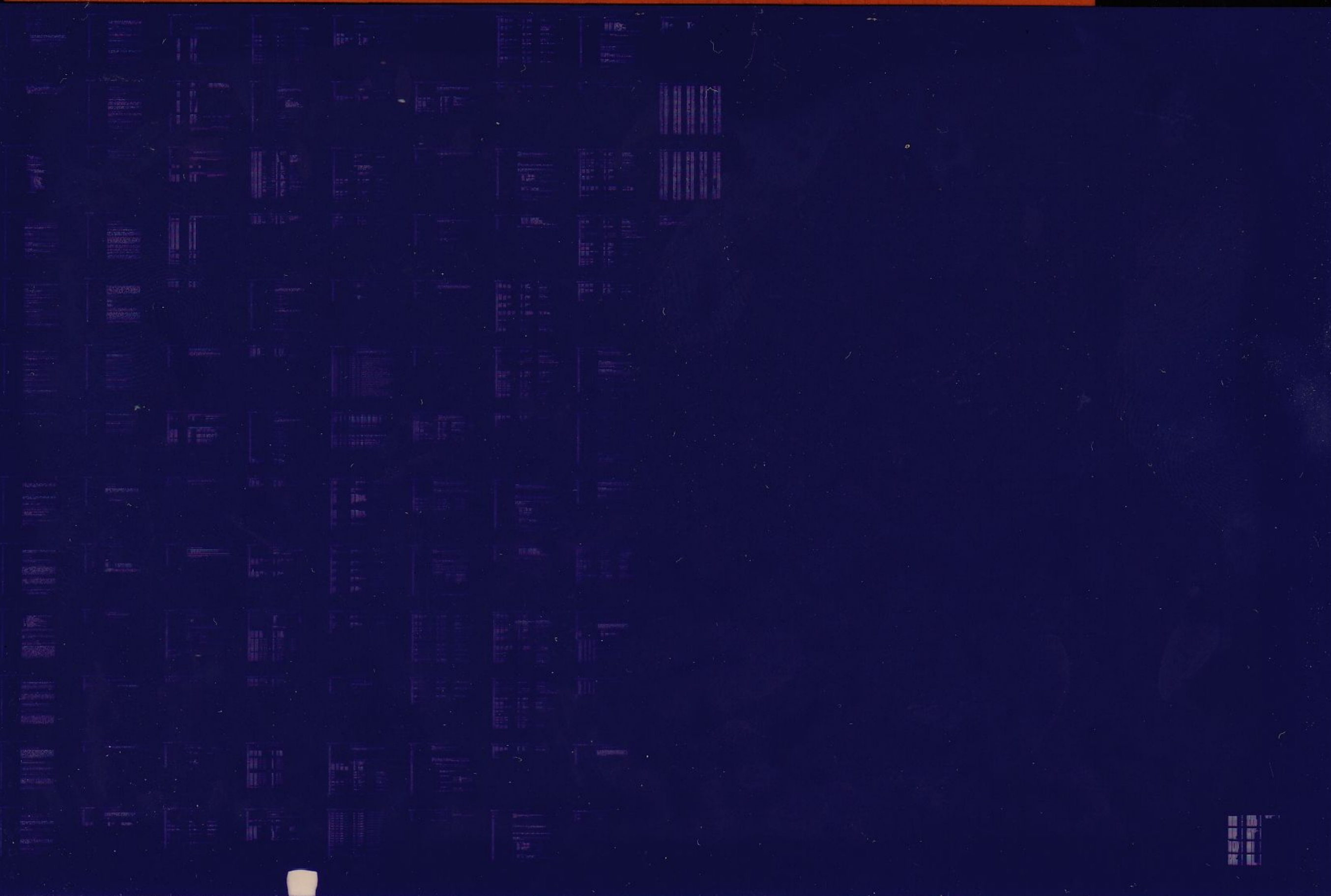


11/21+
KMV 11A

KMV 11A LINE CTRL DIAG
CNKMBRO

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AH-T845A-MC
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JUL 1984
digital
Made In USA



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IDENTIFICATION

PRODUCT CODE: AC-T844A-MC
PRODUCT NAME: CNKMBA0 KMV11A LINE CNT DIAG
PRODUCT DATE: APRIL 1984
MAINTAINER: ISS DIAGNOSTICS
AUTHOR: MICHELET GUY
MODIFIED BY: JAKI BERG 9-APR-1984

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***** MODIFICATION HISTORY *****

REV A: ORIGINAL RELEASE GUY MICHELET 14-JAN-81

CVKMBA => CNKMBA JAKI BERG 9-APR-84
CHANGES WERE MADE TO CVKMBA TO PRODUCE CNDMBA FOR THE FALCON-PLUS PROJECT

- (SBC-11/21+). CHANGES, MARKED BY ";JB REV A-0", ARE:
- SET THE ODT BREAK VECTOR (LOCATION 140) TO THE STARTING ADDRESS OF FALCON'S ODT ROM (170000-OCTAL).
 - CHANGE PRIORITY FROM LEVEL 7 TO LEVEL 6 TO ALLOW THE BREAK KEY TO INTERRUPT.
 - LOWERED RATE FROM 72KB TO 64KB IN TEST 06. IT IS HOPED THAT THIS CHANGE WILL BE REVERSED IN A FUTURE RELEASE. SEE TEST 6.

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1.0 INTRODUCTION

1.1 PROGRAM ABSTRACT

THIS DIAGNOSTIC WAS DESIGNED TO TEST OUT THE KMV11 MODULE
THE PROGRAM WAS IMPLEMENTED USING THE DIAGNOSTIC SUPERVISOR.
THROUGH DIALOGUE WITH THE OPERATOR, THE PROGRAM WILL ALLOW
MODIFICATION OF DEVICE PARAMETERS, SUCH AS UNIBUS ADDRESS,
VECTOR ADDRESS, AND PROCESSOR TYPE.

1.2 HARDWARE INTRODUCTION

THIS DIAGNOSTIC WILL TEST ALL THE HARDWARE PART OF THE KMV11 A
MODULE (M7500).
TO TEST COMPLETELY THIS PART ,EXTERNAL LOOP BACK CONNECTOR
MUST BE INSTALLED.

