
 6147
 6148 026200 012703 000042
 6149 026204 004537 003162
 6150
 6151
 6152

.SBTTL ;***** TEST 29 *****
 .SBTTL *LATCH - UNLATCH POLL CHECK
 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 *****
 T29:;
 JSR PC,MINITS ;MASTER CLEAR MODE DEF
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10076-.
 ;
 ; JUMP TO END OF TEST IF ERROR
 ;
 MOV #27,TRIBN
 MOV #01,R3 ;ESTABLISH TRIB
 JSR R5,CONTIN
 ;
 ; TIME OUT OR READY ERROR REPORT THIS PC
 ;
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10076-.
 ;
 ; JUMP TO END OF TEST IF ERROR
 ;
 MOV #3,R4
 MOV #20000,R3 ;LATCH POLL DEAD
 JSR R5,CONTIN
 ;
 ; TIME OUT OR READY ERRORS REPORT THIS PC
 ;
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10076-.
 ;
 ; JUMP TO END OF TEST IF ERROR
 ;
 MOV #42,R3
 JSR R5,CONTIN ;READ SLOT 2 TSS
 ;
 ; TIME OUT OR READY ERRORS REPORT THIS PC
 ;

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:***** TEST 29 *****

6153					
6154	026210	005037	002402		CLR ERRWRD
6155	026214	104410			TRAP C\$ESCAPE
6156	026216	000220			.WORD L10076-.
6157					.....
6158					: JUMP TO END OF TEST IF ERROR
6159					.....
6160					
6161	026220	012737	000002	002336	MOV #02,\$GDDAT
6162	026226	004537	003242		JSR R5,GETOUT
6163					.....
6164					: CHECK FOR INFO OUT AND CORRECT TRIBN
6165					: IF ERROR REPORT THIS PC
6166					.....
6167					
6168	026232	005037	002402		CLR ERRWRD
6169	026236	104410			TRAP C\$ESCAPE
6170	026240	000176			.WORD L10076-.
6171					.....
6172					: JUMP TO END OF TEST IF ERROR
6173					.....
6174					
6175	026242	012737	000042	002336	MOV #42,\$GDDAT
6176	026250	004537	003372		JSR R5,GETRKY
6177					.....
6178					: CHECK FOR CORRECT RETURN KEY
6179					.....
6180					
6181	026254	005037	002402		CLR ERRWRD
6182	026260	104410			TRAP C\$ESCAPE
6183	026262	000154			.WORD L10076-.
6184					.....
6185					: JUMP TO END OF TEST IF ERROR
6186					.....
6187					
6188	026264	012737	100220	002336	MOV #100220,\$GDDAT ;
6189	026272	004537	003446		JSR R5,GETDAT
6190					.....
6191					: CHECK FOR DEAD STATE
6192					.....
6193					
6194	026276	005037	002402		CLR ERRWRD
6195	026302	104410			TRAP C\$ESCAPE
6196	026304	000132			.WORD L10076-.
6197					.....
6198					: JUMP TO END OF TEST IF ERROR
6199					.....
6200					
6201	026306	042777	000200	154130	BIC #RDO,@BSEL2 ;CLEAR OUTPUT
6202	026314	012703	010000		MOV #10000,R3
6203	026320	004537	003162		JSR R5,CONTIN ;UNLATCH POLL
6204					.....
6205					: TIME OUT OR READY ERRORS REPORT THIS PC
6206					
6207					
6208	026324	005037	002402		CLR ERRWRD

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

6209	026330	104410			TRAP C\$ESCAPE
6210	026332	000104			.WORD L10076--.
6211					
6212					: JUMP TO END OF TEST IF ERROR
6213					.....
6214					
6215	026334	012703	000042		MOV #42,R3
6216	026340	004537	003162		JSR R5,CONTIN ;READ TSS SLOT 2
6217					.....
6218					: TIME OUT OR READY ERRORS REPORT THIS PC
6219					.....
6220					
6221	026344	005037	002402		CLR ERRWRD
6222	026350	104410			TRAP C\$ESCAPE
6223	026352	000064			.WORD L10076--.
6224					.....
6225					: JUMP TO END OF TEST IF ERROR
6226					.....
6227					
6228	026354	012737	000002	002336	MOV #02,\$GDDAT ;
6229	026362	004537	003242		JSR R5,GETOUT
6230					.....
6231					: CHECK FOR INFORMATION OUT AND CORRECT TRIBN
6232					.....
6233					
6234	026366	005037	002402		CLR ERRWRD
6235	026372	104410			TRAP C\$ESCAPE
6236	026374	000042			.WORD L10076--.
6237					.....
6238					: JUMP TO END OF TEST IF ERROR
6239					.....
6240					
6241	026376	012737	000042	002336	MOV #42,\$GDDAT
6242	026404	004537	003372		JSR R5,GETRKY
6243					.....
6244					: CHECK FOR CORRECT RETURN KEY
6245					.....
6246					
6247	026410	005037	002402		CLR ERRWRD
6248	026414	104410			TRAP C\$ESCAPE
6249	026416	000020			.WORD L10076--.
6250					.....
6251					: JUMP TO END OF TEST IF ERROR
6252					.....
6253					
6254	026420	012737	000600	002336	MOV #600,\$GDDAT
6255	026426	004537	003446		JSR R5,GETDAT
6256					.....
6257					: CHECK FOR ACTIVE STATE
6258					.....
6259	026432	005037	002402		CLR ERRWRD
6260	026436				
6261	026436	104401			L10076: TRAP C\$ETST
6262					

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

6263
 6264
 6265
 6266
 6267 026440
 6268
 6269
 6270
 6271
 6272
 6273
 6274
 6275
 6276
 6277 026440
 6278 026440 012737 001750 002424
 6279 026446 012737 033734 002422
 6280 026454 012737 033454 002420
 6281 026462 012737 000004 002426
 6282 026470 005037 002432
 6283 026474 012737 000003 002360
 6284 026502 004737 004522
 6285
 6286
 6287 026506 005037 002402
 6288 026512 104410
 6289 026514 000016
 6290
 6291
 6292
 6293
 6294 026516 004537 006346
 6295 026522 005037 002402
 6296 026526 104410
 6297 026530 000002
 6298 026532
 6299 026532 104401
 6300

.SBTTL ;***** TEST 30 *****
 .SBTTL SHORT MESSAGE SENDING TEST, WITH INTERNAL LOOPBACK
 ZZ
 ;
 ;* 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 THAT THE DATA
 ;* IS CORRECT. IT ALSO CHECKS THAT THE NEXT OUTPUT COMMAND
 ;* IS A TX BUFFER COMPLETE.
 .SBTTL ;***** TEST 30 *****
 T30::
 MOV #1000.,RXCC ;SET UP RX CC
 MOV #RECBU1,RXADD ;SET UP RX ADD
 MOV #MR1,TXADD ;SET UP TX ADD
 MOV #4,TXCC ;SET UP TX COUNT
 CLR GENWRD ;CLEAR GEN WORD
 MOV #3,TRIBN ;SET TRIB ADDRESS
 JSR PC,MINITS ;INITIALIZE

 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10077-.
 :::::
 ; JUMP TO END OF TEST IF ERROR
 :::::
 JSR R5,TXRX3 ;TRANSMIT AND REC.
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10077-.
 L10077:
 TRAP C\$ETST

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

```

6301 .SBTTL ;***** TEST 31 *****
6302 .SBTTL * PROCEDURE ERROR 122 CHECK
6303 026534 ZZ
6304 ;*
6305 ;*
6306 ;* THIS TEST CHECKS FOR PROCEDURE ERROR 122
6307 ;* ESTABLISH BUFFER FOR UNESTABLISHED TRIB.
6308 ;*
6309 .SBTTL ;***** TEST 31 *****
6310 026534 T31::
6311
6312 026534 004737 004522 JSR PC,MINITS ;MASTER CLEAR MODE DEF
6313
6314 026540 005037 002402 CLR ERRWRD
6315 026544 104410 TRAP C$ESCAPE
6316 026546 000104 .WORD L10100-.
6317 ;*****
6318 ; JUMP TO END OF TEST IF ERROR
6319 ;*****
6320
6321 026550 052777 000200 153662 BIS #RQI,@BSEL0 ;SET REQUEST FOR INPUT
6322 026556 004537 002732 JSR R5,WRDI ;WAIT FOR RDI TO SET
6323
6324 026562 005037 002402 CLR ERRWRD ;CLEAR ERROR
6325 026566 104410 TRAP C$ESCAPE
6326 026570 000062 .WORD L10100-.
6327 026572 042777 000200 153640 BIC #RQI,@BSEL0 ;CLEAR REQUEST
6328 026600 112777 000003 153640 MOVB #03,@BSEL3
6329 026606 012777 000010 153640 MOV #10,@BSEL6 ;SET CC
6330 026614 012777 033734 153626 MOV #RECBUI,@BSEL4 ;SET BA
6331 026622 112777 000000 153614 MOVB #0,@BSEL2 ;ESTABLISH BUFFER
6332 026630 012737 000122 002410 MOV #122,PERR ;WAIT
6333 026636 004537 003016 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
6334
6335 026642 005037 002402 CLR ERRWRD
6336 026646 104410 TRAP C$ESCAPE
6337 026650 000002 .WORD L10100-.
6338 ;*****
6339 ; ESCAPE TEST IF ERROR
6340 ;*****
6341 026652 L10100:
6342 026652 104401 TRAP C$ETST
6343

```

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

```

6344 .SBTTL ;***** TEST 32 *****
6345 .SBTTL *PROCEDURE ERROR 124 CHECK
6346 026654 ZZ
6347 ;*
6348 ;*
6349 ;* THIS TEST CHECKS FOR PROCEDURE ERROR 124
6350 ;* ESTABLISHING BUFFER FOR HALTED TRIB
6351 ;*
6352 .SBTTL ;***** TEST 32 *****
6353 T32::
6354
6355 026654 004737 004522 JSR PC,MINITS ;MASTER CLEAR MODE DEF
6356
6357 026660 005037 002402 CLR ERRWRD
6358 026664 104410 TRAP C$ESCAPE
6359 026666 000132 .WORD L10101-.
6360 ;*****
6361 ; JUMP TO END OF TEST IF ERROR
6362 ;*****
6363
6364 026670 012737 000047 002360 MOV #47,TRIBN
6365 026676 012703 000001 MOV #01,R3
6366 026702 004537 003162 JSR R5,CONTIN ;ESTABLISH TRIB
6367 ;*****
6368 ; TIME OUT AND READY ERRORS REPORT THIS PC
6369 ;*****
6370
6371 026706 005037 002402 CLR ERRWRD
6372 026712 104410 TRAP C$ESCAPE
6373 026714 000104 .WORD L10101-.
6374 ;*****
6375 ; JUMP TO END OF TEST IF ERROR
6376 ;*****
6377
6378 026716 052777 000200 153514 BIS #RQ1,@BSEL0 ;SET REQUEST
6379 026724 004537 002732 JSR R5,WRDI ;WAIT FOR RDI TO SET
6380
6381 026730 005037 002402 CLR ERRWRD ;CLEAR ERROR
6382 026734 104410 TRAP C$ESCAPE
6383 026736 000062 .WORD L10101-.
6384 026740 042777 000200 153472 BIC #RQ1,@BSEL0 ;CLEAR REQUEST
6385 026746 012777 000010 153500 MOV #10,@BSEL6 ;SET CC
6386 026754 012777 033734 153466 MOV #RECBU1,@BSEL4 ;SET BA
6387 026762 113777 002360 153456 MOVB TRIBN,@BSEL3 ;SET TRIB NO.
6388 026770 112777 000000 153446 MOVB #0,@BSEL2 ;ESTABLISH BUFFER
6389 026776 012737 000124 002410 MOV #124,PERR ;WAIT FOR ERROR
6390 027004 004537 003016 JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
6391
6392 027010 005037 002402 CLR ERRWRD
6393 027014 104410 TRAP C$ESCAPE
6394 027016 000002 .WORD L10101-.
6395 ;*****
6396 ; ESCAPE TEST IF ERROR
6397 ;*****
6398 027020 L10101:
6399 027020 104401 TRAP C$ETST

```

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

6400
6401
6402
6403

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:***** TEST 33 *****

6404
6405
6406 027022
6407
6408
6409
6410
6411
6412
6413
6414 027022
6415
6416 027022 004737 004522
6417
6418 027026 005037 002402
6419 027032 104410
6420 027034 000152
6421
6422
6423
6424
6425 027036 012737 000074 002360
6426 027044 012703 000001
6427 027050 004537 003162
6428
6429 027054 005037 002402
6430 027060 104410
6431 027062 000124
6432
6433
6434
6435
6436 027064 012703 000004
6437 027070 004537 003162
6438
6439 027074 005037 002402
6440 027100 104410
6441 027102 000104
6442
6443
6444
6445
6446 027104 052777 000200 153326
6447 027112 004537 002732
6448
6449 027116 005037 002402
6450 027122 104410
6451 027124 000062
6452 027126 042777 000200 153304
6453 027134 012777 000000 153312
6454 027142 012777 033734 153300
6455 027150 113777 002360 153270
6456 027156 112777 000000 153260
6457 027164 012737 000126 002410
6458 027172 004537 003016
6459

```

.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 *****
133::
JSR     PC,MINITS      ;MASTER CLEAR MODE DEF

CLR     ERRWRD
TRAP    C$ESCAPE
.WORD   L10102-.
:
: JUMP TO END OF TEST IF ERROR
:
MOV     #74,TRIBN
MOV     #01,R3
JSR     R5,CONTIN      ; ESTABLISH TRIB

CLR     ERRWRD
TRAP    C$ESCAPE
.WORD   L10102-.
:
: JUMP TO END OF TEST IF ERROR
:
MOV     #04,R3
JSR     R5,CONTIN      ;MAINT STATE

CLR     ERRWRD
TRAP    C$ESCAPE
.WORD   L10102-.
:
: JUMP TO END OF TEST IF ERROR
:
BIS     #R01,@BSELO    ;SET REQUEST
JSR     R5,WRDI        ;WAIT FOR RDI TO SET

CLR     ERRWRD        ;CLEAR ERROR
TRAP    C$ESCAPE
.WORD   L10102-.
BIC     #R01,@BSELO    ;CLEAR REQUEST
MOV     #0,@BSEL6      ;0 BYTES
MOV     #RECBU1,@BSEL4 ;BA
MOVB    TRIBN,@BSEL3   ;SET TRIBN
MOVB    #0,@BSEL2      ;SET BUFFER
MOV     #126,PERR      ;WAIT FOR ERROR
JSR     R5,WFE         ;WAIT FOR PROCEDURE ERROR

```

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:***** TEST 33 *****

6460 027176 005037 002402
6461 027202 104410
6462 027204 000002
6463
6464
6465
6466
6467 027206
6468 027206 104401
6469

CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10102-
: : : : :
: ESCAPE TEST IF ERROR
: : : : :

L10102:

TRAP C\$ETST

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

6470
6471
6472 027210
6473
6474
6475
6476
6477
6478
6479
6480 027210
6481
6482 027210 004737 004522
6483
6484 027214 005037 002402
6485 027220 104410
6486 027222 000102
6487
6488
6489
6490
6491 027224 052777 000200 153206
6492
6493 027232 004537 002732
6494
6495 027236 005037 002402
6496 027242 104410
6497 027244 000060
6498 027246 042777 000200 153164
6499 027254 105077 153166
6500 027260 012777 000010 153166
6501 027266 012777 033454 153154
6502 027274 012777 000004 153142
6503
6504 027302 012737 000130 002410
6505 027310 004537 003016
6506
6507 027314 005037 002402
6508 027320 104410
6509 027322 000002
6510
6511
6512
6513 027324
6514 027324 104401
6515
6516
6517

.SBTTL ;***** TEST 34 *****
.SBTTL *CHECK FOR PROCEDURE ERROR 130
ZZ
*
*
* THIS TEST CHECKS FOR A PROCEDURE ERROR OF 130
* ASSIGNING TRANSMIT BUFFER FOR TRIB 0
*
*
*
.SBTTL ;***** TEST 34 *****
T34::
JSR PC,MINITS ;MASTER CLEAR MODE DEF
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10103-
;JUMP TO END OF TEST IF ERROR
BIS #RQ1,@BSEL0 ;SET REQUEST
;WAIT FOR READY
JSR R5,WRDI ;WAIT FOR RDI TO SET
CLR ERRWRD ;CLEAR ERROR
TRAP C\$ESCAPE
.WORD L10103-
BIC #RQ1,@BSEL0 ;CLEAR REQUEST.
CLRB @BSEL3 ;MAKE TRIB NO. 0
MOV #10,@BSEL6 ;MAKE CC 10
MOV #MR1,@BSEL4 ;MAKE ADD MR1
MOV #4,@BSEL2 ;CLEAR RDI AND ESTAB
;TRANSMIT BUFFER
MOV #130,PERR ;WAIT FOR PROCEDURE ERROR
JSR R5,WFPE ;WAIT FOR PROCEDURE ERROR
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10103-
;ESCAPE TEST IF ERROR
L10103: TRAP C\$ETST

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

6518
6519
6520
6521 027326

```

.SBTTL ;***** TEST 35 *****
.SBTTL * TRANSMIT REC 256,PTP,DDCMP
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
*
*
*

```

```

6522
6523
6524
6525
6526
6527
6528
6529
6530
6531
6532 027326
6533 027326 012737 000035 002370
6534
6535 027334 012737 001750 002424
6536 027342 012737 033734 002422
6537 027350 012737 000400 002426
6538 027356 012737 033454 002420
6539 027364 005037 002432
6540 027370 012737 000001 002360
6541 027376 022737 000004 002476
6542 027404 001402
6543 027406 005237 002400
6544 027412 004737 004512
6545 027416 005037 002400
6546 027422 005037 002402
6547 027426 104410
6548 027430 000016

```

```

.SBTTL ;***** TEST 35 *****
T35::

```

```

MOV #35,ROMN1 ;SET UP TEST NUMBER
MOV #1000.,RXCC ;SET REC BUFFER FOR 1000BYTES
MOV #RECBU1,RXADD ;SET UP BUFF ADD
MOV #256.,TXCC ;SET UP RX CHAR COUNT
MOV #MR1,TXADD ;AND ADDRESS
CLR GENWRD ;CLEAR GEN WORD
MOV #01,TRIBN ;SET THE TRIB TO 01
CMP #4,TSTCON ;CHECK FOR LOOPBACK CONNECTOR.
BEQ 1$
INC EXLOOP ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
JSR PC,INIT1 ;MASTER CLEAR-MODE DEF
CLR EXLOOP ;CLEAR EXTERNAL LOOP FLAG
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10104-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

```

```

6549
6550
6551
6552
6553 027432 004537 005720
6554
6555 027436 005037 002402
6556 027442 104410
6557 027444 000002
6558
6559
6560
6561
6562 027446
6563 027446 104401
6564
6565