EXTERNAL LOOP BACK CONNECTOR:

KMV11 A CAN OPERATE EITHER IN RS422 OR RS 423 LEVEL CONVERTERS

RS422 LOOP BACK:

TO TEST COMPLETELY A KMV11 B IN RS422 MODE ,RUN THIS DIAGNOSTIC
WITH LOOP BACK CONNECTOR PLUG :
-USE H3255 TO LOOP DIRECTLY AT THE OUTPUT OF THE MODULE
-USE H3251 PLUG AT THE END OF BC55U MODEM CABLE CONNECTOR ASSY.

RS423 LOOP BACK:

TO TEST COMPLETELY A KMV11-A IN RS423 MODE ,RUN THIS DIAGNOSTIC
WITH LOOP BACK CONNECTOR PLUG :
-USE H3255 TO LOOP AT THE OUTPUT OF THE MODULE
-USE H3251 PLUG AT THE END OF BC55M MODEM CABLE CONNECTOR ASSY.

RS232 LOOP BACK:
SAME AS FOR RS423.

CAUTION:

USE OF H325 LOOP BACK CONNECTOR WILL CAUSE MESSAGES ERROR IN TEST 8.

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DIAGNOSTIC WILL TEST KMV11 CLOCKS,LINE INTERRUPTS, TX AND RX FUNCTION
IN INTERNAL AND EXTERNAL LOOP BACK AND MODEM SIGNALS.

CAUTION:

AT THE BEGINNING OF THE DIAGNOSTIC THE OPERATOR WILL ANSWER
BY "YES " OR "NO" AT THE QUESTION:
IS EXTERNAL CONNECTOR PLUGGED?

IF CONNECTOR NO PLUGGED THE DIAGNOSTIC WILL REPORT AN ERROR
AND EXIT CORRESPONDING TEST.

KMV11 A IS FULLY TESTED ONLY WHEN DIAGNOSTIC HAS BEEN RUN
SUCCESSFULLY IN BOTH RS422 AND RS423 LOOP BACK.

2.0 HARDWARE REQUIREMENTS

THE FOLLOWING HARDWARE IS REQUIRED TO RUN THE KMV11 A
LINE CONTROLLER STATIC TESTS:

SBC-11/21+
16K MEMORY
CONSOLE TERMINAL

3.0 PRELIMINARY PROGRAM REQUIREMENTS

THE PROCESSOR AND MEMORY SHOULD BE THOROUGHLY TESTED PRIOR
TO RUNNING THIS DIAGNOSTIC.

```
*****  
*                                     *  
*      NOTE: THE KMV11 DIAGNOSTICS NKMDA AND NKMBA SHOULD BE      *  
*      BEFORE RUNNING NKMCA.                                       *  
*                                     *  
*****
```

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

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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 KMV11 LINE CNT DIAGNOSTIC IS ABOUT :

- 160 SECONDS FROM TEST 1 TO TEST 6 (TEST IN INTERNAL LOOP).
- 260 SECONDS FROM TEST 1 TO TEST 8 (COMPLETE TEST, WITH EXTERNAL CONNECTOR).

4.3 XXDP.

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

4.4 ACT/SLIDE

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

4.5 APT

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

4.6 MEMORY MANAGEMENT

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

4.7 MEMORY PARITY OPTION

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

4.8 ERROR LOGGING

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

H1

KMV11A LINE CNT DIAG
PROGRAM DOCUMENT

MACRO M1200 09 APR-84 17:38 PAGE 6-1

SEQ 7

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THIS PROGRAM CAN BE LOADED FROM PAPER TAPE USING THE
ABSOLUTE LOADER OR FROM ACT, SLIDE, OR APT SYSTEMS, OR FROM

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ANY MEDIA SUPPORTED BY XXDP+. WHEN USING THE PAPER TAPE ABSOLUTE LOADER, THE PROGRAM SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC SUPERVISOR. WHEN USING XXDP+, THE DIAGNOSTIC SUPERVISOR SHOULD BE LOADED FIRST, FOLLOWED BY THE DIAGNOSTIC PROGRAM.

6.0 OPERATING INSTRUCTIONS

6.1 LOADING AND STARTING PROCEDURES

6.1.1 LOADING PROCEDURES

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

6.1.2 STARTING PROCEDURES

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

6.1.3 STEPS FOR QUICK AND SIMPLE EXECUTION

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

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

DRS LOADED
DIAG. RUN-TIME SERVICES
NKMBAO
KMV11 A LINE CONTROLLER DIAGNOSTIC
DR>

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THE OPERATOR THEN PROCEEDS BY TYPING ONE OR MORE OF THE
COMMANDS DESCRIBED IN THE FOLLOWING SECTION 6.3.(FOR MORE
DETAILED INFORMATION, REFER TO THE DIAGNOSTIC SUPERVISOR
FUNCTIONAL SPECIFICATION).

6.3 PROGRAM OPTIONS

6.3.1 START COMMAND

STA(RT)/TESTS:<TEST-LIST>/PASS:<PASS-CNT>/FLAGS:
<FLAG-LIST>/EOP:<INCR>

6.3.1.1 TESTS SWITCH (/TESTS:<TEST-LIST>)

<TEST-LIST> IS A SEQUENCE OF DECIMAL NUMBERS (1:2 ETC.) OR
RANGES OF DECIMAL NUMBERS (1-5:8-10 ETC.) THAT SPECIFY THE
TESTS TO BE EXECUTED. THE NUMBERS ARE SEPARATED BY COLONS.
THE NUMBERS RANGE FROM 1 TO THE LARGEST TEST NUMBER IN THE
DIAGNOSTIC. THEY MAY BE SPECIFIED IN ANY ORDER. TESTS WILL
BE EXECUTED IN NUMERICAL ORDER REGARDLESS OF THE ORDER OF
SPECIFICATION. THE DEFAULT IS TO EXECUTE ALL TESTS. ON
THIS AND ALL SWITCHES, THE ANGLE BRACKETS <> ARE PUNCTUATION
USED IN THE DEFINITION ONLY, AND ARE NOT TO BE TYPED BY THE
OPERATOR. SEE EXAMPLE AT END OF 6.3.1.5.