```

```

JSR R5,TXRXSR ;GO TRANSMIT RX AND CHECK
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10104-.
;*****
; JUMP TO END OF TEST IF ERROR
;*****

```

```

L10104:
TRAP C$ETST

```

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;***** TEST 35 *****

6566
 6567
 6568
 6569 027450
 6570
 6571
 6572
 6573
 6574
 6575
 6576
 6577
 6578
 6579 027450
 6580 027450 032737 000003 002472
 6581 027456 001454
 6582
 6583 027460 012737 000036 002370
 6584 027466 012737 001750 002424
 6585 027474 012737 033734 002422
 6586 027502 012737 000400 002426
 6587 027510 012737 033454 002420
 6588 027516 005037 002432
 6589 027522 012737 000001 002360
 6590 027530 022737 000004 002476
 6591 027536 001402
 6592 027540 005237 002400
 6593 027544 004737 004512
 6594 027550 005037 002400
 6595 027554 005037 002402
 6596 027560 104410
 6597 027562 000026
 6598
 6599
 6600
 6601 027564 005237 002376
 6602 027570 004537 005720
 6603 027574 005037 002402
 6604 027600 005037 002376
 6605 027604 104410
 6606 027606 000002
 6607
 6608
 6609
 6610 027610
 6611 027610
 6612 027610 104401
 6613

.SBTTL ;***** TEST 36 *****
 .SBTTL * DMV Q22 MODE TX AND RX,256 BYTES,DDCMP
 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 *****
 T36::
 BIT #3,OPTYP ;IS THIS A DMV ?
 BEQ T36END ;IF NOT: EXIT TEST
 MOV #36,ROMN1 ;SET UP TEST NUMBER
 MOV #1000.,RXCC ;SET REC BUFFER FOR 1000BYTES
 MOV #RECBU1,RXADD ; SET UP BUFF ADD
 MOV #256.,TXCC ;SET UP RX CHAR COUNT
 MOV #MR1,TXADD ;AND ADDRESS
 CLR GENWRD ;CLEAR GEN WORD
 MOV #01,TRIBN ;SET THE TRIB TO 01
 CMP #4,TSTCON ;CHECK FOR LOOPBACK CONNECTOR.
 BEQ 1\$
 INC EXLOOP ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
 JSR PC,INIT1 ;MASTER CLEAR-MODE DEF
 CLR EXLOOP ;CLEAR NO TTLOOP FLAG
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10105-
 ;*****
 ; JUMP TO END OF TEST IF ERROR
 ;*****
 INC MODQ22 ;SET Q22 MODE FLAG (FOR TXRXSR)
 JSR R5,TXRXSR ;GO TRANSMIT RX AND CHECK
 CLR ERRWRD
 CLR MODQ22
 TRAP C\$ESCAPE
 .WORD L10105-
 ;*****
 ; JUMP TO END OF TEST IF ERROR
 ;*****
 T36END:
 L10105:
 TRAP C\$ETST

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

6614
 6615
 6616 027612
 6617
 6618
 6619
 6620
 6621
 6622
 6623
 6624
 6625
 6626 027612
 6627 027612 012737 000377 002426
 6628 027620 012737 033454 002420
 6629 027626 012737 000764 002424
 6630 027634 012737 033735 002422
 6631 027642 012737 000075 002360
 6632 027650 005037 002432
 6633 027654 004737 004522
 6634
 6635
 6636 027660 005037 002402
 6637 027664 104410
 6638 027666 000016
 6639
 6640
 6641
 6642
 6643 027670 004537 006346
 6644
 6645
 6646 027674 005037 002402
 6647 027700 104410
 6648 027702 000002
 6649
 6650
 6651
 6652
 6653 027704
 6654 027704 104401
 6655

.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 *****
 i37::
 MOV #255.,TXCC ;SET UP TRANSMIT CHAR COUNT
 MOV #MR1,TXADD ;SET UP TRANSMIT ADD
 MOV #500.,RXCC ;SET UP REC CHAR COUNT
 MOV #RECBU1+1,RXADD ;SET UP REC ADD
 MOV #75,TRIBN ;SET UP TRIB NO.
 CLR GENWRD ;CLEAR THE GENWRD
 JSR PC,MINITS ;MASTER CLEAR MODE DEF
 ;MULTI POINT CONTROL

 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10106-.
 ;
 ; JUMP TO END OF TEST IF ERROR
 ;
 20\$: JSR R5,TXRX3 ;GO TRANSMIT AND REC
 ; AND CHECK DATA.

 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10106-.
 ;
 ; JUMP TO END OF TEST IF ERROR
 ;
 L10106. TRAP C\$ETST

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;***** TEST 38 *****

```

6656 .SBTTL ;***** TEST 38 *****
6657 .SBTTL *READ/WRITE MODEM TESTS
6658 027706 ZZ
6659 ;*
6660 ;*
6661 ;* THIS TEST WILL SELECT EACH OF THE 4 MODEM
6662 ;* INTERFACES AND WRITE AND READ THEM. THIS IS
6663 ;* ONLY DONE IF CONNECTORS ARE PRESENT
6664 ;* ( DMP ONLY ).
6665 ;*-
6666 .SBTTL ;***** TEST 38 *****
6667 027706 T38::
6668 027706 032737 000003 002472 BIT #3,OPTYP ;IS THIS A DMV11 ?
6669 027714 001402 BEQ 1$ ; NO: GOOD, CONTINUE TEST
6670 027716 104432 TRAP C$EXIT
6671 027720 000412 .WORD L10107-.
6672
6673 1$: CLR R2 ;CLEAR R2
6674 027722 005002 CMP #0,TSTCON ;IS THIS WITH TEST CONN LOOPBACK
6675 027724 022737 000000 002476 BNE MODEX ;IF NOT GO TO END
6676 027732 001135 MOV DUPTYP(R2),AXNUM
6677 027734 016237 030306 002506 MODEB: JSR PC,MINTR ;MASTER CLEAR MODE DEF
6678 027742 004737 004530 JSR PC,WAIT50 ;DELAY
6679 027746 004737 004244
6680
6681 027752 005037 002402 CLR ERRWRD
6682 027756 104410 TRAP C$ESCAPE
6683 027760 000352 .WORD L10107-.
6684
6685 ; JUMP TO END OF TEST IF ERROR
6686 ;*****
6687 027762 022702 000010 CMP #10,R2
6688 027766 101403 BLOS MODEA ;DON'T TURN OFF LINE UNT LOOP
6689 ;IF PAST THIS POINT IN TABLES
6690 027770 142777 000010 152444 BICB #BIT3,@BSEL1
6691
6692 027776 005037 002360 MODEA: CLR TRIBN ;MAKE TRIB NO. = 0
6693 030002 016204 030232 MOV MODTYP(R2),R4 ;SELECT TYPE OF INTERFACE
6694 030006 012703 000023 MOV #23,R3 ;SELECT INTERFACE
6695 030012 004537 003162 JSR R5,CONTIN
6696 ;*****
6697 ; TIME OUT OR READY ERRORS REPORT THIS PC
6698 ;*****
6699
6700 030016 005037 002402 CLR ERRWRD
6701 030022 104410 TRAP C$ESCAPE
6702 030024 000306 .WORD L10107-.
6703
6704 ; JUMP TO END OF TEST IF ERROR
6705 ;*****
6706 030026 012704 000100 MODEB: MOV #100,R4
6707 030032 012703 000021 MOV #21,R3 ;WRITE MODEM
6708 030036 004537 003162 JSR R5,CONTIN
6709 ;*****
6710 ; TIME OUT OR READY ERRORS REPORT THIS PC
6711 ;*****

```

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:***** TEST 38 *****

6712					
6713	030042	005037	002402		CLR ERRWRD
6714	030046	104410			TRAP C\$ESCAPE
6715	030050	000262			.WORD L10107-.
6716					.....
6717					: JUMP TO END OF TEST IF ERROR
6718					.....
6719					
6720	030052	012703	000020		MOV #20,R3
6721	030056	004537	003162		JSR R5,CONTIN ;READ MODEM
6722					.....
6723					: TIME OUT OR READY ERRORS REPORT THIS PC
6724					.....
6725					
6726	030062	005037	002402		CLR ERRWRD
6727	030066	104410			TRAP C\$ESCAPE
6728	030070	000242			.WORD L10107-.
6729					.....
6730					: JUMP TO END OF TEST IF ERROR
6731					.....
6732					
6733	030072	012737	000002	002336	MOV #02,\$GDDAT
6734	030100	004537	003242		JSR R5,GETOUT
6735					.....
6736					: CHECK FOR INFORMATION OUT AND CORRECT TRIBN
6737					.....
6738					
6739	030104	005037	002402		CLR ERRWRD
6740	030110	104410			TRAP C\$ESCAPE
6741	030112	000220			.WORD L10107-.
6742					.....
6743					: JUMP TO END OF TEST IF ERROR
6744					.....
6745					
6746	030114	012737	000010	002336	MOV #10,\$GDDAT
6747	030122	004537	003372		JSR R5,GETRKY
6748					.....
6749					: CHECK FOR CORRECT RETURN KEY MODEM STATUS
6750					.....
6751					
6752	030126	005037	002402		CLR ERRWRD
6753	030132	104410			TRAP C\$ESCAPE
6754	030134	000176			.WORD L10107-.
6755					.....
6756					: JUMP TO END OF TEST IF ERROR
6757					.....
6758	030136	005037	002336		CLR \$GDDAT
6759	030142	005037	002340		CLR \$BDDAT
6760	030146	117737	152276	002340	MOVB @BSEL4,\$BDDAT
6761	030154	116237	030262	002336	MOVB MODOUT(R2),\$GDDAT
6762	030162	123737	002340	002336	CMPS \$BDDAT,\$GDDAT
6763	030170	001411			BEQ 10\$
6764	030172	012737	012014	002430	MOV #M30F,CODEW
6765	030200	104455			TRAP C\$ERDF
6766	030202	000055			.WORD 45
6767	030204	011506			.WORD EROIC

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;***** TEST 38 *****

6768 030206 010324
 6769 030210 104410
 6770 030212 000120
 6771 030214 062702 000002
 6772
 6773 030220 022702 000024
 6774 030224 001243
 6775 030226
 6776 030226 104432
 6777 030230 000102
 6778
 6779 030232 000323
 6780 030234 000313
 6781 030236 000233
 6782 030240 000133
 6783 030242 000133
 6784 030244 000233
 6785 030246 000323
 6786 030250 000323
 6787 030252 000323
 6788 030254 000313
 6789 030256 000377
 6790 030260 000100
 6791
 6792 030262 000310
 6793 030264 000310
 6794 030266 000330
 6795 030270 000330
 6796 030272 000330
 6797 030274 000330
 6798 030276 000330
 6799 030300 000330
 6800 030302 000310
 6801 030304 000310
 6802
 6803
 6804
 6805 030306 000005
 6806 030310 000005
 6807 030312 000004
 6808 030314 000004
 6809 030316 000004
 6810 030320 000004
 6811 030322 000004
 6812 030324 000004
 6813 030326 000005
 6814 030330 000005
 6815
 6816 030332
 6817 030332 104401
 6818
 6819
 6820
 6821
 6822

10\$: .WORD ERR27
 TRAP C\$ESCAPE
 .WORD L10107-
 ADD #2,R2

 MODEX: CMP #24,R2
 BNE MODEB ;IF NOT DONE GO TO B
 TRAP C\$EXIT
 .WORD L10107-

 MODTYP: .WORD 323
 .WORD 313
 .WORD 233
 .WORD 133
 .WORD 133
 .WORD 233
 .WORD 323
 .WORD 323
 .WORD 323
 .WORD 313
 MODIN: .WORD 377
 .WORD 100

 MODOUT: .WORD 310
 .WORD 310
 .WORD 330
 .WORD 330
 .WORD 330
 .WORD 330
 .WORD 330
 .WORD 330
 .WORD 310
 .WORD 310

 DUPTYP: .WORD 5
 .WORD 5
 .WORD 4
 .WORD 4
 .WORD 4
 .WORD 4
 .WORD 4
 .WORD 4
 .WORD 4
 .WORD 5
 .WORD 5

 L10107: TRAP C\$ETST

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

6823
6824
6825 030334
6826
6827
6828
6829
6830
6831
6832
6833
6834
6835
6836
6837
6838 030334
6839
6840 030334 012737 004222 000004
6841 030342 005037 000006
6842 030346 012737 000002 002542
6843 030354 012746 000002
6844 030360 012705 030570
6845
6846 030364 005737 177572
6847
6848
6849 030370 062716 000002
6850 030374 012700 000000
6851 030400 104441
6852 030402 012701 172300
6853 030406 012702 000010
6854 030412
6855 030412 012721 077406
6856 030416 005302
6857 030420 001374
6858 030422 012701 172340
6859 030426 005011
6860 030430 012761 000200 000002
6861 030436 012761 000400 000004
6862 030444 012761 000600 000006
6863 030452 012761 001000 000010
6864 030460 012761 007600 000016
6865 030466 012761 002000 000012
6866 030474 005037 002432
6867 030500 012737 000033 002360
6868 030506 052737 040000 002432
6869 030514 012737 177776 002422
6870 030522 012737 001750 002424
6871 030530 012737 033454 002420
6872 030536 012737 001000 002426
6873 030544 004737 004522
6874 030550 004537 006346
6875 030554 005037 002402
6876 030560 104410
6877 030562 000012
6878 030564 004537 003744

.SBTTL :***** TEST 39 *****
.SBTTL TEST OF MEM EXTENSION BIT 16, ADDRESS 200000
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 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 39 *****
T39::
MOV #META,4 ;SET UP TRAP FOR NO MEM
CLR 6
MOV #2,\$TMP0
MOV #2,-(SP) ;DUMMY MOVE TO STACK
MOV #RET16,R5 ;SET UP R5 FOR RETURN IF TRAP
; TAKES U TO SR.
TST @#177572 ;DOES MEM MANAGEMENT EXIST
; IF NOT TRAP TO META
; ELSE CONTINUE
;FIX THE STACK
ADD #2,(SP)
MOV #0,R0
TRAP C\$SPRI
MOV #172300,R1 ;GET ADDRESS OF KERNEL PDR REQD/
MOV #8.,R2 ; DO 8 TIMES
10\$: MOV #77406,(R1)+
DEC R2
BNE 10\$
MOV #172340,R1
CLR (R1)
MOV #200,2(R1)
MOV #400,4(R1)
MOV #600,6(R1)
MOV #1000,10(R1)
MOV #7600,16(R1)
MOV #2000,12(R1)
CLR GENWRD
MOV #33,TRIBN ;MAP MEM CLEAR GEN AND SET UP TRIB
BIS #BIT14,GENWRD ;SET MM BIT
MOV #177776,RXADD ;SET UP RX ADD
MOV #1750,RXCC ;SET UP RX COUNT(1000 DEC)
MOV #MR1,TXADD ;SET UP TRANSMIT COUNT
MOV #512.,TXCC ;SET UP TRANSMIT COUNT
JSR PC,MINITS ; MASTER CLEAR MODE DEF
JSR R5,TXRX3 ;GO TRANSMIT AND RX
CLR ERRWRD ; IF ERROR GO TO END
TRAP C\$ESCAPE
.WORD L10110-
JSR R5,MEMEX ;CHECK MEM EXTENSION

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

6879 030570 005037 002402
6880 030574
6881 030574 104401

RET16: CLR ERRWRD
L10110: TRAP C\$ETST

;CLEAR ERROR WORD

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:***** TEST 40 *****

6882
6883
6884 030576
6885
6886
6887
6888
6889
6890
6891
6892
6893
6894
6895
6896
6897 030576
6898
6899 030576 012737 004222 000004
6900 030604 005037 000006
6901 030610 012737 000004 002542
6902 030616 012746 000004
6903 030622 012705 031032
6904
6905 030626 005737 177572
6906
6907
6908 030632 062716 000002
6909 030636 012700 000000
6910 030642 104441
6911 030644 012701 172300
6912 030650 012702 000010
6913 030654
6914 030654 012721 077406
6915 030660 005302
6916 030662 001374
6917 030664 012701 172340
6918 030670 005011
6919 030672 012761 000200 000002
6920 030700 012761 000400 000004
6921 030706 012761 000600 000006
6922 030714 012761 001000 000010
6923 030722 012761 007600 000016
6924 030730 012761 004000 000012
6925 030736 005037 002432
6926 030742 012737 000033 002360
6927 030750 052737 040000 002432
6928 030756 012737 177776 002422
6929 030764 012737 041750 002424
6930 030772 012737 033454 002420
6931 031000 012737 001000 002426
6932 031006 004737 004522
6933 031012 004537 006346
6934 031016 005037 002402
6935 031022 104410
6936 031024 000012
6937 031026 004537 003744

.SBTTL :***** TEST 40 *****
.SBTTL TEST OF MEM EXTENSION BIT 17, ADDRESS 400000
ZZ
:
:
* THIS TEST WE'LL TRY TRANSMITTING A MESSAGE
* 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 *****
T40::

MOV #META,4 ;SET UP TRAP FOR NO MEM
CLX 5
MOV #4,\$TMP0
MOV #4,-(SP) ;DUMMY MOVE ON STACK IF TRAP
MOV #RET17,R5 ;SET UP R5 FOR RETURN IF TRAP IS
; TO SR.EXMEM.
TST @#177572 ;DOES MEM MANAGEMENT EXIST
;IF NOT TRAP TO META
; ELSE CONTINUE
;FIX THE STACK

ADD #2,(SP)
MOV #0,R0
TRAP C\$SPR1
MOV #172300,R1 ;GET ADDRESS OF KERNEL PDR REQD/
MOV #8.,R2 ; DO 8 TIMES

10\$:
MOV #77406,(R1)+
DEC R2
BNE 10\$
MOV #172340,R1
CLR (R1)
MOV #200,2(R1)
MOV #400,4(R1)
MOV #600,6(R1)
MOV #1000,10(R1)
MOV #7600,16(R1)
MOV #4000,12(R1)
CLR GENWRD
MOV #33,TRIBN ;MAP MEM CLEAR GEN AND SET UP TRIB
BIS #BIT14,GENWRD ;SET MM BIT
MOV #177776,RXADD ;SET UP RX ADD
MOV #41750,RXCC ;SET UP RX COUNT (1000 DEC)+BA16
MOV #MR1,TXADD ;SET UP TRANSMIT COUNT
MOV #512.,TXCC ;SET UP TRANSMIT COUNT
JSR PC,MINITS ; MASTER CLEAR MODE DEF
JSR R5,TXRX3 ;GO TRANSMIT AND RX
CLR ERRWRD ; IF ERROR GO TO END
TRAP C\$ESCAPE
.WORD L10111-
JSR R5,MEMEX ;CHECK MEM EXTENSION