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

<PASS-CNT> IS A DECIMAL NUMBER INDICATING THE DESIRED NUMBER
OF PASSES. A PASS IS DEFINED AS THE EXECUTION OF THE FULL
DIAGNOSTIC (ALL SELECTED TESTS) AGAINST ALL UNITS SUBMITTED.
THE DEFAULT IS NON-ENDING EXECUTION. IN THIS CASE EXIT FROM
THE PROGRAM IS ACCOMPLISHED EITHER BY TYPING A CONTROL/C OR
BY 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

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CONTINUOUSLY WITHIN THE SMALLEST DEFINED BLOCK
OF CODING (SEGMENT, SUBTEST, OR TEST) CONTAIN-
ING THE ERROR

IER INHIBIT ERROR REPORTING
IBE INHIBIT BASIC ERROR REPORTS
IXE INHIBIT EXTENDED ERROR REPORTS
PRI DIRECT ALL MESSAGES TO A LINE PRINTER
PNT PRINT NUMBER OF TEST BEING EXECUTED
BOE BELL ON ERROR
UAM RUN IN UNATTENDED MODE, BYPASSING MANUAL
INTERVENTION TESTS

ISR INHIBIT STATISTICAL REPORTS
IDU INHIBIT DROPPING OF UNITS BY DIAGNOSTIC
LOT LOOP ON TEST

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

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

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

6.3.1.5 EFFECT OF START COMMAND

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

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

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

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

EXAMPLE:

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

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

6.3.2 RESTART COMMAND

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

6.3.2.1 TESTS, PASS, AND FLAGS SWITCHES

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

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

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

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6.3.2.3 EFFECT OF RESTART COMMAND

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

6.3.3 CONTINUE COMMAND

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

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

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

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

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

6.3.3.3 EFFECT OF CONTINUE COMMAND

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

6.3.4 PROCEED COMMAND

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

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

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

6.3.4.2 EFFECT OF PROCEED COMMAND

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

6.3.5 ADD COMMAND

ADD/UNITS:<UNIT-LIST>

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

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

6.3.5.2 EFFECT OF ADD COMMAND

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

6.3.6 DROP COMMAND

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

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

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

6.3.6.2 EFFECT OF DROP COMMAND

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

6.3.7 PRINT COMMAND

PRI(NT)

6.3.7.1 EFFECT OF PRINT COMMAND

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

6.3.8 DISPLAY COMMAND

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

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

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

6.3.8.2 EFFECT OF DISPLAY COMMAND

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

6.3.9 FLAGS COMMAND

FLA(GS)

6.3.9.1 EFFECT OF FLAGS COMMAND

THE CURRENT SETTINGS OF ALL FLAGS ARE PRINTED.

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6.3.10 ZFLAGS COMMAND

ZFL(AGS)

6.3.10.1 EFFECT OF ZFLAGS COMMAND

ALL FLAGS ARE CLEARED.

6.3.11 CONTROL CHARACTERS

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

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

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

6.3.12 HARDWARE PARAMETERS

THE FOLLOWING QUESTIONS WILL BE ASKED ON A START COMMAND. THE VALUE LOCATED TO THE LEFT OF THE QUESTION MARK IS THE DEFAULT VALUE THAT WILL BE TAKEN ON A CARRIAGE RETURN RESPONSE.

2. MICRO-CPU CSR ADDRESS: (0) 177000?

THIS IS THE ADDRESS AT WHICH THE CSR REGISTERS (SELO) RESIDE ON THE UNIBUS. THE ALLOWABLE RANGE IS 160000-177776 (OCTAL), AND THE DEFAULT IS 177000.

3. MICRO CPU VECTOR ADDRESS: (0) 300?

THE ALLOWABLE RANGE IS 300-770, AND DEFAULT VALUE IS 300

4. MICRO CPU PRIORITY LEVEL: (4) ??

735
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DEFAULT VALUE IS 4

NOTE:

M7500 AND M7501 MODULE MOUNTED WITH DC003 CHIPS CAN ONLY
INTERRUPT ON LEVEL 4

5. IS LOOP BACK CONNECTOR PLUGGED? 0=NO,1=YES (0) 1 ?

DEFAULT VALUE IS 1 (YES)

NOTE :

REFER TO CHAPTER 1.2 FOR LOOP BACK CONNECTOR DESCRIPTION.

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6.3.13 SOFTWARE PARAMETERS

NO SOFTWARE PARAMETER QUESTIONS ARE ASKED BY PART 2 OF THE STATIC LOGIC TESTS.

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

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

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

THE SERIES OF QUESTIONS IS REISSUED UNTIL AT LEAST ONE QUESTION HAS RECEIVED N EXPLICIT VALUES FROM THE OPERATOR.

IN GIVING A STRING OF VALUES, COMMAS WITHOUT INTERVENING VALUES MAY BE USED TO INDICATE A REPETITION OF THE LAST NAMED VALUE.

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

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

THE FOLLOWING DIALOGUE WOULD ACCOMPLISH THIS GOAL:

UNITS (D) ? 16

UNIT 1

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

UNIT 21

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

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

THE SECOND TIME THRU THE SERIES, TABLES 16 THRU THE END ARE GOING TO BE AFFECTED (NOTE THAT THIS PIECE OF INFORMATION IS PRINTED OUT FOR THE THE OPERATOR IN THE FORM "UNIT XX" AT THE BEGINNING OF EACH SERIES). QUESTION 1 IS RESPONDED TO BY A <CR>, SO SLOT ONE STAYS AT CONSTANT 75 IN TABLES 7 THRU 15, SINCE NO NEW EXPLICIT VALUES ARE TYPED IN. SLOT TWO GETS THE VALUES 7,8,9,10,11 IN TABLES 7 THRU 11, AND GETS A 11 IN SLOT 12, AND GETS THE VALUES 13,14,15 IN TABLES 13 THRU 15. SLOT THREE GETS THE VALUE 77 IN TABLES 7 THRU 15.