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

6938 031032 005037 002402
6939 031036
6940 031036 104401
6941

RET17: CLR ERRWRD
L10111: TRAP C\$ETST

;CLEAR ERROR WORD

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

6942
6943
6944 031040
6945
6946
6947
6948
6949
6950
6951
6952
6953
6954
6955
6956
6957 031040
6958
6959 031040 012737 004222 000004
6960 031046 005037 000006
6961 031052 012737 000006 002542
6962 031060 012746 000006
6963
6964 031064 012705 031274
6965
6966 031070 005737 177572
6967
6968
6969 031074 062716 000002
6970 031100 012700 000000
6971 031104 104441
6972 031106 012701 172300
6973 031112 012702 000010
6974 031116
6975 031116 012721 077406
6976 031122 005302
6977 031124 001374
6978 031126 012701 172340
6979 031132 005011
6980 031134 012761 000200 000002
6981 031142 012761 000400 000004
6982 031150 012761 000600 000006
6983 031156 012761 001000 000010
6984 031164 012761 007600 000016
6985 031172 012761 006000 000012
6986 031200 005037 002432
6987 031204 012737 000033 002360
6988 031212 052737 040000 002432
6989 031220 012737 177776 002422
6990 031226 012737 101750 002424
6991 031234 012737 033454 002420
6992 031242 012737 001000 002426
6993 031250 004737 004522
6994 031254 004537 006346
6995 031260 005037 002402
6996 031264 104410
6997 031266 000012

.SBTTL :***** TEST 41 *****
.SBTTL TEST OF MEM EXTENSION BIT 16 AND 17, ADDRESS 600000
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 *****
141::

MOV #META 4 ;SET UP TRAP FOR NO MEM
CLR 6
MOV #6,\$TMP0
MOV #6,-(SP) ;DUMMY MOVE TO STACK IF
;TRAP TAKES U TO SR.
MOV #RET18,R5 ;SET UP R5 FOR RETURN
TST @#177572 ;DOES MEM MANAGEMENT EXIST
;IF NOT TRAP TO META
; ELSE CONTINUE
;FIX STACK
ADD #2,(SP)
MOV #0,R0
TRAP C\$SPRI
MOV #172300,R1 ;GET ADDRESS OF KERNEL PDR REQD/
MOV #8.,R2 ; DO 8 TIMES

10\$: MOV #77406,(R1)+
DEC R2
BNE 10\$
MOV #172340,R1
CLR (R1)
MOV #200,2(R1)
MOV #400,4(R1)
MOV #600,6(R1)
MOV #1000,10(R1)
MOV #7600,16(R1)
MOV #6000,12(R1)
CLR GENWRD
MOV #33,TRIBN ;MAP MEM CLEAR GEN AND SET UP TRIB
BIS #BIT14,GENWRD ;SET MM BIT
MOV #177776,RXADD ;SET UP RX ADD
MOV #101750,RXCC ;SET UP RX COUNT (1000 DEC)+BA17
MOV #MR1,TXADD ;SET UP TRANSMIT COUNT
MOV #512.,TXCC ;SET UP TRANSMIT COUNT
JSR PC,MINITS ; MASTER CLEAR MODE DEF
JSR R5,TXRX3 ;GO TRANSMIT AND RX
CLR ERRWRD ; IF ERROR GO TO END
TRAP C\$ESCAPE
.WORD L10112-

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

6998 031270 004537 003744
6999 031274 005037 002402
7000 031300
7001 031300 104401
7002

RET18: JSR R5, MEMEX
CLR ERRWRD
L10112: TRAP C\$ETST

;CHECK MEM EXTENSION
;CLEAR ERROR WORD

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

7003
 7004
 7005 031302
 7006
 7007
 7008
 7009
 7010
 7011
 7012
 7013
 7014
 7015
 7016
 7017 031302
 7018
 7019 031302 012737 000042 002370
 7020
 7021 031310 005037 002432
 7022 031314 012737 000401 002426
 7023 031322 012737 033455 002420
 7024 031330 012737 033735 002422
 7025 031336 012737 001750 002424
 7026 031344 012737 000001 002360
 7027 031352 022737 000004 002476
 7028 031360 001402
 7029 031362 005237 002400
 7030 031366 004737 004512
 7031 031372 005037 002400
 7032 031376 005037 002402
 7033 031402 104410
 7034 031404 000012
 7035
 7036
 7037
 7038 031406 004537 005720
 7039 031412 005037 002402
 7040 031416
 7041 031416 104401
 7042

.SBTTL :***** TEST 42 *****
 .SBTTL *TX AND RX 257 BYTES, ODD TX, ODD RX, DDCMP, POINT TO POINT
 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 *****
 T42::
 MOV #42, ROMN1 ;SET UP TEST NUMBER
 CLR GENWRD ;CLEAR THE GEN WORD
 MOV #257, TXCC ;SET UP TRANSMIT CHAR COUNT
 MOV #MR1+1, TXADD ;SET UP ADD FOR TX
 MOV #RECBU1+1, RXADD ;SET UP RX
 MOV #1000, RXCC ;SET UP RX COUNT 1000 DECIMAL
 MOV #01, TRIBN ;SET TRIB # TO 1
 CMP #4, TSTCON ;CHECK FOR LOOPBACK CONNECTOR
 BEQ 1\$
 INC EXLOOP ;EXT CONNECTOR PRESENT: SET EXT LOOP FLAG
 JSR PC, MINIT1 ;MASTER CLEAR-MODE DEF
 CLR EXLOOP ;CLEAR EXTERNAL LOOP FLAG
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10113-
 :
 :
 :ESCAPE TEST IF ERROR
 :
 :
 20\$: JSR R5, TXRXSR ;GO DO IT
 CLR ERRWRD
 L10113: TRAP C\$ETST

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

7043
 7044
 7045 031420
 7046
 7047
 7048
 7049
 7050
 7051
 7052
 7053
 7054 031420
 7055
 7056 031420 012737 000001 002360
 7057 031426 012737 000001 002426
 7058 031434 012737 033455 002420
 7059 031442 012737 000764 002424
 7060 031450 012737 033734 002422
 7061 031456 005037 002432
 7062 031462 052737 100000 002432
 7063 031470 004737 004522
 7064 031474 005037 002402
 7065 031500 104410
 7066 031502 000012
 7067
 7068
 7069
 7070 031504 004537 006346
 7071 031510 005037 002402
 7072 031514
 7073 031514 104401

.SBTTL ;***** TEST 43 *****
 .SBTTL *TX AND RX 1 BYTE,ODD TX,EVEN RX,MAINT,MULTIPOINT
 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 *****
 T43::
 MOV #01,TRIBN
 MOV #01,TXCC
 MOV #MR1+1,TXADD
 MOV #500.,RXCC
 MOV #RECBU1,RXADD
 CLR GENWRD
 BIS #BIT15,GENWRD ;SET UP TX RX AND MAINT STATE
 JSR PC,MINITS ;MASTER CLEAR MULTIPOINT
 CLR ERRWRD
 TRAP C\$ESCAPE
 .WORD L10114-.
 ;
 ;
 ; ESCAPE TEST IF ERROR
 ;
 ;
 20\$: JSR R5,TXRX3 ;GO DO IT
 CLR ERRWRD ;CLEAR ERROR WORD
 L10114:
 TRAP C\$ETST

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

7074
7075
7076 031516
7077
7078
7079
7080
7081
7082
7083
7084 031516
7085.SBTTL :***** TEST 44 *****
.SBTTL POLLING STATE TESTS
ZZ7086 031516 005037 002432
7087 031522 004737 004522
7088 031526 005037 002402
7089 031532 104410
7090 031534 000774
7091
7092
7093
7094 031536 005037 002360
7095 031542 012703 000237
7096 031546 012704 000100
7097 031552 004537 003162
7098 031556 005037 002402
7099 031562 104410
7100 031564 000744
7101
7102
7103
7104
7105 031566 012737 000034 002360
7106 031574 012703 000001
7107 031600 004537 003162
7108 031604 005037 002402
7109 031610 104410
7110 031612 000716
7111
7112
7113
7114 031614 012703 000236
7115 031620 012704 002000
7116 031624 032737 000003 002472
7117 031632 001402
7118 031634 012704 000144
7119 031640 004537 003162
7120 031644 005037 002402
7121 031650 104410
7122 031652 000656
7123
7124
7125
7126 031654 012704 002010
7127 031660 012703 000234
7128 031664 004537 003162
7129 031670 005037 002402.SBTTL :***** TEST 44 *****
T44::BEGPOL: CLR GENWRD ;CLEAR FLAG WORD
JSR PC,MINITS ;MASTER CLEAR MODE DEF(FD/CS/MP)
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10115-

;SET POLL DELAY

;*****
CLR TRIBN
MOV #237,R3
MOV #100,R4
JSR R5,CONTIN
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10115-;*****
; ESTABLISH TRIB;*****
MOV #34,TRIBN ;SET TRIB NO.
MOV #01,R3
JSR R5,CONTIN
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10115-;*****
; SET SELECTION TIMER TO 1 SEC;*****
MOV #236,R3
MOV #2000,R4
BIT #3,OPTYP ;* IS THIS A DMV ?
BEQ 1\$;*
MOV #144,R4 ;* IF YES: ADJUST VALUE.
JSR R5,CONTIN
CLR ERRWRD
TRAP C\$ESCAPE
.WORD L10115-;*****
; WRITE NDM > INACTIVE AND #TO > PDEAD;*****
10\$: MOV #2010,R4
MOV #234,R3
JSR R5,CONTIN ;WRITE TSS SLOT
CLR ERRWRD

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:***** TEST 44 *****

7130	031674	104410			TRAP	C\$ESCAPE	
7131	031676	000632			.WORD	L10115-	
7132							
7133					: ISTRT TRIB		
7134					.....		
7135	031700	012703	000003		MOV	#03,R3	
7136	031704	004537	003162		JSR	R5,CONTIN	
7137	031710	005037	002402		CLR	ERRWRD	
7138	031714	104410			TRAP	C\$ESCAPE	
7139	031716	000612			.WORD	L10115-	
7140					.....		
7141					: WAIT FOR RUN STATE		
7142					.....		
7143	031720	012737	000001	002336	MOV	#01,\$GDDAT	
7144	031726	004537	003242		JSR	R5,GETOUT	
7145	031732	005037	002402		CLR	ERRWRD	
7146	031736	104410			TRAP	C\$ESCAPE	
7147	031740	000570			.WORD	L10115-	
7148	031742	012737	000024	002336	MOV	#24,\$GDDAT	
7149	031750	004537	003670		JSR	R5,GETOC	
7150	031754	005037	002402		CLR	ERRWRD	
7151	031760	104410			TRAP	C\$ESCAPE	
7152	031762	000546			.WORD	L10115-	
7153					.....		
7154					: READ TSS SLOT WITH POLL STATUS		
7155					.....		
7156	031764	042777	000200	150452 20\$:	BIC	#RDO,@BSEL2	;CLEAR RDO
7157	031772	012703	000042		MOV	#42,R3	
7158	031776	004537	003162		JSR	R5,CONTIN	;READ TSS SLOT 2
7159	032002	005037	002402		CLR	ERRWRD	
7160	032006	104410			TRAP	C\$ESCAPE	
7161	032010	000520			.WORD	L10115-	
7162	032012	012737	000002	002336	MOV	#02,\$GDDAT	
7163	032020	004537	003242		JSR	R5,GETOUT	;GET INFO OUT
7164	032024	005037	002402		CLR	ERRWRD	
7165	032030	104410			TRAP	C\$ESCAPE	
7166	032032	000476			.WORD	L10115-	
7167	032034	032777	001000	150406	BIT	#BIT9,@BSEL4	;IS IT INACTIVE
7168	032042	001750			BEQ	20\$	;IF NOT GO BACK
7169					.....		
7170					: GET HERE WHEN STATE GOES TO INACTIVE		
7171					.....		
7172	032044	042777	000200	150372	BIC	#RDO,@BSEL2	;CLEAR OUTPUT
7173					.....		
7174					: READ # OF SELECTION INTERVALS		
7175					.....		
7176	032052	012703	000051		MOV	#51,R3	
7177	032056	004537	003162		JSR	R5,CONTIN	
7178	032062	005037	002402		CLR	ERRWRD	
7179	032066	104410			TRAP	C\$ESCAPE	
7180	032070	000440			.WORD	L10115-	
7181	032072	012737	000002	002336	MOV	#02,\$GDDAT	
7182	032100	004537	003242		JSR	R5,GETOUT	
7183							
7184					: MAKE SURE #OF SELC. INTV IS CORRECT		
7185							

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

7186	032104	012737	000010	002336	MOV	#10,\$GDDAT	
7187	032112	004537	003446		JSR	R5,GETDAT	
7188					.....		
7189					;	GET HERE IN INACTIVE STATE	
7190					.....		
7191	032116				40\$:		
7192	032116	042777	000200	150320	BIC	#RDO,@BSEL2	;CLEAR OUTPUT
7193					.....		
7194					;	CHANGE MODE TO HALF DUPLEX	
7195					.....		
7196	032124	052777	000200	150306	BIS	#RQI,@BSELO	
7197	032132	004537	002732		JSR	R5,WRDI	;WAIT FOR RDI TO SET
7198							
7199	032136	005037	002402		CLR	ERRWRD	;CLEAR ERROR
7200	032142	104410			TRAP	C\$ESCAPE	
7201	032144	000364			.WORD	L10115-	
7202	032146	042777	000200	150264	BIC	#RQI,@BSELO	
7203	032154	012777	000004	150272	MOV	#04,@BSEL6	
7204	032162	112777	000002	150254	MOVB	#02,@BSEL2	
7205	032170	042777	000200	150246	50\$:	BIC	#RDO,@BSEL2
7206							
7207							
7208					.....		
7209					;	READ POLL STATUS SLOT	
7210					.....		
7211	032176	012703	000042		MOV	#42,R3	
7212	032202	004537	003162		JSR	R5,CONTIN	
7213	032206	005037	002402		CLR	ERRWRD	
7214	032212	104410			TRAP	C\$ESCAPE	
7215	032214	000314			.WORD	L10115-	
7216	032216	012737	000002	002336	MOV	#02,\$GDDAT	
7217							
7218	032224	004537	003242		JSR	R5,GETOUT	
7219					.....		
7220					;	IS THE STATE POTN. DEAD??	
7221					.....		
7222	032230	032777	010000	150212	BIT	#BIT12,@BSEL4	
7223	032236	001754			BEQ	50\$	
7224					.....		
7225					;	IF NOT GO BACK TO 50	
7226					.....		
7227							
7228					.....		
7229					;	IF SO READ THE SELECTION TIMER	
7230					.....		
7231							
7232	032240	012703	000056		MOV	#56,R3	
7233	032244	042777	000200	150172	BIC	#RDO,@BSEL2	
7234	032252	004537	003162		JSR	R5,CONTIN	
7235	032256	005037	002402		CLR	ERRWRD	
7236	032262	104410			TRAP	C\$ESCAPE	
7237	032264	000244			.WORD	L10115-	
7238	032266	012737	000002	002336	MOV	#02,\$GDDAT	
7239	032274	004537	003242		JSR	R5,GETOUT	
7240	032300	005037	002402		CLR	ERRWRD	
7241	032304	104410			TRAP	C\$ESCAPE	

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

```

7242 032306 000222
7243
7244
7245
7246
7247 032310 012737 001004 002336
7248 032316 004537 003446
7249
7250
7251
7252 032322 042777 000200 150114
7253
7254 032330 012737 000001 002336
7255 032336 004537 003242
7256 032342 005037 002402
7257 032346 104410
7258 032350 000160
7259 032352 012737 000006 002336
7260 032360 004537 003670
7261 032364 005037 002402
7262 032370 104410
7263 032372 000136
7264 032374 042777 000200 150042
7265
7266
7267
7268 032402 012737 000001 002336
7269 032410 004537 003242
7270 032414 005037 002402
7271 032420 104410
7272 032422 000106
7273 032424 012737 000022 002336
7274 032432 004537 003670
7275
7276 032436 005037 002402
7277 032442 104410
7278 032444 000064
7279
7280
7281
7282
7283
7284
7285 032446 042777 000200 147770
7286 032454 012703 000056
7287 032460 004537 003162
7288 032464 005037 002402
7289 032470 104410
7290 032472 000036
7291 032474 012737 000002 002336
7292 032502 004537 003242
7293 032506 005037 002402
7294 032512 104410
7295 032514 000014
7296 032516 012737 001010 002336
7297 032524 004537 003446

```

```

.WORD L10115-.
;*****
; COMPARE SELECTION TIME OUTS WITH # WRITTEN
;*****
MOV #1004,$GDDAT
JSR R5,GETDAT
;*****
; WAIT FOR TRIB TO POST SELECT. THRESH. ERROR
;*****
BIC #RDO,@BSEL2 ;CLEAR OUTPUT CODE

MOV #01,$GDDAT
JSR R5,GETOUT
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.
MOV #6,$GDDAT
JSR R5,GETOC
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.
BIC #RDO,@BSEL2
;*****
; NOW WAIT FOR TRIB TO POST DEAD STATUS
;*****
MOV #01,$GDDAT
JSR R5,GETOUT
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.
MOV #22,$GDDAT
JSR R5,GETOC

CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.

;*****
; NOW READ SELECTION TIMER AND
; SEE IF IT IS EQUAL TO 10
;*****
BIC #RDO,@BSEL2
MOV #56,R3
JSR R5,CONTIN
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.
MOV #02,$GDDAT
JSR R5,GETOUT
CLR ERRWRD
TRAP C$ESCAPE
.WORD L10115-.
MOV #1010,$GDDAT
JSR R5,GETDAT

```

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

7298 032530
7299 032530 104401
7300
7301
7302
7303
7304
7305

L10115:

TRAP C\$ETST

.SBTTL ----- END OF HARDWARE TESTS -----

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----- END OF HARDWARE TESTS -----

7306
 7307
 7308
 7309
 7310
 7311
 7312
 7313
 7314
 7315
 7316
 7317
 7318
 7319
 7320 032532 000041
 7321 032534
 7322 032534 000032
 7323 032536 032636
 7324 032540 000007
 7325 032542 000000
 7326 032544 000007
 7327 032546 001031
 7328 032550 032730
 7329 032552 160000
 7330 032554 177776
 7331 032556 002031
 7332 032560 032756
 7333 032562 000000
 7334 032564 000674
 7335 032566 003032
 7336 032570 033007
 7337 032572 007000
 7338 032574 000004
 7339 032576 000007
 7340 032600 010032
 7341 032602 033040
 7342 032604 000007
 7343 032606 000000
 7344 032610 000004
 7345 032612 011032
 7346 032614 033144
 7347 032616 000007
 7348 032620 000000
 7349 032622 000007
 7350 032624 013032
 7351 032626 033355
 7352 032630 000007
 7353 032632 000000
 7354 032634 000007
 7355
 7356
 7357
 7358 032636
 7359
 7360 032636 042523 042514 052103
 7361 032644 047440 052120 047511

.SBTTL HARDWARE PARAMETER CODING SECTION

```

:////////////////////
:/ THE HARDWARE PARAMETER CODING SECTION CONTAINS MACROS
:/ THAT ARE USED BY THE SUPERVISOR TO BUILD P-TABLES. THE
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:/ WITH THE OPERATOR.
:////////////////////

```

```

        .WORD L10116-L$HARD/2
L$HARD::

```

```

        .WORD T$CODE
        .WORD OPTYPM
        .WORD 7
        .WORD T$LOLIM
        .WORD T$HILIM
        .WORD T$CODE
        .WORD ADDRES
        .WORD T$LOLIM
        .WORD T$HILIM
        .WORD T$CODE
        .WORD VECTOR
        .WORD T$LOLIM
        .WORD T$HILIM
        .WORD T$CODE
        .WORD PRIPTY
        .WORD 7000
        .WORD T$LOLIM
        .WORD T$HILIM
        .WORD T$CODE
        .WORD LOOPBK
        .WORD 7
        .WORD T$LOLIM
        .WORD T$HILIM
        .WORD T$CODE
        .WORD IFTYPM
        .WORD 7
        .WORD T$LOLIM
        .WORD T$HILIM

```

.EVEN

L10116:

OPTYPM: .ASCIZ /SELECT OPTION TYPE (0=8207'DMP',1=8053'DMV',2 8064'DMV'):/

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HARDWARE PARAMETER CODING SECTION

7362	032652	020116	054524	042520	
7363	032660	024040	030040	034075	
7364	032666	030062	023467	046504	
7365	032674	023520	030454	034075	
7366	032702	032460	023463	046504	
7367	032710	023526	031054	034075	
7368	032716	033060	023464	046504	
7369	032724	024526	000072		
7370	032730	042504	044526	042503	ADDRES: .ASCIZ /DEVICE CSR ADDRESS : /
7371	032736	041440	051123	040440	
7372	032744	042104	042522	051523	
7373	032752	035040	000040		
7374	032756	042504	044526	042503	VECTOR: .ASCIZ /DEVICE VECTOR ADDRESS : /
7375	032764	053040	041505	047524	
7376	032772	020122	042101	051104	
7377	033000	051505	020123	020072	
7378	033006	000			
7379	033007	104	053105	041511	PRIPTY: .ASCIZ /DEVICE PRIORITY LEVEL : /
7380	033014	020105	051120	047511	
7381	033022	044522	054524	046040	
7382	033030	053105	046105	035040	
7383	033036	000040			
7384	033040	052524	047122	051101	LOOPBK: .ASCII /TURNAROUND TYPE -/
7385	033046	052517	042116	052040	
7386	033054	050131	020105	055	.ASCIZ /(0=H3254&H3255,1=CABLE,2-MOD LOC,3-MOD REM,4=NONE)/
7387	033061	050	036460	031510	
7388	033066	032462	023064	031510	
7389	033074	032462	026065	036461	
7390	033102	040503	046102	026105	
7391	033110	036462	047515	020104	
7392	033116	047514	026103	036463	
7393	033124	047515	020104	042522	
7394	033132	026115	036464	047516	
7395	033140	042516	000051		
7396	033144	046120	040505	042523	SPEDEM: .ASCII 'PLEASE SELECT BAUD RATE;TYPE '0' FOR 2.4K; '1' FOR 4.8K;''
7397	033152	051440	046105	041505	
7398	033160	020124	040502	042125	
7399	033166	051040	052101	035505	
7400	033174	054524	042520	023440	
7401	033202	023460	043040	051117	
7402	033210	031040	032056	035513	
7403	033216	023440	023461	043040	
7404	033224	051117	032040	034056	
7405	033232	035513			
7406	033234	005015	031047	020047	.ASCII<15><12>'2' FOR 9.6K; '3' FOR 19.2K; '4' FOR 56K; '5' FOR 250K;''
7407	033242	047506	020122	027071	
7408	033250	045466	020073	031447	
7409	033256	020047	047506	020122	
7410	033264	034461	031056	035513	
7411	033272	023440	023464	043040	
7412	033300	051117	032440	045466	
7413	033306	020073	032447	020047	
7414	033314	047506	020122	032462	
7415	033322	045460	073		
7416	033325	015	047412	020122	.ASCIZ<15><12>'OR '6' FOR 500K BAUDS''
7417	033332	033047	020047	047506	

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HARDWARE PARAMETER CODING SECTION

7418	033340	020122	030065	045460
7419	033346	041040	052501	051504
7420	033354	000		
7421	033355	123	046105	041505
7422	033362	020124	047111	042524
7423	033370	043122	041501	020105
7424	033376	054524	042520	024040
7425	033404	036461	047111	042524
7426	033412	051107	046101	031054
7427	033420	042475	040511	031454
7428	033426	053075	031456	026065
7429	033434	036464	031064	024462
7430	033442	000072		
7431				
7432				
7433				
7434				
7435				

IFTYPM: .ASCIIZ /SELECT INTERFACE TYPE (1=INTEGRAL,2=EIA,3=V.35,4=422):/

.EVEN

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SOFTWARE PARAMETER CODING SECTION

.SBTTL SOFTWARE PARAMETER CODING SECTION

```

7436
7437
7438
7439
7440
7441
7442
7443
7444
7445
7446
7447
7448 033444 000000
7449 033446
7450
7451
7452 033446
7453
7454
7455
7456
7457
7458
7459
7460
7461
7462
7463 033446
7464 033446 000240
7465 033450 000240
7466 033452 000240
7467
7468
7469
7470 033454 041101 000103
7471 033460
7472
7473 033460 047516 020127 051511
7474 033466 052040 042510 052040
7475 033474 046511 020105 047506
7476 033502 020122 046101 020114
7477 033510 047507 042117 050040
7478 033516 047505 046120 020105
7479 033524 047524 041440 046517
7480 033532 020105 047524 052040
7481 033540 042510
7482 033542 044124 020105 052521
7483 033550 041511 020113 051102
7484 033556 053517 020116 047506
7485 033564 020130 052512 050115
7486 033572 042105 047440 042526
7487 033600 020122 044124 020105
7488 033606 040514 054532 042040
7489 033614 043517 051447
7490 033620 040502 045503 020056
7491 033626 047514 051520 040440

```

```

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:////////////////////////

```

.WORD L10117-L\$SOFT/2

L\$SOFT::

.EVEN

L10117:

:***** PATCH AREA FOR DEBUG *****

PATCH:

```

NOP
NOP
NOP

```

:*****

MR1: .ASCIZ 'ABC'

MR1E:

MR12: .ASCII 'NOW IS THE TIME FOR ALL GOOD PEOPLE TO COME TO THE'

.ASCII 'THE QUICK BROWN FOX JUMPED OVER THE LAZY DOG'S'

.ASCII 'BACK. LOPS ARE TOPS!'

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SOFTWARE PARAMETER CODING SECTION

7492	033634	042522	052040	050117	
7493	033642	020523			
7494	033644	041101	042103	043105	.ASCII 'ABCDEFGHIJKLMNOPQRSTUVWXYZ'
7495	033652	044107	045111	046113	
7496	033660	047115	050117	051121	
7497	033666	052123	053125	054127	
7498	033674	055131			
7499	033676	041501	043505	045511	.ASCII 'ACEGIKMOQSUWY'
7500	033704	047515	051521	053525	
7501	033712	131			
7502					
7503		033714			.EVEN
7504	033714				MR12E:
7505					
7506	033714	000000			DATLST: 0
7507	033716	125252			125252
7508	033720	052525			052525
7509	033722	000000			0
7510	033724	177777			-1
7511	033726	000377			377
7512	033730	177400			177400
7513	033732	000562			562
7514					
7515	033734	001750			RECBU1: .BLKW 1000.
7516					
7517					.EVEN
7518	037654	000000			.WORD 0
7519	037656	000000			.WORD 0
7520	037660				L\$LAST::
7521					
7522		000001			.END

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CROSS REFERENCE TABLE -- USER SYMBOLS

ADDRES	032730	7328	7370#																	
ADR =	000020 G	1396#																		
ASSEMB=	000010	1094																		
AXNUM	002506	1518#	2217*	2219*	2277	2483*	2596	6677*												
BADBR	006232	2512	2528	2571#																
BADBRM	010544	2573	3050#																	
BADIF	006200	2510	2526	2541	2551	2560#														
BADIFM	010466	2562	3042#																	
BASER	010450	3030	3039#																	
BEGPOL	031522	7087#																		
BIT0 =	000001 G	1369#	1423	2490	3433															
BIT00 =	000001 G	1358#	1369																	
BIT01 =	000002 G	1357#	1368																	
BIT02 =	000004 G	1356#	1367																	
BIT03 =	000010 G	1355#	1366																	
BIT04 =	000020 G	1354#	1365																	
BIT05 =	000040 G	1353#	1364																	
BIT06 =	000100 G	1352#	1363																	
BIT07 =	000200 G	1351#	1362																	
BIT08 =	000400 G	1350#	1361																	
BIT09 =	001000 G	1349#	1360																	
BIT1 =	000002 G	1368#	1422	2487																
BIT10 =	002000 G	1348#																		
BIT11 =	004000 G	1347#																		
BIT12 =	010000 G	1346#	7222																	
BIT13 =	020000 G	1345#																		
BIT14 =	040000 G	1344#	2684	6868	6927	6988														
BIT15 =	100000 G	1343#	2606	7062																
BIT2 =	000004 G	1367#	1421																	
BIT3 =	000010 G	1366#	1420	1428	2268	2501	4491	4508	4801	4873	6690									
BIT4 =	000020 G	1365#	1419																	
BIT5 =	000040 G	1364#	5066	5090	5339	5362	5434													
BIT6 =	000100 G	1363#	1418																	
BIT7 =	000200 G	1362#	1417	5052	5397															
BIT8 =	000400 G	1361#																		
BIT9 =	001000 G	1360#	7167																	
BOE =	000400 G	1400#																		
BSELO	002440	1489#	1773*	1778*	2232	2270*	2278*	2641*	2676*	2681*	4254*	4306*	4317*	4338						
		4356*	4376	4398*	4401*	4496*	4519	4535*	4603*	4661*	4671*	4732	4734*	4740*						
		4818*	4824*	489	4900*	5566*	5573*	5830*	5836*	6321*	6327*	6378*	6384*	6446*						
		6452*	6491*	6498*	7196*	7202*														
BSEL1	002442	1492#	2137*	2139*	2140*	2187*	2190*	2220*	2223*	2260*	2268*	2394*	2501*	3451*						
		3452*	4491*	4508	4722*	4725*	4801*	4873*	6690*											
BSEL10	002460	1502#	2401*	2653*	2674*	3463*	3464*													
BSEL2	002444	1494#	1630	1633	1643*	1673	1676	1686*	1718	1781*	1812	2022	2262*	2275						
		2279*	2403*	2627*	2655*	2659*	2677*	2682*	2701	2721*	2762*	4265	4320*	4619*						
		4627	4673*	4678	4689	4743*	4748	4804	4817*	4826*	4879	4890*	4902*	4904						
		4989*	5298	5431*	5565*	5577*	5602*	5614*	5693*	5729*	5765*	5837*	5847*	5957*						
		5977*	5989	6054*	6075*	6086	6201*	6331*	6388*	6456*	6502*	7156*	7172*	7192*						
		7204*	7205*	7233*	7252*	7264*	7285*													
BSEL3	002446	1495#	1777*	1826	2648*	2669*	3457*	3458*	4424*	4462*	4741*	5576*	6328*	6387*						
		6455*	6499*																	
BSEL4	002450	1496#	1779*	1882	2248	2647*	2668*	4494*	5574*	5681*	5682	6330*	6386*	6454*						
		6501*	6760	7167	7222															
BSEL5	002452	1498#	3459*	3460*																
BSEL6	002454	1499#	1734	1780*	1853	1983	2029	2138*	2239	2241	2277*	2654*	2658*	2675*						

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CROSS REFERENCE TABLE -- USER SYMBOLS

		2680*	2801	4231	4233	4318*	4495*	4616*	4672*	4742*	4761	4807	4825*	4901*
BSEL7	002456	5575*	6329*	6385*	6453*	6500*	7203*							
		1501#	3461*	3462*	3711	3714	3734	3747	3758	3861	3864	3884	3897	3908
CADDR	002404	4011	4014	4034	4047	4058	4305*	4319*	4332	4372				
		1472#	2113	2117	3631*	3637*	3640*	3641	3656*	3670*	3681*	3706*	3712*	3715*
		3716	3731*	3745*	3756*	3781*	3787*	3790*	3791	3806*	3820*	3831*	3856*	3862*
		3865*	3866	3881*	3895*	3906*	3931*	3937*	3940*	3941	3956*	3970*	3981*	4006*
		4012*	4015*	4016	4031*	4045*	4056*							
CFM1	005306	2327	2356#											
CFM2	005373	2336	2365#											
CFM3	005451	2344	2373#											
CFM4	005466	2350	2376#											
CODEW	002430	1483#	1724*	1738*	1817*	1858*	1888*	1988*	2032*	3017	4694*	4754*	4764*	5687*
		6764*												
CONTIN	003162	1772#	2494	2592	2601	2612	2633	4868	4948	4965	4992	5038	5053	5067
		5147	5160	5209	5222	5271	5284	5340	5399	5413	5435	5486	5533	5542
		5579	5618	5645	5658	5695	5708	5731	5767	5780	5879	5926	5939	5959
		5979	6023	6036	6056	6076	6122	6136	6149	6203	6216	6366	6427	6437
		6695	6708	6721	7097	7107	7119	7128	7136	7158	7177	7212	7234	7287
COUNT	002342	1454#	3484*	3489*	4214*	4220*								
COUNTT	005134	2293*	2300*	2306#										
CRCCAL	002434	1485#	2411*	2432										
CRCR	004376	2158#	2419	3644	3719	3794	3869	3944	4019					
CWORD	002374	1468#	2162*	2166	2167*	2168*	2393*	2433	2963	3633*	3647*	3648	3708*	3722*
		3723	3783*	3797*	3798	3858*	3872*	3873	3933*	3947*	3948	4008*	4022*	4023
C\$AU =	000052	1094#	3543											
C\$AUTO=	000061	1094#	3497											
C\$BRK =	000022	1094#	2303											
C\$BSEG=	000004	1094#												
C\$BSUB=	000002	1094#	5321	5380	5470									
C\$CEFG=	000045	1094#												
C\$CLCK=	000062	1094#												
C\$CLEA=	000012	1094#	3510											
C\$CLOS=	000035	1094#												
C\$CLP1=	000006	1094#												
C\$CVEC=	000036	1094#	3591	4482	4484									
C\$DCLN=	000044	1094#	3588											
C\$DODU=	000051	1094#	3492											
C\$DRPT=	000024	1094#												
C\$DU =	000053	1094#	3527											
C\$EDIT=	000003	1094#	1171											
C\$ERDF=	000055	1094#	1638	1681	1728	1742	1818	1830	1859	1889	1922	1958	1989	2033
		2046	2062	2069	2295	2435	2745	3601	3652	3662	3686	3727	3737	3761
		3802	3812	3836	3877	3887	3911	3952	3962	3986	4027	4037	4061	4093
		4139	4225	4236	4246	4346	4384	4510	4527	4549	4559	4630	4681	4695
		4755	4765	4810	4906	5301	5688	5992	6089	6765				
C\$ERHR=	000056	1094#												
C\$ERRO=	000060	1094#												
C\$ERSF=	000054	1094#												
C\$ERSO=	000057	1094#	2250											
C\$ESCA=	000010	1094#	4086	4098	4132	4143	4229	4242	4250	4259	4268	4303	4311	4326
		4350	4366	4388	4432	4468	4502	4515	4531	4595	4609	4655	4665	4686
		4700	4730	4738	4746	4759	4793	4822	4832	4858	4885	4895	4941	4954
		4971	4983	4998	5030	5044	5059	5073	5083	5094	5104	5139	5153	5166
		5176	5201	5215	5228	5239	5263	5277	5290	5332	5343	5354	5366	5390
		5402	5416	5425	5438	5449	5458	5478	5489	5499	5529	5539	5547	5555

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

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CROSS REFERENCE TABLE -- USER SYMBOLS

ERR5	007430	G	4909	5995	6092														
ERR6	007466	G	2811#	4349	4387														
ERR9	007524	G	2823#	4530															
EVL	= 000004	G	2837#	4633															
EXLOOP	002400		1394#																
EXMDT	021134		1470#	2258	3399*	6543*	6545*	6592*	6594*	7029*	7031*								
EXMEM	003744		4295	4573#															
EXMEMA	004122		2019#																
EXMEMB	004036		2025	2055#															
EXMEMC	004062		2027	2032#															
EXMEMX	004226		2031	2039#															
E\$END	= 002100		2021	2038	2051	2061	2067	2075#											
E\$LOAD	= 000035		1094#																
FMT0	010774		1094#	1194															
FRSPAS	002354		3077#	3608															
FRSTIM	002330		1459#	3431*															
F\$AU	= 000015		1449#	3400	3407*														
F\$AUTO	= 000020		1094#	3541	3542														
F\$BGN	= 000040		1094#	3482	3496														
			1094#	1102	1212	2787	2800	2811	2823	2837	2849	2863	2879	2894	2905				
			2923	2948	2962	2975	2990	3006	3029	3372	3377	3393	3482	3506	3523				
			3541	3570	3593	3598	3627	3691	3702	3766	3777	3841	3852	3916	3927				
			3991	4002	4066	4078	4086	4098	4113	4124	4132	4143	4157	4212	4229				
			4242	4250	4259	4268	4270	4291	4303	4311	4326	4350	4366	4388	4432				
			4468	4502	4515	4531	4536	4539	4546	4556	4566	4575	4590	4595	4609				
			4638	4650	4655	4665	4686	4700	4708	4720	4730	4738	4746	4759	4770				
			4787	4793	4814	4822	4832	4839	4852	4858	4885	4895	4911	4927	4941				
			4954	4971	4983	4998	5010	5023	5030	5044	5059	5073	5083	5094	5104				
			5120	5134	5139	5153	5166	5176	5182	5196	5201	5215	5228	5239	5245				
			5258	5263	5277	5290	5307	5318	5320	5332	5343	5354	5366	5377	5379				
			5390	5402	5416	5425	5438	5449	5458	5467	5469	5478	5489	5499	5509				
			5511	5525	5529	5539	5547	5555	5560	5571	5584	5590	5595	5600	5606				
			5612	5622	5632	5637	5651	5664	5675	5701	5714	5724	5737	5748	5759				
			5773	5786	5796	5802	5818	5824	5834	5842	5852	5866	5871	5882	5892				
			5898	5913	5918	5932	5942	5952	5962	5972	5982	5997	6010	6015	6029				
			6039	6049	6059	6069	6079	6094	6109	6114	6128	6142	6155	6169	6182				
			6195	6209	6222	6235	6248	6260	6277	6288	6296	6298	6310	6315	6325				
			6336	6341	6353	6358	6372	6382	6393	6398	6414	6419	6430	6440	6450				
			6461	6467	6480	6485	6496	6508	6513	6532	6547	6556	6562	6579	6596				
			6605	6611	6626	6637	6647	6653	6667	6671	6682	6701	6714	6727	6740				
			6753	6769	6776	6816	6838	6876	6880	6897	6935	6939	6957	6996	7000				
			7017	7033	7040	7054	7065	7072	7084	7089	7099	7109	7121	7130	7138				
			7146	7151	7160	7165	7179	7200	7214	7236	7241	7257	7262	7271	7277				
			7289	7294	7298	7320	7448												
F\$CLEA	000007		1094#	3506	3509														
F\$DU	= 000016		1094#	3523	3526														
F\$END	= 000041		1094#	1102	2796	2810	2822	2834	2846	2858	2876	2891	2904	2922	2943				
			2961	2974	2987	3001	3026	3038	3375	3381	3480	3498	3511	3528	3544				
			3570	3593	3595	3615	3627	3691	3693	3702	3766	3768	3777	3841	3843				
			3852	3916	3918	3927	3991	3993	4002	4066	4068	4078	4086	4098	4113				
			4115	4124	4132	4143	4157	4159	4212	4229	4242	4250	4259	4268	4270				
			4272	4291	4303	4311	4326	4350	4366	4388	4432	4468	4502	4515	4531				
			4536	4545	4555	4565	4572	4575	4577	4590	4595	4609	4638	4640	4650				
			4655	4665	4686	4700	4708	4710	4720	4730	4738	4746	4759	4770	4772				
			4787	4793	4814	4822	4832	4839	4841	4852	4858	4885	4895	4911	4913				
			4927	4941	4954	4971	4983	4998	5010	5012	5023	5030	5044	5059	5073				