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

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7.0 TEST DESCRIPTIONS

***** TEST 1 *****
*VERIFY THAT REFERENCED UNIBUS DEVICE REGISTERS
*DOES NOT CAUSE TIME OUT TRAP

***** TEST 2 *****
*
*PROM REVISION TEST
*

***** TEST 3 *****
*
*REAL TIME CLOCK TEST
*

***** TEST 4 *****
*
*BAUD RATE GENERATOR TEST
*

***** TEST 5 *****
*
*TRANSMIT FRAMES AT LOW SPEED IN INTERNAL LOOP
*ON CHANNEL A WITHOUT ANY INTERRUPT
*

***** TEST 6 *****
*
*TRANSMIT AND RECEIVE FRAMES IN INTERNAL LOOP AT
*DIFFERENT SPEED WITH INTERRUPT
*

903
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CAUTION:
TEST NUMBER 7 AND 8 LOOP BACK CONNECTOR MUST BE INSTALLED.
REFER TO CHAPTER 1.2 FOR LOOP BACK DESCRIPTION

***** TEST 7 *****
*
*TRANSMIT AND RECEIVE FRAMES IN EXTERNAL LOOP BACK
*(WITH EXTERNAL LOOP BACK)
*

***** TEST 8 *****
*
*TEST ALL MODEM SIGNAL IN EXTERNAL LOOP BACK
*

930
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932
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961

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.

9.0 HISTORY

- DESIGN STARTED ON MAY 82
- REVIEW ON DECEMBER 82

a

```

963
971      002000      .TITLE KMV11 A LINE CNT DIAGNOSTIC
972                      .=2000
973
974
975
976
977
978                      .MCALL  SVC
979 002000          SVC                      ; INITIALIZE SUPERVISOR MACROS
980
981
982
983
984
985 002000          BGNMOD  KMV11A
986
987
988      000000      $LSTIN= 0
989      000000      $LSTTAG= 0
990      177777      SVCINS= -1      ; LIST INSTRUCTIONS, SHIFTED RIGHT
991      177777      SVCTS= -1      ; LIST TEST TAGS, SHIFTED RIGHT
992      177777      SVCSUB= -1     ; LIST SUBTEST TAGS, SHIFTED RIGHT
993      177777      SVCGBL= -1    ; LIST GLOBAL TAGS, SHIFTED RIGHT
994      177777      SVCTAG= -1    ; LIST OTHER TAGS, SHIFTED RIGHT
995
996      ;          CHANGE THE VALUES OF THE SVC... SYMBOLS TO BE ZERO IF YOU WISH
997      ;          TO ALIGN THE MACRO CALLS AND THEIR EXPANSIONS.  CHANGE THE
998      ;          SYMBOLS TO BE MINUS-ONE TO NOT LIST THE EXPANSIONS.  YOU MAY
999      ;          CHANGE THE SYMBOLS AT ANY POINT IN YOUR PROGRAM.
1000
1001

```

1003
1004
1005
1006
1007
1008
1009
1010
1011
1012
1030
1031
1032

002000

002000

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

POINTER BGNSW,BGNDU,BGNSETUP

HEADER NKMBA0,A,0,240.,0

1044
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1046
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1051
1052
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1054
1055
1056
1070
1071
1072
1073

002122

000000

177777

177777

002130

; THIS TABLE IS USED BY THE RUNTIME SERVICES
; TO PROTECT THE LOAD MEDIA.

BGNPROT

0

-1

-1

;OFFSET INTO P-TABLE FOR CSR ADDRESS
;OFFSET INTO P-TABLE FOR MASSBUS ADDRESS
;OFFSET INTO P-TABLE FOR DRIVE NUMBER

ENDPROT

1075
1076
1077
1078
1079
1080
1081
1082 002130
1083
1090
1091

.SBTTL DISPATCH TABLE

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

DISPATCH 8

1093
1094
1095
1096
1097
1098
1099
1100
1101
1102
1103
1104
1114
1115
1116
1117
1118
1119
1120

002152

002154 177000
002156 000300
002160 004000
002162 000001
002164

.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.
;/ AND IS USED AS A " TEMPLATE" FOR BUILDING THE P-TABLE
;/;;;

.ENABL AMA
BGNHW DFPTBL

.WORD 177000
.WORD 300
.WORD 4000
.WORD 1
ENDHW

;KMV11.CSRS ADDRESS
;KMV11. VECTOR ADDRESS
;INTERRUPT PRIORITY LEVEL
;LOOP BACK CONNECTOR?

1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135
1136
1137
1138
1139
1149
1150
1165
1166 002164

.SBTTL GLOBAL EQUATES SECTION

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

EQUALS

:
: BIT DIFINITIONS

100000	BIT15==	100000
040000	BIT14==	40000
020000	BIT13==	20000
010000	BIT12==	10000
004000	BIT11==	4000
002000	BIT10==	2000
001000	BIT09==	1000
000400	BIT08==	400
000200	BIT07==	200
000100	BIT06==	100
000040	BIT05==	40
000020	BIT04==	20
000010	BIT03==	10
000004	BIT02==	4
000002	BIT01==	2
000001	BIT00==	1

:	:	
001000	BIT9==	BIT09
000400	BIT8==	BIT08
000200	BIT7==	BIT07
000100	BIT6==	BIT06
000040	BIT5==	BIT05
000020	BIT4==	BIT04
000010	BIT3==	BIT03
000004	BIT2==	BIT02
000002	BIT1==	BIT01
000001	BIT0==	BIT00

:
: EVENT FLAG DEFINITIONS
: EF32:EF17 RESERVED FOR SUPERVISOR TO PROGRAM COMMUNICATION
:

: BIT POSITION IN SECOND STATUS WORD

```

000040 EF.START== 32. ; (100000) START COMMAND WAS ISSUED
000037 EF.RESTART== 31. ; (040000) RESTART COMMAND WAS ISSUED
000036 EF.CONTINUE== 30. ; (020000) CONTINUE COMMAND WAS ISSUED
000035 EF.NEW== 29. ; (010000) A NEW PASS HAS BEEN STARTED
000034 EF.PWR== 28. ; (004000) A POWER FAIL/POWER UP OCCURRED

```

```

;
;
; PRIORITY LEVEL DEFINITIONS

```

```

000340 PRI07== 340
000300 PRI06== 300
000240 PRI05== 240
000200 PRI04== 200
000140 PRI03== 140
000100 PRI02== 100
000040 PRI01== 40
000000 PRI00== C