CROSS REFERENCE TABLE -- USER SYMBOLS

	5083	5094	5104	5120	5122	5134	5139	5153	5166	5176	5182	5184	5196
	5201	5215	5228	5239	5245	5247	5258	5263	5277	5290	5307	5309	5318
	5320	5332	5343	5354	5366	5377	5379	5390	5402	5416	5425	5438	5449
	5458	5467	5469	5478	5489	5499	5509	5511	5513	5525	5529	5539	5547
	5555	5560	5571	5584	5590	5595	5600	5606	5612	5622	5624	5632	5637
	5651	5664	5675	5701	5714	5724	5737	5748	5759	5773	5786	5796	5802
	5804	5818	5824	5834	5842	5852	5854	5866	5871	5882	5892	5898	5900
	5913	5918	5932	5942	5952	5962	5972	5982	5997	5999	6010	6015	6029
	6039	6049	6059	6069	6079	6094	6096	6109	6114	6128	6142	6155	6169
	6182	6195	6209	6222	6235	6248	6260	6262	6277	6288	6296	6298	6300
	6310	6315	6325	6336	6341	6343	6353	6358	6372	6382	6393	6398	6400
	6414	6419	6430	6440	6450	6461	6467	6469	6480	6485	6496	6508	6513
	6515	6532	6547	6556	6562	6564	6579	6596	6605	6611	6613	6626	6637
	6647	6653	6655	6667	6671	6682	6701	6714	6727	6740	6753	6769	6776
	6816	6818	6838	6876	6880	6882	6897	6935	6939	6941	6957	6996	7000
	7002	7017	7033	7040	7042	7054	7065	7072	7074	7084	7089	7099	7109
	7121	7130	7138	7146	7151	7160	7165	7179	7200	7214	7236	7241	7257
	7262	7271	7277	7289	7294	7298	7300	7359	7453				
F\$HARD=	000004	1094#	7320	7357									
F\$HW =	C00013	1094#	1284	1305									
F\$INIT=	000006	1094#	3393	3478									
F\$JMP =	000050	1094#	3375	4536	4814	6671	6776						
F\$MOD =	000000	1094#	1102										
F\$MSG =	000011	1094#	2787	2794	2800	2808	2811	2820	2823	2832	2837	2844	2856
		2863	2874	2879	2889	2894	2902	2905	2920	2923	2941	2948	2962
		2972	2975	2985	2990	2999	3006	3024	3029	3036			
F\$PROT=	000021	1094#	1212	1216									
F\$PWR =	000017	1094#											
F\$RPT =	000012	1094#	3372	3379									
F\$SEG =	000003	1094#											
F\$SOFT=	000005	1094#	7448	7451									
F\$SRV =	000010	1094#	3598	3613	4539	4543	4546	4553	4556	4563	4566	4570	
F\$SUB =	000002	1094#	5321	5377	5380	5467	5470	5509					
F\$SW =	000014	1094#	1318	1323									
F\$TEST=	000001	1094#	3571	3593	3628	3691	3703	3766	3778	3841	3853	3916	3928
		4003	4066	4079	4113	4125	4157	4213	4270	4292	4575	4591	4638
		4708	4721	4770	4788	4839	4853	4911	4928	5010	5024	5120	5135
		5197	5245	5259	5307	5319	5511	5526	5622	5633	5802	5819	5852
		5898	5914	5997	6011	6094	6110	6260	6278	6298	6311	6341	6354
		6415	6467	6481	6513	6533	6562	6580	6611	6627	6653	6668	6816
		6880	6898	6939	6958	7000	7018	7040	7055	7072	7085	7298	6839
		1484#	2606	2684	2688	2760	6282*	6539*	6588*	6632*	6866*	6868*	6925*
GENWRD	002432	6986*	6988*	7021*	7061*	7062*	7086*						6927*
		1945#	2717	2731	2772	5598							
GETBA	003576	1911#	2713	2727	2768	5593							
GETCC	003514	1881#	5101	5455	6189	6255	7187	7248	7297				
GETDAT	003446	1982#	2624	5558	7149	7260	7274						
GETOC	003670	1808#	2620	2709	2723	2764	5079	5350	5445	5496	5550	5587	5604
GETOUT	003242	5744	6162	6229	6734	7144	7163	7182	7218	7239	7255	7269	7292
		3424	3436#	3445									
GETPRM	014164	1852#	4705	5091	5363	5506	5609	5755	6176	6242	6747		
GETRKY	003372	5431#	5465										
GSSREP	023740	2112#	3635	3638	3658	3671	3682	3710	3713	3733	3746	3757	3788
GWORD	004274	3808	3821	3832	3860	3863	3883	3896	3907	3935	3938	3958	3971
		4010	4013	4033	4046	4057							
G\$CNT0=	000200	1094#											

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CROSS REFERENCE TABLE -- USER SYMBOLS

G\$DELM=	000372	1094#																		
G\$DISP=	000003	1094#																		
G\$EXCP=	000400	1094#																		
G\$HILI=	000002	1094#																		
G\$LOLI=	000001	1094#																		
G\$NO =	000000	1094#																		
G\$OFFS=	000400	1094#	7322	7327	7331	7335	7340	7345	7350											
G\$OFSI=	000376	1094#	7322	7327	7331	7335	7340	7345	7350											
G\$PRMA=	000001	1094#	7327	7331																
G\$PRMD=	000002	1094#	7322	7335	7340	7345	7350													
G\$PRML=	000000	1094#																		
G\$RADA=	000140	1094#																		
G\$RADB=	000000	1094#																		
G\$RADD=	000040	1094#																		
G\$RADL=	000120	1094#																		
G\$RADO=	000020	1094#	7322	7327	7331	7335	7340	7345	7350											
G\$XFER=	000004	1094#																		
G\$YES =	000010	1094#	7322	7327	7331	7335	7340	7345	7350											
HELP =	000000	1093#	1125	1212	1271	1587	3374	3378												
HOE =	100000	1407#																		
IBE =	010000	1404#																		
IDU =	000040	1397#																		
IER =	020000	1405#																		
I\$FLAG	002334	1451#	4423*	4438	4459*	4474	4542*	4569*												
I\$FTYP	002474	1513#	2507	2523	2538	3474*	3475*													
I\$FTYPM	033355	7351	7421#																	
I\$NCO	021044	4408	4539#																	
I\$NCO4	021060	4416	4546#																	
I\$NDO	021100	4447	4556#																	
I\$NDO4	021120	4453	4566#																	
I\$R =	000100	1398#																		
I\$XE =	004000	1403#																		
I\$AU =	000041	1094#	3541#	3544#																
I\$AUTO=	000041	1094#	3482#	3498#																
I\$CLN =	000041	1094#	3506#	3511#																
I\$DU =	000041	1094#	3523#	3528#																
I\$HRD =	000041	7320#	7359#																	
I\$INIT=	000041	1094#	3393#	3480#																
I\$MOD =	000040	1094#	1102#																	
I\$MSG =	000041	1094#	2787#	2796#	2800#	2810#	2811#	2822#	2823#	2834#	2837#	2846#	2849#	2858#						
		2863#	2876#	2879#	2891#	2894#	2904#	2905#	2922#	2923#	2943#	2948#	2961#	2962#						
		2974#	2975#	2987#	2990#	3001#	3006#	3026#	3029#	3038#										
		1094#	1212#																	
I\$PROT=	000040	1094#																		
I\$PTAB=	000041	1094#																		
I\$PWR =	000041	1094#																		
I\$RPT =	000041	1094#	3372#	3381#																
I\$SEG =	000041	1094#	3570	3627	3702	3777	3852	3927	4002	4078	4124	4212	4291	4590						
		4650	4720	4787	4852	4927	5023	5134	5196	5258	5318	5320	5379	5469						
		5525	5632	5818	5866	5913	6010	6109	6277	6310	6353	6414	6480	6532						
		6579	6626	6667	6838	6897	6957	7017	7054	7084										
I\$SETU=	000041	1094#																		
I\$SFT =	000041	7448#	7453#																	
I\$SRV =	000041	1094#	3598#	3615#	4539#	4545#	4546#	4555#	4556#	4565#	4566#	4572#								
I\$SUB =	000041	1094#	3570	3627	3702	3777	3852	3927	4002	4078	4124	4212	4291	4590						
		4650	4720	4787	4852	4927	5023	5134	5196	5258	5318	5320#	5332	5343						
		5354	5366	5377#	5379#	5390	5402	5416	5438	5449	5458	5467#	5469#	5478						

CROSS REFERENCE TABLE -- USER SYMBOLS

JMO		014614	
J\$JMP	=	000167	
KMRLVL		002470	
KMRVEC		002462	
KMTLVL		002470	
KMTVEC		002464	
LASTR5		005136	
LOE	=	040000	G
LOGDEV		002332	
LOOPBK		033040	
LOT	=	000010	G
LLOOP=		000010	
L\$ACP		002110	G
L\$APT		002036	G
L\$AU		014502	G
L\$AUT		002070	G
L\$AUTO		014430	G
L\$CCP		002106	G
L\$CLEA		014472	G
L\$CO		002032	G
L\$DEPO		002011	G
L\$DESC		002606	G
L\$DESP		002076	G
L\$DEVP		002060	G
L\$DISP		002132	G
L\$DLY		002116	G
L\$DTP		002040	G
L\$DTYP		002034	G
L\$DU		014476	G

[illegible]

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CROSS REFERENCE TABLE -- USER SYMBOLS

L\$DUT	002072	G	1187#		
L\$DVTY	002564	G	1178	1568#	
L\$EF	002052	G	1172#		
L\$ENVI	002044	G	1165#		
L\$ETP	002102	G	1195#		
L\$EXP1	002046	G	1167#		
L\$EXP4	002064	G	1181#		
L\$EXP5	002066	G	1183#		
L\$HARD	032534	G	1144	7320	7321#
L\$HIME	002120	G	1209#		
L\$HPCP	002016	G	1143#		
L\$HPTP	002022	G	1147#		
L\$HW	002264	G	1148	1284	1285#
L\$ICP	002104	G	1197#		
L\$INIT	013774	G	1198	3393#	
L\$LADP	002026	G	1151#		
L\$LAST	037660	G	1152	7520#	
L\$LOAD	002100	G	1193#		
L\$LUN	002074	G	1189#		
L\$MREV	002050	G	1169#		
L\$NAME	002000	G	1126#		
L\$PRIO	002042	G	1163#		
L\$PROT	002122	G	1204	1212#	
L\$PRT	002112	G	1203#		
L\$REPP	002062	G	1179#		
L\$REV	002010	G	1135#		
L\$RPT	013766	G	3372#		
L\$SOFT	033446	G	7448	7449#	
L\$SPC	002056	G	1175#		
L\$SPCP	002020	G	1145#		
L\$SPTP	002024	G	1149#		
L\$STA	002030	G	1153#		
L\$SW	002316	G	1318	1319#	
L\$TEST	002114	G	1205#		
L\$TIML	002014	G	1141#		
L\$UNIT	002012	G	1139#	3438	
L10001	002314		1284	1305#	
L10002	002316		1318	1323#	
L10003	007374		2794#		
L10004	007426		2808#		
L10005	007464		2820#		
L10006	007522		2832#		
L10007	007550		2844#		
L10010	007576		2856#		
L10011	007644		2874#		
L10012	007704		2889#		
L10013	007736		2902#		
L10014	010020		2920#		
L10015	010112		2941#		
L10016	010160		2959#		
L10017	010222		2972#		
L10020	010264		2985#		
L10021	010322		2999#		
L10022	010420		3024#		
L10023	010446		3036#		
L10024	013772		3376	3379#	

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

CROSS REFERENCE TABLE -- USER SYMBOLS

REDBYT	002502	1516#													
REDDAT	002512	1522#													
REG	002344	1455#	4339*	4343	4352*	4354	4377*	4381	4390*	4392					
REG0	002522	1532#													
REG1	002524	1533#													
REG2	002526	1534#													
REG3	002530	1535#													
REG4	002532	1536#													
REG5	002534	1537#													
REG6	002536	1538#													
REG7	002540	1539#													
RETADR	002500	1515#													
RET16	030570	6844	6879#												
RET17	031032	6903	6938#												
RET18	031274	6964	6999#												
REVNO	013764	2415*	3362#	3672*	3673	3747*	3748	3822*	3823	3897*	3898	3972*	3973	4047*	
		4048	4101	4146											
RMVAA	005644	2424#													
RMVBB	005664	2425	2430#												
RMVEX	005716	2397	2406	2434	2440#										
RMVRT	005472	2393#	4084	4130											
RMVXX	005522	2400#	2428												
RMVYY	005620	2410	2418#	2422											
ROMADD	002436	1486#	2402	2426*	4083*	4129*									
ROMCLK	004346	2114	2118	2136#											
ROMI =	000002	1422#													
ROMMSG	013665	3349#	3676	3751	3826	3901	3976	4051	4104	4149					
ROMN	002366	1465#	2965	2978	3630*	3705*	3780*	3855*	3930*	4005*	4081*	4127*			
ROMNO	013762	2413*	3361#	3669*	3674	3744*	3749	3819*	3824	3894*	3899	3969*	3974	4044*	
		4049	4091	4102	4137	4147									
ROMN1	002370	1466#	2579	2977	3657*	3660	3732*	3735	3807*	3810	3882*	3885	3957*	3960	
		4032*	4035	4082*	4091	4128*	4137	6533*	6583*	7019*					
ROMO =	000004	1421#													
RQI -	000200	1429#	1773	1778	2270	2641	2676	2681	4254	4603	4661	4671	4734	4818	
		4824	4891	4900	5566	5573	5830	5836	6321	6327	6378	6384	6446	6452	
		6491	6498	7196	7202										
RUN =	000200	1417#													
RXADD	002422	1480#	2647	2730	2736	6279*	6536*	6585*	6630*	6869*	6928*	6989*	7024*	7060*	
RXCC	002424	1481#	2653	2658	6278*	6535*	6584*	6629*	6870*	6929*	6990*	7025*	7059*		
SAVE4	002316	1444#	2075	3402*	3405										
SAVE6	002320	1445#	2076												

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CROSS REFERENCE TABLE -- USER SYMBOLS

STEPMP= 000001
 SUBRPC 002324
 SVCGBL= 000000

SVCINS= 000000

1423#														
1447#	3396*													
1094#	1102	1109#	1126	1127	1135	1136	1137	1138	1139	1140	1141	1142		
1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155		
1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168		
1169	1170	1172	1173	1175	1176	1177	1178	1179	1180	1181	1182	1183		
1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196		
1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209		
1210	1212	1213	1225	1226	1285	1286	1287	1319	1320	1321	1568	1569		
1574	1575	2787	2788	2800	2801	2811	2812	2823	2824	2837	2838	2849		
2850	2863	2864	2879	2880	2894	2895	2905	2906	2923	2924	2948	2949		
2962	2963	2975	2976	2990	2991	3006	3007	3029	3030	3372	3373	3393		
3394	3482	3483	3506	3507	3523	3524	3541	3542	3598	3599	4539	4540		
4546	4547	4556	4557	4566	4567	7321	7322	7449	7450	7520#	7521			
1094#	1106#	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137		
1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150		
1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163		
1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176		
1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189		
1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202		
1203	1204	1205	1206	1207	1208	1209	1210	1211	1224	1225	1226	1227		
1228	1229	1230	1231	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	1284	1285	1318	1319	1569	1572	1573	1575	1581		
1582	1638	1639	1640	1641	1642	1681	1682	1683	1684	1685	1728	1729		
1730	1731	1732	1742	1743	1744	1745	1746	1818	1819	1820	1821	1822		
1830	1831	1832	1833	1834	1859	1860	1861	1862	1863	1889	1890	1891		
1892	1893	1922	1923	1924	1925	1926	1958	1959	1960	1961	1962	1989		
1990	1991	1992	1993	2033	2034	2035	2036	2037	2046	2047	2048	2049		
2050	2062	2063	2064	2065	2066	2069	2070	2071	2072	2073	2250	2251		
2252	2253	2254	2295	2296	2297	2298	2299	2303	2304	2325	2326	2327		
2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340		
2341	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354		
2355	2435	2436	2437	2438	2439	2562	2563	2564	2565	2566	2567	2573		
2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2745		
2746	2747	2748	2749	2788	2789	2790	2791	2792	2793	2794	2795	2796		
2801	2802	2803	2804	2805	2806	2807	2809	2810	2812	2813	2814	2815		
2816	2817	2818	2819	2821	2822	2824	2825	2826	2827	2828	2829	2830		
2831	2833	2834	2838	2839	2840	2841	2842	2843	2845	2846	2850	2851		
2852	2853	2854	2855	2857	2858	2864	2865	2866	2867	2868	2869	2870		
2871	2872	2873	2875	2876	2880	2881	2882	2883	2884	2885	2886	2887		
2888	2890	2891	2895	2896	2897	2898	2899	2900	2901	2903	2904	2906		
2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919		
2921	2922	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934		
2935	2936	2937	2938	2939	2940	2942	2943	2949	2950	2951	2952	2953		
2954	2955	2956	2957	2958	2960	2961	2963	2964	2965	2966	2967	2968		
2969	2970	2971	2973	2974	2976	2977	2978	2979	2980	2981	2982	2983		
2984	2986	2987	2991	2992	2993	2994	2995	2996	2997	2998	3000	3001		
3007	3008	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019		
3020	3021	3022	3023	3025	3026	3030	3031	3032	3033	3034	3035	3037		
3038	3375	3376	3377	3380	3381	3409	3410	3411	3412	3413	3414	3415		
3416	3417	3418	3419	3420	3421	3422	3423	3424	3440	3441	3442	3443		
3444	3479	3480	3491	3492	3493	3495	3496	3497	3498	3507	3508	3510		
3511	3525	3526	3527	3528	3543	3544	3571	3572	3573	3574	3575	3576		
3577	3588	3589	3590	3591	3592	3594	3595	3601	3602	3603	3604	3605		

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CROSS REFERENCE TABLE -- USER SYMBOLS

3607	3608	3609	3610	3611	3612	3613	3614	3615	3652	3653	3654	3655
3656	3662	3663	3664	3665	3666	3673	3674	3675	3676	3677	3678	3679
3680	3681	3686	3687	3688	3689	3690	3692	3693	3727	3728	3729	3730
3731	3737	3738	3739	3740	3741	3748	3749	3750	3751	3752	3753	3754
3755	3756	3761	3762	3763	3764	3765	3767	3768	3802	3803	3804	3805
3806	3812	3813	3814	3815	3816	3823	3824	3825	3826	3827	3828	3829
3830	3831	3836	3837	3838	3839	3840	3842	3843	3877	3878	3879	3880
3881	3887	3888	3889	3890	3891	3898	3899	3900	3901	3902	3903	3904
3905	3906	3911	3912	3913	3914	3915	3917	3918	3952	3953	3954	3955
3956	3962	3963	3964	3965	3966	3973	3974	3975	3976	3977	3978	3979
3980	3981	3986	3987	3988	3989	3990	3992	3993	4027	4028	4029	4030
4031	4037	4038	4039	4040	4041	4048	4049	4050	4051	4052	4053	4054
4055	4056	4061	4062	4063	4064	4065	4067	4068	4086	4087	4088	4093
4094	4095	4096	4097	4098	4099	4100	4101	4102	4103	4104	4105	4106
4107	4108	4109	4114	4115	4132	4133	4134	4139	4140	4141	4142	4143
4144	4145	4146	4147	4148	4149	4150	4151	4152	4153	4154	4158	4159
4225	4226	4227	4228	4229	4230	4231	4236	4237	4238	4239	4240	4242
4243	4244	4246	4247	4248	4249	4250	4251	4252	4259	4260	4261	4268
4269	4270	4271	4272	4303	4304	4305	4311	4312	4313	4326	4327	4328
4346	4347	4348	4349	4350	4351	4352	4366	4367	4368	4384	4385	4386
4387	4388	4389	4390	4407	4408	4409	4410	4411	4412	4413	4415	4416
4417	4418	4419	4420	4421	4425	4426	4427	4432	4433	4434	4446	4447
4448	4449	4450	4451	4452	4453	4454	4455	4456	4457	4458	4460	4461
4462	4468	4469	4470	4481	4482	4483	4484	4485	4502	4503	4504	4510
4511	4512	4513	4514	4515	4516	4517	4527	4528	4529	4530	4531	4532
4533	4536	4537	4538	4540	4541	4542	4544	4545	4547	4548	4549	4550
4551	4552	4553	4554	4555	4557	4558	4559	4560	4561	4562	4563	4564
4565	4567	4568	4569	4571	4572	4576	4577	4595	4596	4597	4609	4610
4611	4630	4631	4632	4633	4634	4639	4640	4655	4656	4657	4665	4666
4667	4681	4682	4683	4684	4685	4686	4687	4688	4695	4696	4697	4698
4699	4700	4701	4702	4709	4710	4730	4731	4732	4738	4739	4740	4746
4747	4748	4755	4756	4757	4758	4759	4760	4761	4765	4766	4767	4768
4769	4771	4772	4793	4794	4795	4810	4811	4812	4813	4814	4815	4816
4822	4823	4824	4832	4833	4834	4840	4841	4858	4859	4860	4885	4886
4887	4895	4896	4897	4906	4907	4908	4909	4910	4912	4913	4941	4942
4943	4954	4955	4956	4971	4972	4973	4983	4984	4985	4998	4999	5000
5011	5012	5030	5031	5032	5044	5045	5046	5059	5060	5061	5073	5074
5075	5083	5084	5085	5094	5095	5096	5104	5105	5106	5121	5122	5139
5140	5141	5153	5154	5155	5166	5167	5168	5176	5177	5178	5183	5184
5201	5202	5203	5215	5216	5217	5228	5229	5230	5239	5240	5241	5246
5247	5263	5264	5265	5277	5278	5279	5290	5291	5292	5301	5302	5303
5304	5305	5308	5309	5321	5322	5332	5333	5334	5343	5344	5345	5354
5355	5356	5366	5367	5368	5378	5379	5380	5381	5390	5391	5392	5402
5403	5404	5416	5417	5418	5425	5426	5427	5438	5439	5440	5449	5450
5451	5458	5459	5460	5468	5469	5470	5471	5478	5479	5480	5489	5490
5491	5499	5500	5501	5510	5511	5512	5513	5529	5530	5531	5539	5540
5541	5547	5548	5549	5555	5556	5557	5560	5561	5562	5571	5572	5573
5584	5585	5586	5590	5591	5592	5595	5596	5597	5600	5601	5602	5606
5607	5608	5612	5613	5614	5623	5624	5637	5638	5639	5651	5652	5653
5664	5665	5666	5675	5676	5677	5688	5689	5690	5691	5692	5701	5702
5703	5714	5715	5716	5724	5725	5726	5737	5738	5739	5748	5749	5750
5759	5760	5761	5773	5774	5775	5786	5787	5788	5796	5797	5798	5803
5804	5824	5825	5826	5834	5835	5836	5842	5843	5844	5853	5854	5871
5872	5873	5882	5883	5884	5892	5893	5894	5899	5900	5918	5919	5920
5932	5933	5934	5942	5943	5944	5952	5953	5954	5962	5963	5964	5972
5973	5974	5982	5983	5984	5992	5993	5994	5995	5996	5998	5999	6015

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CROSS REFERENCE TABLE -- USER SYMBOLS

TABEN	006306
TABM	006262
TESTAB	010624

6016	6017	6029	6030	6031	6039	6040	6041	6049	6050	6051	6059	6060
6061	6069	6070	6071	6079	6080	6081	6089	6090	6091	6092	6093	6095
6096	6114	6115	6116	6128	6129	6130	6142	6143	6144	6155	6156	6157
6169	6170	6171	6182	6183	6184	6195	6196	6197	6209	6210	6211	6222
6223	6224	6235	6236	6237	6248	6249	6250	6261	6262	6288	6289	6290
6296	6297	6298	6299	6300	6315	6316	6317	6325	6326	6327	6336	6337
6338	6342	6343	6358	6359	6360	6372	6373	6374	6382	6383	6384	6393
6394	6395	6399	6400	6419	6420	6421	6430	6431	6432	6440	6441	6442
6450	6451	6452	6461	6462	6463	6468	6469	6485	6486	6487	6496	6497
6498	6508	6509	6510	6514	6515	6547	6548	6549	6556	6557	6558	6563
6564	6596	6597	6598	6605	6606	6607	6612	6613	6637	6638	6639	6647
6648	6649	6654	6655	6671	6672	6673	6682	6683	6684	6701	6702	6703
6714	6715	6716	6727	6728	6729	6740	6741	6742	6753	6754	6755	6765
6766	6767	6768	6769	6770	6771	6776	6777	6778	6817	6818	6850	6851
6852	6876	6877	6878	6881	6882	6909	6910	6911	6935	6936	6937	6940
6941	6970	6971	6972	6996	6997	6998	7001	7002	7033	7034	7035	7041
7042	7065	7066	7067	7073	7074	7089	7090	7091	7099	7100	7101	7109
7110	7111	7121	7122	7123	7130	7131	7132	7138	7139	7140	7146	7147
7148	7151	7152	7153	7160	7161	7162	7165	7166	7167	7179	7180	7181
7200	7201	7202	7214	7215	7216	7236	7237	7238	7241	7242	7243	7257
7258	7259	7262	7263	7264	7271	7272	7273	7277	7278	7279	7289	7290
7291	7294	7295	7296	7299	7300	7320	7321	7322	7323	7324	7325	7326
7327	7328	7329	7330	7331	7332	7333	7334	7335	7336	7337	7338	7339
7340	7341	7342	7343	7344	7345	7346	7347	7348	7349	7350	7351	7352
7353	7354	7355	7357	7358	7448	7449	7451	7452	7517	7518	7519	7520
1094#	1108#	5320	5321	5379	5380	5469	5470					
1094#	1110#	1305	1306	1323	1324	2794	2795	2808	2809	2820	2821	2832
2833	2844	2845	2856	2857	2874	2875	2889	2890	2902	2903	2920	2921
2941	2942	2959	2960	2972	2973	2985	2986	2999	3000	3024	3025	3036
3037	3379	3380	3478	3479	3496	3497	3509	3510	3526	3527	3542	3543
3593	3594	3613	3614	3691	3692	3766	3767	3841	3842	3916	3917	3991
3992	4066	4067	4113	4114	4157	4158	4270	4271	4543	4544	4553	4554
4563	4564	4570	4571	4575	4576	4638	4639	4708	4709	4770	4771	4839
4840	4911	4912	5010	5011	5120	5121	5182	5183	5245	5246	5307	5308

CROSS REFERENCE TABLE -- USER SYMBOLS

[illegible]

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CROSS REFERENCE TABLE -- USER SYMBOLS

TYLST 002414	1476#	5819											
T\$ARGC= 000004	1127#	1128#	1129#	1130#	1131#	1132#	2325#	2331	2332#	2340	2343#	2348	2350#
	2354	2562#	2566	2573#	2577	2579#	2584	2788#	2793	2801#	2806	2812#	2818
	2824#	2830	2838#	2842	2850#	2854	2864#	2872	2880#	2887	2895#	2900	2906#
	2910	2911#	2918	2924#	2928	2929#	2934	2935#	2939	2949#	2957	2963#	2970
	2976#	2983	2991#	2997	3007#	3013	3014#	3022	3030#	3034	3607#	3612	3673#
	3680	3748#	3755	3823#	3830	3898#	3905	3973#	3980	4048#	4055	4101#	4108
	4146#	4153											
T\$CODE= 013032	7322#	7327#	7331#	7335#	7340#	7345#	7350#						
T\$ERRN= 000055	1094#	1639#	1682#	1729#	1743#	1819#	1831#	1860#	1890#	1923#	1959#	1990#	2034#
	2047#	2063#	2070#	2251#	2296#	2436#	2746#	3602#	3653#	3663#	3687#	3728#	3738#
	3762#	3803#	3813#	3837#	3878#	3888#	3912#	3953#	3963#	3937#	4028#	4038#	4062#
	4094#	4140#	4226#	4237#	4247#	4347#	4385#	4511#	4528#	4550#	4560#	4631#	4682#
	4696#	4756#	4766#	4811#	4907#	5302#	5689#	5993#	6090#	6766#			
T\$EXCP= 000000	7322#	7327#	7331#	7335#	7340#	7345#	7350#	7355					
T\$FLAG= 000040	3375#	3377	4086#	4098#	4132#	4143#	4229#	4242#	4250#	4259#	4268#	4303#	4311#
	4326#	4350#	4366#	4388#	4432#	4468#	4502#	4515#	4531#	4536#	4595#	4609#	4655#
	4665#	4686#	4700#	4730#	4738#	4746#	4759#	4793#	4814#	4822#	4832#	4858#	4885#
	4895#	4941#	4954#	4971#	4983#	4998#	5030#	5044#	5059#	5073#	5083#	5094#	5104#
	5139#	5153#	5166#	5176#	5201#	5215#	5228#	5239#	5263#	5277#	5290#	5332#	5343#
	5354#	5366#	5390#	5402#	5416#	5425#	5438#	5449#	5458#	5478#	5489#	5499#	5529#
	5539#	5547#	5555#	5560#	5571#	5584#	5590#	5595#	5600#	5606#	5612#	5637#	5651#
	5664#	5675#	5701#	5714#	5724#	5737#	5748#	5759#	5773#	5786#	5796#	5824#	5834#
	5842#	5871#	5882#	5892#	5918#	5932#	5942#	5952#	5962#	5972#	5982#	6015#	6029#
	6039#	6049#	6059#	6069#	6079#	6114#	6128#	6142#	6155#	6169#	6182#	6195#	6209#
	6222#	6235#	6248#	6288#	6296#	6315#	6325#	6336#	6358#	6372#	6382#	6393#	6419#
	6430#	6440#	6450#	6461#	6485#	6496#	6508#	6547#	6556#	6596#	6605#	6637#	6647#
	6671#	6682#	6701#	6714#	6727#	6740#	6753#	6769#	6776#	6876#	6935#	6996#	7033#
	7065#	7089#	7099#	7109#	7121#	7130#	7138#	7146#	7151#	7160#	7165#	7179#	7200#
	7214#	7236#	7241#	7257#	7262#	7271#	7277#	7289#	7294#				
T\$GMAN= 000000	1094#												
T\$HILI= 000007	7322#	7326	7327#	7330	7331#	7334	7335#	7339	7340#	7344	7345#	7349	7350#
	7354												
T\$LAST= 000001	1094#	7518#											
T\$LOLI= 000000	7322#	7325	7327#	7329	7331#	7333	7335#	7338	7340#	7343	7345#	7348	7350#
	7353												
T\$LSYM= 010000	1094#	1306	1324	2795	2809	2821	2833	2845	2857	2875	2890	2903	2921
	2942	2960	2973	2986	3000	3025	3037	3380	3479	3497	3510	3527	3543
	3594	3614	3692	3767	3842	3917	3992	4067	4114	4158	4271	4544	4554
	4564	4571	4576	4639	4709	4771	4840	4912	5011	5121	5183	5246	5308
	5378	5468	5510	5512	5623	5803	5853	5899	5998	6095	6261	6299	6342
	6399	6468	6514	6563	6612	6654	6817	6881	6940	7001	7041	7073	7299
	7359	7453											
T\$LTNO= 000054	7521#												
T\$NEST 000000	1094#	1102#	1212#	1216#	1284#	1305#	1318#	1323#	2787#	2794#	2800#	2808#	2811#
	2820#	2823#	2832#	2837#	2844#	2849#	2856#	2863#	2874#	2879#	2889#	2894#	2902#
	2905#	2920#	2923#	2941#	2948#	2959#	2962#	2972#	2975#	2985#	2990#	2999#	3006#
	3024#	3029#	3036#	3372#	3379#	3393#	3478#	3482#	3496#	3506#	3509#	3523#	3526#
	3541#	3542#	3571#	3593#	3598#	3613#	3628#	3691#	3703#	3766#	3778#	3841#	3853#
	3916#	3928#	3991#	4003#	4066#	4079#	4113#	4125#	4157#	4213#	4270#	4292#	4539#
	4543#	4546#	4553#	4556#	4563#	4566#	4570#	4575#	4591#	4638#	4651#	4708#	4721#
	4770#	4788#	4839#	4853#	4911#	4928#	5010#	5024#	5120#	5135#	5182#	5197#	5245#
	5259#	5307#	5319#	5321#	5377#	5380#	5467#	5470#	5509#	5511#	5526#	5622#	5633#
	5802#	5819#	5852#	5867#	5898#	5914#	5997#	6011#	6094#	6110#	6260#	6278#	6298#
	6311#	6341#	6354#	6398#	6415#	6467#	6481#	6513#	6533#	6562#	6580#	6611#	6627#
	6653#	6668#	6816#	6839#	6880#	6898#	6939#	6958#	7000#	7018#	7040#	7055#	7072#

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CROSS REFERENCE TABLE -- USER SYMBOLS

T\$NSO = 000000
T\$NS1 = 000005

7085#	7298#	7320#	7357#	7448#	7451#								
1102#						2787#	2794	2800#	2808	2811#	2820	2823#	
1212#	1216	1284#	1305	1318#	1323	2874	2879#	2889	2894#	2902	2905#	2920	
2832	2837#	2844	2849#	2856	2863#	2975#	2985	2990#	2999	3006#	3024	3029#	
2923#	2941	2948#	2959	2962#	2972	3496	3506#	3509	3523#	3526	3541#	3542	
3036	3372#	3379	3393#	3478	3482#	3703#	3766	3778#	3841	3853#	3916	3928#	
3571#	3593	3598#	3613	3628#	3691	4157	4213#	4270	4292#	4575	4591#	4638	
3991	4003#	4066	4079#	4113	4125#	4839	4853#	4911	4928#	5010	5024#	5120	5135#
4651#	4708	4721#	4770	4788#	4839	5511	5526#	5622	5633#	5802	5819#	5852	
5182	5197#	5245	5259#	5307	5319#	6110#	6260	6278#	6298	6311#	6341	6354#	
5867#	5898	5914#	5997	6011#	6094	6562	6580#	6611	6627#	6653	6668#	6816	
6398	6415#	6467	6481#	6513	6533#	7018#	7040	7055#	7072	7085#	7298	7320#	
6839#	6880	6898#	6939	6958#	7000								
7357	7448#	7451											
4539#	4543	4546#	4553	4556#	4563	4566#	4570	5321#	5377	5380#	5467	5470#	
5509													

T\$NS2 = 000002

T\$PTNU= 000000
T\$SAVL= 177777
T\$SEGL= 177777
T\$SUBN= C00000

1094#													
1094#													
1094#													
1094#													
1094#	3570#	3627#	3702#	3777#	3852#	3927#	4002#	4078#	4124#	4212#	4291#	4590#	
4650#	4720#	4787#	4852#	4927#	5023#	5134#	5196#	5258#	5318#	5320#	5379#	5469#	
5525#	5632#	5818#	5866#	5913#	6010#	6109#	6277#	6310#	6353#	6414#	6480#	6532#	
6579#	6626#	6667#	6838#	6897#	6957#	7017#	7054#	7084#					

T\$TAGL= 177777
T\$TAGN= 010120

1094#													
1094#													
2905#	1212#	1284#	1318#	2787#	2800#	2811#	2823#	2837#	2849#	2863#	2879#	2894#	
3541#	2923#	2948#	2962#	2975#	2990#	3006#	3029#	3372#	3393#	3482#	3506#	3523#	
4539#	3571#	3598#	3628#	3703#	3778#	3853#	3928#	4003#	4079#	4125#	4213#	4292#	
5259#	4546#	4556#	4566#	4591#	4651#	4721#	4788#	4853#	4928#	5024#	5135#	5197#	
6311#	5319#	5321#	5380#	5470#	5526#	5633#	5819#	5867#	5914#	6011#	6110#	6278#	
7085#	6354#	6415#	6481#	6533#	6580#	6627#	6668#	6839#	6898#	6958#	7018#	7055#	