```

```

; OPERATOR FLAG BITS

```

```

000004 EVL== 4
000010 LOT== 10
000020 ADR== 20
000040 IDU== 40
000100 ISR== 100
000200 UAM== 200
000400 BOE== 400
001000 PNT== 1000
002000 PRI== 2000
004000 IXE== 4000
010000 IBE== 10000
020000 IER== 20000
040000 LOE== 40000
100000 HOE== 100000

```

1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189

```

000300 ;MAXPRI==340
054000 MAXPRI==300
044000 MAINT0==54000
040000 MAINT1==44000
052525 MCLR==40000
125252 DATA1== 052525
013224 DATA2== 125252
000154 KB1.2== 5780.
000174 KB64== 108.
000146 KB56== 124.
000141 KB68== 102.
000141 KB72== 97.

```

```

;JB REV A-0
;JB REV A-0
;MASTER CLEAR = 1,MODE = 1 ,MAINT 1 = 1 ,T11=HOLD
;MASTER CLEAR = 1,MODE = 0 ,MAINT 1 = 0 ,T11=NOT HOLD

```

```

;OCTAL VALUE OF 1.2 KBAUDS
; " " " 64 "
; " " " 56 "
; " " " 68 "
; " " " 72 "

```

```

;DIVIDER CALCULATION
;DECIMAL VAUE = 6912:YYY KBAUDS

```

```

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

```

1191
1192
1193
1194
1195
1196
1197
1203
1204
1205
1206
1207
1208 002164
1209
1210
1211
1224
1225 002220
1226
1227
1228
1229
1230
1231
1232
1233 002230 000000
1234 002232 000005
1235 002234 000000
1236 002236 000000
1237 002240 000015
1238 002242 000000
1239 002244 000000
1240 002246 000000
1241 002250 000000

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

```
::*****
;* STORAGE FOR DEVICE REGISTERS
::******
      DESCRIPT      <KMV11A LINE CNT DIAGNOSTIC>
```

```
ERRTBL
ERRTYP: .WORD 0
ERRNBR: .WORD 0
ERRMSG: .WORD 0
ERRBLK: .WORD 0
```

```
::*****
;* PROGRAM CONTROL PARAMETERS
::******
LOCK: .WORD 0 ;ADDRESS FOR LOCK CURRENT DATA
MAXERR: .WORD 5 ;MAX ERROR BEFORE DROPPING THE UNIT
ERRCNT: .WORD 0 ;ERROR COUNT
L$SW: .WORD 0
L$UIT: .WORD 15 ;MAX LINE UNIT
LOGDEV: .WORD 0
SAVPC: .WORD 0
PSTACK: .WORD 0
FTIME: .WORD 0
```

1243
1244
1245
1246 002252 000000
1247 002254 000000
1248 002256 000000
1249
1250 002260 000000
1251 002262 000000
1252 002264 000000
1253 002266 000000
1254 002270 000000
1255 002272 000000
1256 002274 000000
1257 002276 000000
1258 002300 000000
1259 002302 000000
1260 002304 000000
1261 002306 000000
1262 002310 000000
1263 002312 000000
1264 002314 000000
1265 002316 000000
1266 002320 000000
1267 002322 000000
1268 002324 000000
1269 002326 000000
1270 002330 000000
1271 002332 000000
1272 002334 000000
1273 002336 000000
1274 002340 000000
1275 002342 000000
1276 002344 000000
1277 002346 000000
1278 002350 000000
1279 002352 000000
1280 002354 000000
1281 002356 000000
1282 002360 000000
1283
1284 002362
1285 006362
1286
1287 012362 000000
1288 012364 000000
1289 012366 000000
1290 012370 000000
1291 012372 000000
1292 012374 000000
1293
1294
1295 012376 000000
1296 012400 000000
1297
1298 012402 000000
1299 012404 000000

```

;*****
;* MISCELLANEOUS STORAGE
;*****
SAVE4: .WORD 0
SAVE6: .WORD 0
FLAG: .WORD 0

DELCT1: .WORD 0
DELCT2: .WORD 0
GOOD: .WORD 0
GOOD0: .WORD 0
GOOD1: .WORD 0
GOOD2: .WORD 0
GOOD4: .WORD 0
GOOD6: .WORD 0
GOOD10: .WORD 0
GOOD12: .WORD 0
GOOD14: .WORD 0
GOOD16: .WORD 0
SELO: .WORD 0
SEL1: .WORD 0
SEL2: .WORD 0
SEL4: .WORD 0
SEL6: .WORD 0
SEL10: .WORD 0
SEL12: .WORD 0
SEL14: .WORD 0
SEL16: .WORD 0
BSEL1: .WORD 0
RANST: .WORD 0
RANSEL: .WORD 0
RANMTA: .WORD 0
RANDN: .WORD 0
SAVPC1: .WORD 0
SAVSTA: .WORD 0
COUNT: .WORD 0
NUMBER: .WORD 0
ADDR: .WORD 0
GDDAT: .WORD 0
BDDAT: .WORD 0

TTABLE: .BLKW 2000
RTABLE: .BLKW 2000

EXADDR: .WORD 0
INTFLG: .WORD 0
BAD: .WORD 0
BSELO: .WORD 0
DATA: .WORD 0
VECT: .WORD 0

KIND: .WORD 0
CHANEL: .WORD 0

TXDATA: .WORD 0
RXDATA: .WORD 0

```

;=0 IF KMV11A ,=1 IF KMV11B

1300 012406 000000
1301 012410 000000
1302 012412 000000
1303 012414 000000
1304 012416 000000
1305 012420 000000
1306 012422 000000

TSPEED: .WORD 0
LENGTH: .WORD 0
NUB: .WORD 0
RXCNT: .WORD 0
STAERR: .WORD 0
WRDCNT: .WORD 0
UNIT: .WORD 0

1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319
1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330

012424 000001

```
*****  
;LOAD IN LOCATION "GDREV" THE PROM VERSION NUMBER THAT IS *  
;COMPATIBLE WHITH THIS DIAGNOSTIC *  
; *  
;EACH PROM CONTAIN A REV LEVEL AND A ECO LEVEL: *  
;THE REV LEVEL IS MODIFIED EACH TIME A MODIFICATION IS DONE *  
;THE ECO LEVEL IS MODIFIED WHEN THE PROM MODIFICATION NEED *  
;A DIAGNOSTIC MODIFICATION *  
*****
```

GDREV: .WORD 1

```

1332 ;*****
1333 ;* PROGRAM CONTROL FLAGS
1334 ;*****
1335 012426 000 INIFLG: .BYTE 0 ;PROGRAM INITIALIZING FLAG
1336 .EVEN
1337 012430 000 LOKFLG: .BYTE 0 ;LOCK ON CURRENT TEST FLAG
1338 012431 000 QV.FLG: .BYTE 0 ;QUICK VERIFY FLAG
1339 .EVEN
1340 012432 000000 UUT: .WORD 0 ;CURRENT UNIT UNDER TEST
1341
1342
1343
1344
1345
1346
1347 ;*****
1348 ;* POINTERS TO KMV11 VECTORS AND REGISTERS
1349 ;*****
1350 012434 000000 KMVV00: 0 ;POINTER TO KMV11 INTRPT VECTOR 0
1351 012436 000000 KMVLVL: 0 ;POINTER TO KMV11 INTRPT SERVICE
1352 012440 000000 KMVV04: 0 ;POINTER TO KMV11 INTRPT VECTOR 04
1353 012442 000000 KMVV02: 0 ; " " " " 02
1354 012444 000000 KMVV06: 0 ; " " " " 06
1355 012446 000000 KMTLVL: 0 ;POINTER TO KMV11 TX INTRPT SERVICE PS
1356 012450 000000 KMVCSR: 0 ;POINTER TO KMV11 CONTROL STATUS REGISTER
1357 012452 000000 KMVP02: 0 ;POINTER TO KMV11 PORT REGISTER - SEL2
1358 012454 000000 KMVP04: 0 ;POINTER TO KMV11 PORT REGISTER - SEL4
1359 012456 000000 KMVP06: 0 ;POINTER TO KMV11 PORT REGISTER - SEL6
1360
1361 012460 000000 KMVP10: 0 ;POINTER TO KMV11 PORT REG -SEL10
1362 012462 000000 KMVP12: 0 ;POINTER TO PORT REG -SEL 14
1363 012464 000000 KMVP14: 0 ;POINTER TO PORT REG -SEL14
1364 012466 000000 KMVP16: 0 ;POINTER TO PORT REG 16
1365
1366 012470 000000 LOOP: 0 ;POINTER TO LOOP BACK CONNECTOR

```

1368
1369
1370 012472
1371
1372
1373 012472
1374 012672

***** PRIMARY REG ADRS STORAGE FOR THIS UNIT *****
;THESE LOCATIONS WILL BE LOADED FOR THE CURRENT UNIT, IN INIT CODE
REGADR:

;***** STACK USED FOR SUBROUTINE LINKAGE *****
.BLKW 100
SSTACK:

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1388 012672
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.SBTTL GLOBAL TEXT SECTION

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

: * NAMES OF DEVICES SUPPORTED BY PROGRAM
: *****
: DEVTYP <KMV11A>

:
: FORMAT STATEMENTS USED IN PRINT CALLS
:

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.SBTTL GLOBAL SUBROUTINES

;-----
;MACRO'S NEEDED TO CALL SUBROUTINES
;-----

.MACRO CLRMAR
      ROMCLK
      004000
.ENDM CLRMAR

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

;ROUTINE TO WAIT FOR EVENT OR TIMEOUT

;CALLING SEQUENCE:      JSR PC,WAIT1
;                       JSR PC,WAIT2

;INPUTS PARAMETERS:    DELCT1,DELCT2

;                       INC DELCT1 UNTIL 0
;                       DEC DELCT2 UNTIL 0      DELCT2= NUMB OF WAIT1 PASSES

WAIT2: INC DELCT1
      BNE WAIT2
      BREAK
      DEC DELCT2
      BNE WAIT2
      RTS PC

```

```

012702 005237 002260
012706 001375
012710
012712 005337 002262
012716 001371
012720 000207

```

1464						
1465						
1466	012722	005237	002260	WAIT1:	INC	DELCT1
1467	012726	001375			BNE	WAIT1
1468						
1469	012730	000207			RTS	PC

M3

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```
;MACRO TO WAIT A FEW MS  
  
;CALLING SEQUENCE:      WAITA   X           0<X<177777  
;                        WAITB   X,Y        0<X OR Y<177777  
  
.MACRO  WAITA   X  
        MOV    #X,DELCT1      ;LOAD COUNT  
        JSR    PC,WAIT1      ;WAIT  
.ENDM  
  
.MACRO  WAITB   X,Y  
        MOV    #X,DELCT1  
        MOV    #Y,DELCT2  
        JSR    PC,WAIT2  
.ENDM
```



```

1546 ;ROUTINE TO CHECK REGISTER BSELO AND TO REPORT ERROR
1547
1548
1549
1550
1551
1552
1553 ;CALLING SEQUENCE: JSR PC,TSTERR
1554
1555
1556 ;OUTPUT PARAMETERS: RETURN TO PC IF TEST IS OK
1557 ; PC.2 IF TIMEOUT DURING TEST
1558 ; PC.4 IF NO KMV11 ANSWER
1559 ; PC.6 IF DATA CMP ERROR
1560
1561
1562
1563
1564
1565
1566
1567 013074 004537 013644 TSTERR: JSR R5,CBSELO ;LOOK IF BSELO=0
1568 013100 000000 .WORD 0
1569 013102 000411 BR 1$ ;TEST IS OK ,RTS PC
1570
1571
1572 013104 004537 013644 JSR R5,CBSELO ;LOOK IF BSELO=200
1573 013110 000200 .WORD 200
1574 013112 000406 BR 2$ ;TIMEOUT DURING TEST,RTS PC.2
1575
1576
1577 013114 004537 013644 JSR R5,CBSELO ;LOOK IF BSELO=100
1578 013120 000100 .WORD 100
1579 013122 000405 BR 3$ ;DATA CMP ERROR,RTS PC.6
1580
1581
1582
1583 013124 000407 BR 4$ ;NO KMV11 ANSWER ,RTS PC.4
1584
1585
1586
1587 013126 000207 1$: RTS PC ;TEST OK
1588
1589
1590 013130 062716 000002 2$: ADD #2,(SP)
1591 013134 000207 RTS PC ;TIMEOUT ERROR
1592
1593
1594 013136 062716 000006 3$: ADD #6,(SP)
1595 013142 000207 RTS PC ;DATA CMP ERROR
1596
1597
1598 013144 062716 000004 4$: ADD #4,(SP)
1599 013150 000207 RTS PC ;NO KMV11 ANSWER
1600

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1660									
1661	013152	042703	177770						
1662	013156	004737	013452						
1663	013162	006303							
1664	013164	000173	013170						
1665	013170	013210							
1666	013172	013214							
1667	013174	013222							
1668	013176	013230							
1669	013200	013236							
1670	013202	013246							
1671	013204	013304							
1672	013206	013424							
1673	013210	005000							
1674	013212	000507							
1675	013214	005000							
1676	013216	005100							
1677	013220	000504							
1678	013222	012700	052525						
1679	013226	000501							
1680	013230	012700	125252						
1681	013234	000476							
1682	013236	000241							
1683	013240	004737	013260						
1684	013244	000472							
1685	013246	000241							
1686	013250	004737	013260						
1687	013254	005100							
1688	013256	000465							
1689	013260	006037	013302						
1690	013264	001003							
1691	013266	012737	100000	013302					
1692	013274	013700	013302						
1693	013300	000207							
1694	013302	000001							
1695	013304	012737	000005	002336					
1696	013312	004737	013324						
1697	013316	013700	002342						
1698	013322	000443							
1699	013324	013702	002342						
1700	013330	001002							
1701	013332	013702	002334						
1702	013336	032737	000777	002336					
1703	013344	001003							
1704	013346	012737	000001	002336					
1705	013354	013703	002336						
1706	013360	013702	002342						
1707	013364	033702	002340						
1708	013370	001405							
1709	013372	005102							
1710	013374	033702	002340						
1711	013400	001401							
1712	013402	000402							
1713	013404	000241							
1714	013406	000401							
1715	013410	000261							

```

;
; GENER: BIC #177770,R3
; JSR PC,SAVREG
; ASL R3
; JMP @GENSEL(R3)
GENSEL: GEN0 ;ALL ZERO WORD
; GEN1 ;ALL ONE WORD
; GEN52 ;52 PATTERN
; GEN25 ;25 PATTERN
; GENR1 ;ROTATE '1' EACH CALL
; GENRO ;ROTATE '0' EACH CALL
; GENRAN ;RANDOM NUMBER
; GENINC ;INCREMENTING COUNT
;0>R0
GENC: CLR R0
; BR GENEX
GEN1: CLR R0 ;NOT0>R0
; COM R0
; BR GENEX
GEN52: MOV #52525,R0 ;5252>R0
; BR GENEX
GEN25: MOV #125252,R0 ;125252>R0
; BR GENEX
GENR1: CLC
; JSR PC,GENROT ;SHIFT 1 > R0
; BR GENEX
GENRO: CLC
; JSR PC,GENROT ;SHIFT 0 > R0
; COM R0
; BR GENEX
GENROT: ROR GENISH ;ROTATE 1 PATTERN
; BNE GENER1 ;= 0?
; MOV #100000,GENISH ;YES, SET MSB
; MOV GENISH,R0 ;PUT 1 IN R0
; RTS PC ;AND EXIT
GENISH: 1
GENRAN: MOV #5,RANSEL ;SET SELECT VALUE TO 5
; JSR PC,RANGEN ;GENERATE RANDOM NUMBER IN R0
; MOV RANDN,R0
; BR GENEX
RANGEN: MOV RANDN,R2
; BNE RAN1 ;IS RANDOM = 0
; MOV RANST,R2 ;YES, PUT RANDOM START VALUE IN
; BIT #777,RANSEL ;NO; IS RANSEL SELECT VALUE = 0
; BNE RAN2 ;NO
; MOV #1,RANSEL ;YES: SET RANSEL = 1
; MOV RANSEL,R3
; MOV RANDN,R2
; BIT RANMTA,R2 ;GET R2 <0 AND 1>
; BEQ RANCLC
; COM R2
; BIT RANMTA,R2
; BEQ RANCLC
RANCLC: CLC
; BR RANSEC
RANSEC: SEC

```

1716	013412	006037	002342		RAN4:	ROR	RANDN	;ROTATE C TO B15
1717	013416	005303				DEC	R3	;IS THIS NUMBER REQUIRED?
1718	013420	001357				BNE	RAN2+4	;NO, GET ANOTHER
1719	013422	000207			RANEX:	RTS	PC	;YES, EXIT
1720	013424	013700	002264		GENINC:	MOV	GOOD,RO	;INCREMENTS LOC. 'GOOD'
1721	013430	005200				INC	RO	
1722	013432	010037	002264		GENEX:	MOV	RO,GOOD	
1723	013436	004737	013532			JSR	PC,RSTREG	
1724	013442	013737	002264	012372		MOV	GOOD,DATA	
1725	013450	000207				RTS	PC	
1726								

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1778
1779
1780
1781
1782 013452
1783 013460
1784 013466 012637 002244

.SBTTL SAVE REGISTERS
:
:
DESCRIPTION:
:
:
ROUTINE TO SAVE ALL THE GENERAL PURPOSE
REGISTERS ON THE STACK, AND LEAVE THE ADDRESS OF THE
CALLING ROUTINE ON THE STACK. THE ROUTINE WILL RUN AT
PRIORITY 6 TO AVOID MOST INTERRUPTS
:
CAUTION:REGISTER R0 IS NOT SAVED
:
:
CALLING SEQUENCE:
:
JSR PC,SAVREG
:
INPUT PARAMETERS:
:
NONE
:
IMPLICIT INPUT PARAMETERS:
:
NONE
:
OUTPUT PARAMETERS:
:
REGISTERS 0 THRU 5 ARE SAVED ON THE STACK
AND THE RETURN ADDRESS OF THE CALLING ROUTINE IS
SET AS THE LAST ENTRY ON THE STACK
:
IMPLICIT OUTPUT PARAMETERS:
:
NONE
:
COMPLETION CODES:
:
NONE
:
POSSIBLE ERROR CODES:
:
NONE
:
SAVREG: GETPRI SAVSTA
SETPRI MAXPRI
MOV (SP)+,SAVPC ;SAVE PC FOR RETURN FROM THIS ROUTINE

1785	013472	012637	002344	MOV	(SP), SAVPC1	
1786	013476	010546		MOV	R5, -(SP)	
1787	013500	010446		MOV	R4, -(SP)	
1788	013502	010346		MOV	R3, -(SP)	
1789	013504	010246		MOV	R2, -(SP)	
1790	013506	010146		MOV	R1, -(SP)	
1791	013510	010046		MOV	R0, -(SP)	
1792	013512	013746	002344	MOV	SAVPC1, -(SP)	
1793	013516	013746	002244	MOV	SAVPC, -(SP)	;PUT PC READY FOR
1794	013522			SETPRI	SAVSTA	
1795	013530	000207		RTS	PC	;RETURN
1796						
1797						
1798						

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.SBTTL RESTORE REGISTERS

:
:
: DESCRIPTION:
:
: RESTORE TO RESTORE THE GENERAL PURPOSE
: REGISTERS. THE STACK IS LEFT IN THE SAME STATE AS IT
: WAS WHEN SAVREG WAS CALLED.
:
: CAUTION: REGISTER R0 IS NOT SAVED
:
:
: CALLING SEQUENCE:
: JSR PC,RSTREG
:
: INPUT PARAMETERS:
: NONE
:
: IMPLICIT INPUT PARAMETERS:
: NONE
:
: OUTPUT PARAMETERS:
: R1 THRU R5 RESTORED
:
: IMPLICIT OUTPUT PARAMETERS:
: NONE
:
: COMPLETION CODES:
: NONE
:
: POSSIBLE ERROR CODES:
: NONE
:
RSTREG: GETPRI SAVSTA
SETPRI MAXPRI
MOV (SP),SAVPC
MOV (SP),SAVPC1
MOV (SP),R0
MOV (SP),R1