T\$TEMP= 000005

1216#	1226#	1227#	1228#	1229#	1230#	1231#	1232#	1233#	1234#	1235#	1236#	1237#	
1216#	1226#	1227#	1228#	1229#	1230#	1231#	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#	1305#	1323#	2794#	2808#	2820#	2832#	
2844#	2856#	2874#	2889#	2902#	2920#	2941#	2959#	2972#	2985#	2999#	3024#	3036#	
3375#	3376	3379#	3478#	3496#	3509#	3526#	3542#	3593#	3613#	3691#	3766#	3841#	
3916#	3991#	4066#	4086#	4087	4098#	4099	4113#	4132#	4133	4143#	4144	4157#	
4229#	4230	4242#	4243	4250#	4251	4259#	4260	4268#	4269	4270#	4303#	4304	
4311#	4312	4326#	4327	4350#	4351	4366#	4367	4388#	4389	4432#	4433	4468#	
4469	4502#	4503	4515#	4516	4531#	4532	4536#	4537	4543#	4553#	4563#	4570#	
4575#	4595#	4596	4609#	4610	4638#	4655#	4656	4665#	4666	4686#	4687	4700#	
4701	4708#	4730#	4731	4738#	4739	4746#	4747	4759#	4760	4770#	4793#	4794	
4814#	4815	4822#	4823	4832#	4833	4839#	4858#	4859	4885#	4886	4895#	4896	
4911#	4941#	4942	4954#	4955	4971#	4972	4983#	4984	4998#	4999	5010#	5030#	
5031	5044#	5045	5059#	5060	5073#	5074	5083#	5084	5094#	5095	5104#	5105	
5120#	5139#	5140	5153#	5154	5166#	5167	5176#	5177	5182#	5201#	5202	5215#	
5216	5228#	5229	5239#	5240	5245#	5263#	5264	5277#	5278	5290#	5291	5307#	
5332#	5333	5343#	5344	5354#	5355	5366#	5367	5377#	5390#	5391	5402#	5403	
5416#	5417	5425#	5426	5438#	5439	5449#	5450	5458#	5459	5467#	5478#	5479	
5489#	5490	5499#	5500	5509#	5511#	5529#	5530	5539#	5540	5547#	5548	5555#	
5556	5560#	5561	5571#	5572	5584#	5585	5590#	5591	5595#	5596	5600#	5601	
5606#	5607	5612#	5613	5622#	5637#	5638	5651#	5652	5664#	5665	5675#	5676	
5701#	5702	5714#	5715	5724#	5725	5737#	5738	5748#	5749	5759#	5760	5773#	
5774	5786#	5787	5796#	5797	5802#	5824#	5825	5834#	5835	5842#	5843	5852#	
5871#	5872	5882#	5883	5892#	5893	5898#	5918#	5919	5932#	5933	5942#	5943	

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CROSS REFERENCE TABLE -- USER SYMBOLS

T\$TEST= 000054

T\$TSTM= 177777

5952#	5953	5962#	5963	5972#	5973	5982#	5983	5997#	6015#	6016	6029#	6030
6039#	6040	6049#	6050	6059#	6060	6069#	6070	6079#	6080	6094#	6114#	6115
6128#	6129	6142#	6143	6155#	6156	6169#	6170	6182#	6183	6195#	6196	6209#
6210	6222#	6223	6235#	6236	6248#	6249	6260#	6288#	6289	6296#	6297	6298#
6315#	6316	6325#	6326	6336#	6337	6341#	6358#	6359	6372#	6373	6382#	6383
6393#	6394	6398#	6419#	6420	6430#	6431	6440#	6441	6450#	6451	6461#	6462
6467#	6485#	6486	6496#	6497	6508#	6509	6513#	6547#	6548	6556#	6557	6562#
6596#	6597	6605#	6606	6611#	6637#	6638	6647#	6648	6653#	6671#	6672	6682#
6683	6701#	6702	6714#	6715	6727#	6728	6740#	6741	6753#	6754	6769#	6770
6776#	6777	6816#	6876#	6877	6880#	6935#	6936	6939#	6996#	6997	7000#	7033#
7034	7040#	7065#	7066	7072#	7089#	7090	7099#	7100	7109#	7110	7121#	7122
7130#	7131	7138#	7139	7146#	7147	7151#	7152	7160#	7161	7165#	7166	7179#
7180	7200#	7201	7214#	7215	7236#	7237	7241#	7242	7257#	7258	7262#	7263
7271#	7272	7277#	7278	7289#	7290	7294#	7295	7298#	7322#	7327#	7331#	7335#
7340#	7345#	7350#	7357#	7451#								
1094#	3556	3569	3570#	3618	3625	3627#	3693	3700	3702#	3768	3775	3777#
3843	3850	3852#	3918	3925	3927#	3993	4000	4002#	4068	4077	4078#	4115
4123	4124#	4160	4211	4212#	4274	4288	4291#	4579	4589	4590#	4641	4649
4650#	4710	4719	4720#	4774	4786	4787#	4842	4851	4852#	4914	4925	4927#
5013	5022	5023#	5124	5133	5134#	5186	5195	5196#	5249	5257	5258#	5309
5317	5318#	5320	5379	5469	5515	5524	5525#	5625	5631	5632#	5807	5817
5818#	5856	5865	5866#	5902	5912	5913#	6000	6009	6010#	6097	6108	6109#
6265	6275	6277#	6301	6309	6310#	6344	6352	6353#	6404	6413	6414#	6470
6479	6480#	6519	6531	6532#	6567	6578	6579#	6614	6625	6626#	6656	6666
6667#	6823	6837	6838#	6882	6896	6897#	6942	6956	6957#	7003	7016	7017#
7043	7053	7054#	7074	7083	7084#	7521						
1094#	1638	1681	1728	1742	1818	1830	1859	1889	1922	1958	1989	2033
2046	2062	2069	2250	2295	2303	2330	2339	2347	2353	2435	2565	2576
2583	2745	2792	2795	2805	2809	2817	2821	2829	2833	2841	2845	2853
2857	2871	2875	2886	2890	2899	2903	2909	2917	2921	2927	2933	2938
2942	2956	2960	2969	2973	2982	2986	2996	3000	3012	3021	3025	3033
3037	3380	3410	3414	3418	3422	3441	3479	3492	3495	3497	3507	3510
3525	3527	3543	3575	3588	3591	3594	3601	3611	3652	3662	3679	3686
3692	3727	3737	3754	3761	3767	3802	3812	3829	3836	3842	3877	3887
3904	3911	3917	3952	3962	3979	3986	3992	4027	4037	4054	4061	4067
4086	4093	4098	4107	4114	4132	4139	4143	4152	4158	4225	4229	4236
4242	4246	4250	4259	4268	4271	4303	4311	4326	4346	4350	4366	4384
4388	4411	4419	4426	4432	4450	4456	4461	4468	4482	4484	4502	4510
4515	4527	4531	4536	4541	4548	4549	4558	4559	4568	4576	4595	4609
4630	4639	4655	4665	4681	4686	4695	4700	4709	4730	4738	4746	4755
4759	4765	4771	4793	4810	4814	4822	4832	4840	4858	4885	4895	4906
4912	4941	4954	4971	4983	4998	5011	5030	5044	5059	5073	5083	5094
5104	5121	5139	5153	5166	5176	5183	5201	5215	5228	5239	5246	5263
5277	5290	5301	5308	5321	5332	5343	5354	5366	5378	5380	5390	5402
5416	5425	5438	5449	5458	5468	5470	5478	5489	5499	5510	5512	5529
5539	5547	5555	5560	5571	5584	5590	5595	5600	5606	5612	5623	5637
5651	5664	5675	5688	5701	5714	5724	5737	5748	5759	5773	5786	5796
5803	5824	5834	5842	5853	5871	5882	5892	5899	5918	5932	5942	5952
5962	5972	5982	5992	5998	6015	6029	6039	6049	6059	6069	6079	6089
6095	6114	6128	6142	6155	6169	6182	6195	6209	6222	6235	6248	6261
6288	6296	6299	6315	6325	6336	6342	6358	6372	6382	6393	6399	6419
6430	6440	6450	6461	6468	6485	6496	6508	6514	6547	6556	6563	6596
6605	6612	6637	6647	6654	6671	6682	6701	6714	6727	6740	6753	6765
6769	6776	6817	6851	6876	6881	6910	6935	6940	6971	6996	7001	7033
7041	7065	7073	7089	7099	7109	7121	7130	7138	7146	7151	7160	7165
7179	7200	7214	7236	7241	7257	7262	7271	7277	7289	7294	7299	

CROSS REFERENCE TABLE -- USER SYMBOLS

1094#	3571#	3628#	3703#	3778#	3853#	3928#	4003#	4079#	4125#	4213#	4292#	4591#
4651#	4721#	4788#	4853#	4928#	5024#	5135#	5197#	5259#	5319#	5526#	5633#	5819#
5867#	5914#	6011#	6110#	6278#	6311#	6354#	6415#	6481#	6533#	6580#	6627#	6668#
6839#	6898#	6958#	7018#	7055#	7085#							
3541#	3542											
3482#	3496											
3506#	3509											
3523#	3526											
7320#	7358											
1284#	1305											
3393#	3478											
2787#	2794	2800#	2808	2811#	2820	2823#	2832	2837#	2844	2849#	2856	2863#
2874	2879#	2889	2894#	2902	2905#	2920	2923#	2941	2948#	2959	2962#	2972
2975#	2985	2990#	2999	3006#	3024	3029#	3036					
1212#												
3372#	3375	3379										
7448#	7452											
3598#	3613	4539#	4543	4546#	4553	4556#	4563	4566#	4570			
5321#	5332	5343	5354	5366	5377	5380#	5390	5402	5416	5438	5449	5458
5467	5470#	5478	5489	5499	5509							
1318#	1323											
3571#	3593	3628#	3691	3703#	3766	3778#	3841	3853#	3916	3928#	3991	4003#
4066	4079#	4086	4098	4113	4125#	4132	4143	4157	4213#	4229	4242	4250
4259	4268	4270	4292#	4303	4311	4326	4350	4366	4388	4432	4468	4502
4515	4531	4536	4575	4591#	4595	4609	4638	4651#	4655	4665	4686	4700
4708	4721#	4730	4738	4746	4759	4770	4788#	4793	4814	4822	4832	4839
4853#	4858	4885	4895	4911	4928#	4941	4954	4971	4983	4998	5010	5024#
5030	5044	5059	5073	5083	5094	5104	5120	5135#	5139	5153	5166	5176
5182	5197#	5201	5215	5228	5239	5245	5259#	5263	5277	5290	5307	5319#
5425	5511	5526#	5529	5539	5547	5555	5560	5571	5584	5590	5595	5600
5606	5612	5622	5633#	5637	5651	5664	5675	5701	5714	5724	5737	5748
5759	5773	5786	5796	5802	5819#	5824	5834	5842	5852	5867#	5871	5882
5892	5898	5914#	5918	5932	5942	5952	5962	5972	5982	5997	6011#	6015
6029	6039	6049	6059	6069	6079	6094	6110#	6114	6128	6142	6155	6169
6182	6195	6209	6222	6235	6248	6260	6278#	6288	6296	6298	6311#	6315
6325	6336	6341	6354#	6358	6372	6382	6393	6398	6415#	6419	6430	6440
6450	6461	6467	6481#	6485	6496	6508	6513	6533#	6547	6556	6562	6580#
6596	6605	6611	6627#	6637	6647	6653	6668#	6671	6682	6701	6714	6727
6740	6753	6769	6776	6816	6839#	6876	6880	6898#	6935</			

T1	014504	G
T10	017620	G
T11	020004	G
T12	021136	G
T13	021250	G
T14	021460	G
T14A	021666	
T14EX	021722	
T15	021724	G
T16	022134	G
T17	022366	G
T18	022620	G
T19	023104	G
T2	014664	G

CROSS REFERENCE TABLE -- USER SYMBOLS

T20	023212 G	1245	5196#											
T21	023320 G	1246	5258#											
T22	023434 G	1247	5318#											
T22.1	023434	5320#												
T22.2	023576	5379#												
T22.3	024054	5469#												
T23	024162 G	1248	5525#											
T24	024610 G	1249	5632#											
T25	025236 G	1250	5818#											
T26	025352 G	1251	5866#											
T27	025436 G	1252	5913#											
T28	025664 G	1253	6010#											
T29	026112 G	1254	6109#											
T3	015216 G	1228	3702#											
T30	026440 G	1255	6277#											
T31	026534 G	1256	6310#											
T32	026654 G	1257	6353#											
T33	027022 G	1258	6414#											
T34	027210 G	1259	6480#											
T35	027326 G	1260	6532#											
T36	027450 G	1261	6579#											
T36END	027610	6581	6610#											
T37	027612 G	1262	6626#											
T38	027706 G	1263	6667#											
T39	030334 G	1264	6838#											
T4	015550 G	1229	3777#											
T40	030576 G	1265	6897#											
T41	031040 G	1266	6957#											
T42	031302 G	1267	7017#											
T422C	006162	2539	2550#											
T43	031420 G	1268	7054#											
T44	031516 G	1269	7084#											
T5	016102 G	1230	3852#											
T6	016434 G	1231	3927#											
T7	016766 G	1232	4002#											
T8	017320 G	1233	4078#											
T9	017460 G	1234	4124#											
T9BG	020020	4297#	4399											
UAM =	000200 G	1399#												
VECTOR	032756	7332	7374#											
V35TC	006132	2524	2538#											
WAIT50	004244	1632	1675	2089#	2192	2231	2500	3486	4217	4621	4622	4623	4624	4675
		4676	4798	4800	4855	4875	4876	4903	5296	5297	5615	5616	5988	6085
		6679												
WFPE	003016	1713#	4829	4882	4980	5007	5173	5236	5422	5721	5793	5839	5889	5949
		5969	6046	6066	6333	6390	6458							

CROSS REFERENCE TABLE -- USER SYMBOLS

1629	1631	1644#	1809									
1627#	1634	1714										
1517#												
4930	4932#											
2508	2523#											
1094#												
1094#												
1094#												
1094#												
1453#	1718*	1719*	1720	1734*	1735	1812*	1813*	1814	1826*	1827	1853*	1854*
1855	1882*	1883	1912*	1915*	1916*	1917	1946*	1947	1951*	1953	1983*	1984*
1985	2022*	2023*	2024	2026	2029*	2030	2058*	2060	2740*	2742	2812	2824
2866	2880	2911	2951	3014	4340*	4341	4378*	4379*	4495	4523	4689*	4690*
4692	4748*	4749*	4750	4752	4761*	4762	4807*	4808	5682*	5684	6759*	6760*
6762												
1452#	1723*	1737*	1814	1825*	1827	1855	1883	1917	1947	1952*	1953	1985
2028*	2030	2057*	2060	2244*	2247*	2248	2619*	2623*	2708*	2712*	2716*	2722*
2726*	2730*	2741*	2742	2763*	2767*	2771*	2813	2825	2867	2881	2912	2952
3015	4337*	4341	4375*	4493*	4523	4691*	4692	4704*	4806*	4808	5078*	5089*
5090*	5100*	5349*	5361*	5362*	5444*	5454*	5495*	5505*	5549*	5557*	5586*	5592*
5597*	5603*	5608*	5670*	5683*	5684	5743*	5754*	6161*	6175*	6188*	6228*	6241*
6254*	6733*	6746*	6758*	6761*	6762	7143*	7148*	7162*	7181*	7186*	7216*	7238*
7247*	7254*	7259*	7268*	7273*	7291*	7296*						
1104#												
1105#												
1542#	2895	2913	2929	6842*	6901*	6961*						
1093#	1572#	1581#	2377#	3376	4087	4099	4133	4144	4230	4243	4251	4260
4269	4304	4312	4327	4351	4367	4389	4433	4469	4503	4516	4532	4537
4596	4610	4656	4666	4687	4701	4731	4739	4747	4760	4794	4815	4823
4833	4859	4886	4896	4942	4955	4972	4984	4999	5031	5045	5060	5074
5084	5095	5105	5140	5154	5167	5177	5202	5216	5229	5240	5264	5278
5291	5333	5344	5355	5367	5391	5403	5417	5426	5439	5450	5459	5479
5490	5500	5530	5540	5548	5556	5561	5572	5585	5591	5596	5601	5607
5613	5638	5652	5665	5676	5702	5715	5725	5738	5749	5760	5774	5787
5797	5825	5835	5843	5872	5883	5893	5919	5933	5943	5953	5963	5973
5983	6016	6030	6040	6050	6060	6070	6080	6115	6129	6143	6156	6170
6183	6196	6210	6223	6236	6249	6289	6297	6316	6326	6337	6359	6373
6383	6394	6420	6431	6441	6451	6462	6486	6497	6509	6548	6557	6597
6606	6638	6648	6672	6683	6702	6715	6728	6741	6754	6770	6777	6877
6936	6997	7034	7066	7090	7100	7110	7122	7131	7139	7147		

CROSS REFERENCE TABLE -- MACRO NAMES

BADHEA	1095#	3556	3569	3618	3625	3693	3700	3768	3775	3843	3850	3918	3925	3993	4000
	4068	4077	4115	4123	4160	4211	4274	4288	4579	4589	4641	4649	4710	4719	4774
	4786	4842	4851	4914	4925	5013	5022	5124	5133	5186	5195	5249	5257	5309	5317
	5515	5524	5625	5631	5807	5817	5856	5865	5902	5912	6000	6009	6097	6108	6265
	6275	6301	6309	6344	6352	6404	6413	6470	6479	6519	6531	6567	6578	6614	6625
	6656	6666	6823	6837	6882	6896	6942	6956	7003	7016	7043	7053	7074	7083	
BCOMPL	1#	1094#	3411	3415	3419	3423	3443								
BERROR	1#	1094#													
BGNAU	1#	1094#	3541												
BGNAUT	1#	1094#	3482												
BGNCLN	1#	1094#	3506												
BGNDU	1#	1094#	3523												
BGNHRD	1#	1094#	7320												
BGNHW	1#	1094#	1284												
BGNINI	1#	1094#	3393												
BGNMOD	1#	1094#	1102												
BGNMSG	1#	1094#	2787	2800	2811	2823	2837	2849	2863	2879	2894	2905	2923	2948	2962
	2975	2990	3006	3029											
BGNPRO	1#	1094#	1212												
BGNPTA	1#	1094#													
BGNRPT	1#	1094#	3372												
BGNSEG	1#	1094#													
BGNSET	1#	1094#													
BGNSFT	1#	1094#	7448												
BGNSRV	1#	1094#	3598	4539	4546	4556	4566								
BGNSUB	1#	1094#	5320	5379	5469										
BGNSW	1#	1094#	1318												
BGNTST	1#	1094#	3570	3627	3702	3777	3852	3927	4002	4078	4124	4212	4291	4590	4650
	4720	4787	4852	4927	5023	5134	5196	5258	5318	5525	5632	5818	5866	5913	6010
	6109	6277	6310	6353	6414	6480	6532	6579	6626	6667	6838	6897	6957	7017	7054
	7084														
BNCOMP	1#	1094#													
BNERRO	1#	1094#													
BREAK	1#	1094#	2302												
BRESET	1#	1094#	3494	3507	3525										
CKLOOP	1#	1094#													
CLOCK	1#	1094#													
CLOSE	1#	1094#													
CLRVEC	1#	1094#	3589	4481	4483										
COMMEN	1#	1094#													
CROMT	3617#	3618	3693	3768	3843	3918	3993								

CROSS REFERENCE TABLE -- MACRO NAMES

ENDAUT	1#	1094#	3496												
ENDCLN	1#	1094#	3509												
ENDCOM	1#	1094#													
ENDDU	1#	1094#	3526												
ENDHRD	1#	1094#	7357												
ENDHW	1#	1094#	1305												
ENDINI	1#	1094#	3478												
ENDMOD	1#	1094#													
ENDMSG	1#	1094#	2794	2808	2820	2832	2844	2856	2874	2889	2902	2920	2941	2959	2972
	2985	2999	3024	3036											
ENDPRO	1#	1094#	1216												
ENDPTA	1#	1094#													
ENDRPT	1#	1094#	3379												
ENDSEG	1#	1094#													
ENDSET	1#	1094#													
ENDSFT	1#	1094#	7451												
ENDSRV	1#	1094#	3613	4543	4553	4563	4570								
ENDSUB	1#	1094#	5377	5467	5509										
ENDSW	1#	1094#	1323												
ENDTST	1#	1094#	3593	3691	3766	3841	3916	3991	4066	4112	4156	4270	4575	4638	4708
	4769	4839	4910	5010	5120	5182	5245	5307	5511	5622	5802	5852	5898	5996	6093
	6260	6298	6341	6398	6467	6513	6562	6611	6653	6816	6880	6939	7000	7040	7072
	7298														
EQUALS	1#	1094#	1340												
ERRDF	1#	1094#	1638	1681	1728	1742	1818	1830	1859	1889	1922	1957	1989	2033	2046
	2062	2069	2295	2435	2745	3601	3652	3662	3686	3727	3737	3761	3802	3812	3836
	3877	3887	3911	3952	3962	3986	4027	4037	4061	4093	4139	4225	4236	4246	4346
	4384	4510	4527	4549	4559	4630	4681	4695	4755	4765	4810	4906	5301	5688	5992
	6089	6765													
ERRHRD	1#	1094#													
ERROR	1#	1094#													
ERRSF	1#	1094#													
ERRSOF	1#	1094#	2250												
ERRTBL	1#	1094#													
ESCAPE	1#	1094#	4086	4098	4132	4143	4229	4242	4250	4259	4267	4303	4311	4326	4350
	4366	4388	4432	4468	4502	4515	4531	4595	4609	4655	4665	4686	4700	4730	4738
	4746	4759	4793	4822	4832	4858	4885	4895	4941	4954	4971	4983	4998	5030	5044
	5059	5073	5083	5094	5104	5139	5153	5166	5176	5201	5215	5228	5239	5263	5277
	5290	5332	5343	5354	5366	5390	5402	5416	5425	5438	5449	5458	5478	5489	5499
	5529	5539	5547	5555	5560	5571	5584	5590	5595	5600	5606	5612	5637	5651	5664
	5675	5701	5714	5724	5737	5748	5759	5773	5786	5796	5824	5834	5842	5871	5882
	5892	5918	5932	5942	5952	5962	5972	5982	6015	6029	6039	6049	6059	6069	6079
	6114	6128	6142	6155	6169	6182	6195	6209	6222	6235	6248	6288	6296	6315	6325
	6336	6358	6372	6382	6393	6419	6430	6440	6450	6461	6485	6496	6508	6547	6556
	6596	6605	6637	6647	6682	6701	6714	6727	6740	6753	6769	6876	6935	6996	7033
	7065	7089	7099	7109	7121	7130	7138	7146	7151	7160	7165	7179	7200	7214	7236
	7241	7257	7262	7271	7277	7289	7294								
EXIT	1#	1094#	3375	4536	4814	6671	6775								
FEQUAL	1#	1094#													
GETBYT	1#	1094#													
GETPRI	1#	1094#													
GETWOR	1#	1094#													
GMANIA	1#	1094#													
GMANID	1#	1094#													
GMANIL	1#	1094#													
GPHARD	1#	1094#	3440												

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CROSS REFERENCE TABLE -- MACRO NAMES

GPRMA	1#	1094#	7327	7331												
GPRMD	1#	1094#	7322	7335	7340	7345	7350									
GPRML	1#	1094#														
HEADER	1#	1094#	1126													
INLOOP	1#	1094#														
IOSETU	1#	1094#														
IOSTAR	1#	1094#														
KT11	1#	1094#														
LASTAD	1#	1094#	7517													
MANUAL	1#	1094#														
MEMORY	1#	1094#														
MSBYTE	1#	1094#	1126#	1132	1133	1134										
MSCHEC	1#	1094#	3375#	4536#	4814#	6671#	6776#									
MSCNTO	1#	1094#	7322#	7327#	7331#	7335#	7340#	7345#	7350#							
MSCOUN	1#	1094#	2325#	2332#	2343#	2350#	2562#	2573#	2579#	2788#	2801#	2812#	2824#	2838#	2850#	
	2864#	2880#	2895#	2906#	2911#	2924#	2929#	2935#	2949#	2963#	2976#	2991#	3007#	3014#	3030#	
	3607#	3673#	3748#	3823#	3898#	3973#	4048#	4101#	4146#							
MSDATA	1#	1094#	1126#	1135	1137	1139	1141	1143	1145	1147	1149	1151	1153	1155	1157	
	1159	1161	1163	1165#	1167	1169	1172	1175	1177	1179	1181	1183	1185	1187	1189	
	1191	1193	1195	1197	1199	1201	1203	1205	1207	1209	1568#	1574#				
MSDECR	1#	1094#	1216#	1305#	1323#	2794#	2808#	2820#	2832#	2844#	2856#	2874#	2889#	2902#	2920#	
	2941#	2959#	2972#	2985#	2999#	3024#	3036#	3379#	3478#	3496#	3509#	3526#	3542#	3593#	3613#	
	3691#	3766#	3841#	3916#	3991#	4066#	4113#	4157#	4270#	4543#	4553#	4563#	4570#	4575#	4638#	
	4708#	4770#	4839#	4911#	5010#	5120#	5182#	5245#	5307#	5377#	5467#	5509#	5511#	5622#	5802#	
	5852#	5898#	5997#	6094#	6260#	6298#	6341#	6398#	6467#	6513#	6562#	6611#	6653#	6816#	6880#	
	6939#	7000#	7040#	7072#	7298#	7357#	7451#									
MSDEFA	1#	1094#	7322#	7327#	7331#	7335#	7340#	7345#	7350#							
MSENDE	1#	1094#	1305#	1323#	2794#	2808#	2820#	2832#	2844#	2856#	2874#	2889#	2902#	2920#	2941#	
	2959#	2972#	2985#	2999#	3024#	3036#	3379#	3478#	3496#	3509#	3526#	3542#	3593#	3613#	3691#	
	3766#	3841#	3916#	3991#	4066#	4113#	4157#	4270#	4543#	4553#	4563#	4570#	4575#	4638#	4708#	
	4770#	4839#	4911#	5010#	5120#	5182#	5245#	5307#	5377#	5467#	5509#	5511#	5622#	5802#	5852#	
	5898#	5997#	6094#	6260#	6298#	6341#	6398#	6467#	6513#	6562#	6611#	6653#	6816#	6880#	6939#	
	7000#	7040#	7072#	7298#	7357#	7451#										
MSERRI	1#	1094#	1638#	1681#	1728#	1742#	1818#	1830#	1859#	1889#	1922#	1958#	1989#	2033#	2046#	
	2062#	2069#	2250#	2295#	2435#	2745#	3601#	3652#	3662#	3686#	3727#	3737#	3761#	3802#	3812#	
	3836#	3877#	3887#	3911#	3952#	3962#	3986#	4027#	4037#	4061#	4093#	4139#	4225#	4236#	4246#	
	4346#	4384#	4510#	4527#	4549#	4559#	4630#	4681#	4695#	4755#	4765#	4810#	4906#	5301#	5688#	
	5992#	6089#	6765#													
MSESCA	1#	1094#	4086#	4087	4098#	4099	4132#	4133	4143#	4144	4229#	4230	4242#	4243	4250#	
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	4388#	4389	4432#	4433	4468#	4469	4502#	4503	4515#	4516	4531#	4532	4595#	4596	4609#	
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CROSS REFERENCE TABLE -- MACRO NAMES

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CROSS REFERENCE TABLE -- MACRO NAMES

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CROSS REFERENCE TABLE -- MACRO NAMES

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CROSS REFERENCE TABLE -- MACRO NAMES

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CROSS REFERENCE TABLE -- MACRO NAMES

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	5467#	5468	5469#	5470	5478#	5489#	5499#	5509#	5510	5511#	5512	5529#	5539#	5547#	5555#
	5560#	5571#	5584#	5590#	5595#	5600#	5606#	5612#	5622#	5623	5637#	5651#	5664#	5675#	5688
	5701#	5714#	5724#	5737#	5748#	5759#	5773#	5786#	5796#	5802#	5803	5824#	5834#	5842#	5852#
	5853	5871#	5882#	5892#	5898#	5899	5918#	5932#	5942#	5952#	5962#	5972#	5982#	5992	5997#
	5998	6015#	6029#	6039#	6049#	6059#	6069#	6079#	6089	6094#	6095	6114#	6128#	6142#	6155#
	6169#	6182#	6195#	6209#	6222#	6235#	6248#	6260#	6261	6288#	6296#	6298#	6299	6315#	6325#
	6336#	6341#	6342	6358#	6372#	6382#	6393#	6398#	6399	6419#	6430#	6440#	6450#	6461#	6467#
	6468	6485#	6496#	6508#	6513#	6514	6547#	6556#	6562#	6563	6596#	6605#	6611#	6612	6637#
	6647#	6653#	6654	6671#	6682#	6701#	6714#	6727#	6740#	6753#	6765	6769#	6776#	6816#	6817
	6850#	6851	6876#	6880#	6881	6909#	6910	6935#	6939#	6940	6970#	6971	6996#	7000#	7001
	7033#	7040#	7041	7065#	7072#	7073	7089#	7099#	7109#	7121#	7130#	7138#	7146#	7151#	7160#
	7165#	7179#	7200#	7214#	7236#	7241#	7257#	7262#	7271#	7277#	7289#	7294#	7298#	7299	
M\$TAB	1#	1094#	1638#	1681#	1728#	1742#	1818#	1830#	1859#	1889#	1922#	1958#	1989#	2033#	2046#

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CROSS REFERENCE TABLE -- MACRO NAMES

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2899#	2903#	2909#	2917#	2921#	2927#	2933#	2938#	2942#	2956#	2960#	2969#	2973#	2982#	2986#
2996#	3000#	3012#	3021#	3025#	3033#	3037#	3380#	3410#	3414#	3418#	3422#	3441#	3479#	3492#
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3679#	3686#	3692#	3727#	3737#	3754#	3761#	3767#	3802#	3812#	3829#	3836#	3842#	3877#	3887#
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4098#	4107#	4114#	4132#	4139#	4143#	4152#	4158#	4225#	4229#	4236#	4242#	4246#	4250#	4259#
4268#	4271#	4303#	4311#	4326#	4346#	4350#	4366#	4384#	4388#	4411#	4419#	4426#	4432#	4450#
4456#	4461#	4468#	4482#	4484#	4502#	4510#	4515#	4527#	4531#	4536#	4541#	4548#	4549#	4558#
4559#	4568#	4576#	4595#	4609#	4630#	4639#	4655#	4665#	4681#	4686#	4695#	4700#	4709#	4730#
4738#	4746#	4755#	4759#	4765#	4771#	4793#	4810#	4814#	4822#	4832#	4840#	4858#	4885#	4895#
4906#	4912#	4941#	4954#	4971#	4983#	4998#	5011#	5030#	5044#	5059#	5073#	5083#	5094#	5104#
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6299#	6315#	6325#	6336#	6342#	6358#	6372#	6382#	6393#	6399#	6419#	6430#	6440#	6450#	6461#
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6682#	6701#	6714#	6727#	6740#	6753#	6765#	6769#	6776#	6817#	6851#	6876#	6881#	6910#	6935#
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2062#	2069#	2250#	2295#	2303#	2330#	2339#	2347#	2353#	2435#	2565#	2576#	2583#	2745#	2792#
2795#	2805#	2809#	2817#	2821#	2829#	2833#	2841#	2845#	2853#	2857#	2871#	2875#	2886#	2890#
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4268#	4271#	4303#	4311#	4326#	4346#	4350#	4366#	4384#	4388#	4411#	4419#	4426#	4432#	4450#
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4559#	4568#	4576#	4595#	4609#	4630#	4639#	4655#	4665#	4681#	4686#	4695#	4700#	4709#	4730#
4738#	4746#	4755#	4759#	4765#	4771#	4793#	4810#	4814#	4822#	4832#	4840#	4858#	4885#	4895#
4906#	4912#	4941#	4954#	4971#	4983#	4998#	5011#	5030#	5044#	5059#	5073#	5083#	5094#	5104#
5121#	5139#	5153#	5166#	5176#	5183#	5201#	5215#	5228#	5239#	5246#	5263#	5277#	5290#	5301#
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6682#	6701#	6714#	6727#	6740#	6753#	6765#	6769#	6776#	6817#	6851#	6876#	6881#	6910#	6935#
6940#	6971#	6996#	7001#	7033#	7041#	7065#	7073#	7089#	7099#	7109#	7121#	7130#	7138#	7146#
7151#	7160#	7165#	7179#	7200#	7214#	7236#	7241#	7257#	7262#	7271#	7277#	7289#	7294#	7299#
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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	1638#	1639	1640	1641	1681#	1682	1683	1684	1728#	1729	1730
1731	1742#	1743	1744	1745	1818#	1819	1820	1821	1830#	1831	1832	1833	1859#	1860

MS STL

MS STL

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CROSS REFERENCE TABLE -- MACRO NAMES

	1861	1862	1889#	1890	1891	1892	1922#	1923	1924	1925	1958#	1959	1960	1961	1989#
	1990	1991	1992	2033#	2034	2035	2036	2046#	2047	2048	2049	2062#	2063	2064	2065
	2069#	2070	2071	2072	2250#	2251	2252	2253	2295#	2296	2297	2298	2435#	2436	2437
	2438	2745#	2746	2747	2748	3375#	3601#	3602	3603	3604	3652#	3653	3654	3655	3662#
	3663	3664	3665	3686#	3687	3688	3689	3727#	3728	3729	3730	3737#	3738	3739	3740
	3761#	3762	3763	3764	3802#	3803	3804	3805	3812#	3813	3814	3815	3836#	3837	3838
	3839	3877#	3878	3879	3880	3887#	3888	3889	3890	3911#	3912	3913	3914	3952#	3953
	3954	3955	3962#	3963	3964	3965	3986#	3987	3988	3989	4027#	4028	4029	4030	4037#
	4038	4039	4040	4061#	4062	4063	4064	4093#	4094	4095	4096	4139#	4140	4141	4142
	4225#	4226	4227	4228	4236#	4237	4238	4239	4246#	4247	4248	4249	4346#	4347	4348
	4349	4384#	4385	4386	4387	4510#	4511	4512	4513	4527#	4528	4529	4530	4536#	4549#
	4550	4551	4552	4559#	4560	4561	4562	4630#	4631	4632	4633	4681#	4682	4683	4684
	4695#	4696	4697	4698	4755#	4756	4757	4758	4765#	4766	4767	4768	4810#	4811	4812
	4813	4814#	4906#	4907	4908	4909	5301#	5302	5303	5304	5688#	5689	5690	5691	5992#
	5993	5994	5995	6089#	6090	6091	6092	6671#	6765#	6766	6767	6768	6776#	7322#	7327#
	7331#	7335#	7340#	7345#	7350#	7518	7519								
MSXFER	1#	1094#													
NEWTST	1095#	3556	3618	3693	3768	3843	3918	3993	4068	4115	4160	4274	4579	4641	4710
	4774	4842	4914	5013	5124	5186	5249	5309	5515	5625	5807	5856	5902	6000	6097
	6265	6301	6344	6404	6470	6519	6567	6614	6656	6823	6882	6942	7003	7043	7074
OPEN	1#	1094#													
POINTE	1#	1094#	1124												
PRINTB	1#	1094#	2788	2801	2812	2824	2838	2850	2864	2880	2895	2906	2911	2924	2929
	2935	2949	2963	2976	2991	3007	3014	3030							
PRINTF	1#	1094#	2562	2573	2578	3673	3748	3823	3898	3973	4048	4101	4146		
PRINTS	1#	1094#													
PRINTX	1#	1094#	2324	2332	2343	2349	3606								
READBU	1#	1094#													
READEF	1#	1094#	3409	3413	3417	3421									
RFLAGS	1#	1094#													
SETPRI	1#	1094#	4425	4460	4540	4547	4557	4567	6850	6909	6970				
SETVEC	1#	1094#	3571	4407	4415	4446	4452								
SLASH	1#	1094#													
STARS	1#	1094#													
SVC	1#	1094#													
TOR	1599#	4256	4324	4364	4430	4466	4500	4727							
WFE	1691#	4829	4882	4980	5173	5236	5422	5721	5793	5839	5889	5949	5969	6046	6066
	6333	6390	6458	6505											
WFR	1689#	4308	4606	4662	4735	4819	4892	5568	5831	6322	6379	6447	6493	7197	
WFRO	1690#														
XFER	1#	1094#	3375#	4536#	4814#	6671#	6776#								
XFERF	1#	1094#													
XFERT	1#	1094#													
ZZ	3556#	3558	3618#	3620	3693#	3695	3768#	3770	3843#	3845	3918#	3920	3993#	3995	4068#
	4070	4115#	4117	4160#	4162	4274#	4276	4579#	4581	4641#	4643	4710#	4712	4774#	4776
	4842#	4844	4914#	4916	5013#	5015	5124#	5126	5186#	5188	5248#	5251	5309#	5311	5515#
	5517	5625#	5627	5807#	5809	5856#	5858	5902#	5904	6000#	6002	6097#	6099	6264#	6267
	6301#	6303	6344#	6346	6404#	6406	6470#	6472	6518#	6521	6566#	6569	6614#	6616	6656#
	6658	6823#	6825	6882#	6884	6942#	6944	7003#	7005	7043#	7045	7074#	7076		

. ABS. 037660 000

ERRORS DETECTED: 0

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CROSS REFERENCE TABLE -- MACRO NAMES

CZDMTC.BIN,CZDMTC.SEQ/LRF/SOL=SVC34R.MAC,CZDMTC.P11

RUN-TIME: 32 40 5 SECONDS

RUN-TIME RATIO: 116/77=1.4

CORE USED: 21K (41 PAGES)