```

```

1851 013532
1852 013540
1853 013546 012637 002244
1854 013552 012637 002344
1855 013556 012600
1856 013560 012601

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1857 013562 012602
1858 013564 012603
1859 013566 012604
1860 013570 012605
1861 013572 013746 002344
1862 013576 013746 002244
1863 013602
1864 013610 000207

MOV (SP)+,R2
MOV (SP)+,R3
MOV (SP)+,R4
MOV (SP)+,R5
MOV SAVPC1,-(SP)
MOV SAVPC,-(SP) ;PUT PC READY FOR
SETPRI SAVSTA
RTS PC


```

1866 ;CHECK CONTENT OF ONE OF THE 8 REGISTERS
1867
1868 ; CALLING SEQUENCE
1869 ; JSR R5,CKSELN ; N = REGISTER NUMBER
1870 ; .WORD A A=EXPECTED CONTENT OF REGISTER N
1871
1872 ;OUTPUT PARAMETER:
1873 ; BRANCH IN PC+2 IF ERROR DETECTED
1874 ; BRANCH IN PC IF NO ERROR DETECTED
1875
1876
1877
1878
1879
1880 013612 012537 002264 CKSELO: MOV (R5)+,GOOD ;WRITE GOOD
1881 013616 017737 176626 002310 MOV @KMVCSR,SELO ;READ SEL 0
1882 013624 023737 002310 002264 CMP SELO,GOOD ;CMP ?
1883 013632 001001 BNE 1$
1884 013634 000402 BR 2$
1885 013636 062705 000002 1$: ADD @2,R5
1886 013642 000205 2$: RTS R5
1887
1888
1889
1890
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1892
1893
1894 013644 005037 002264 CBSELO: CLR GOOD
1895 013650 012537 002264 MOV (R5)+,GOOD
1896 013654 117737 176570 012370 MOVB @KMVCSR,BSELO
1897 013662 123737 012370 002264 CMPB BSELO,GOOD
1898 013670 001001 BNE 1$
1899 013672 000402 BR 2$
1900 013674 062705 000002 1$: ADD @2,R5
1901 013700 000205 2$: RTS R5

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;ROUTINE TO CHECK ALL REGISTER FROM SELO TO SEL16

;CALLING SEQUENCE:

; JSR R5,CKALL
; .WORD A
; .WORD B
; .WORD C
; .WORD D
; .WORD E
; .WORD F
; .WORD G
; .WORD H

A = EXPECTED VALUE FOR SELO
B " " SEL2
C " " SEL4
D " " SEL6
E " " SEL10
F " " SEL12
G " " SEL14
H " " SEL16

;OUTPUT PARAMETER:

; BRANCH IN PC+2 IF ERROR
; BRANCH IN PC IF NO ERROR

CKALL: MOV (R5)+,GOOD0 ;READ SELO
MOV (R5)+,GOOD2 ;READ SEL2
MOV (R5)+,GOOD4 ;READ SEL4
MOV (R5)+,GOOD6 ;READ SEL6
MOV (R5)+,GOOD10 ;READ SEL10
MOV (R5)+,GOOD12 ;READ SEL12
MOV (R5)+,GOOD14 ;READ SEL14
MOV (R5)+,GOOD16 ;READ SEL16

MOV @KMVCSR,SELO ;READ SELO
NOP
MOV @KMVP02,SEL2 ;READ SEL2
NOP
MOV @KMVP04,SEL4 ;READ SEL4
NOP
MOV @KMVP06,SEL6 ;READ SEL6
NOP
MOV @KMVP10,SEL10 ;READ SEL10
NOP
MOV @KMVP12,SEL12 ;READ SEL12
NOP
MOV @KMVP14,SEL14 ;READ SEL14
NOP
MOV @KMVP16,SEL16 ;READ SEL16

CMP SELO,GOOD0
BNE 1\$
CMP SEL2,GOOD2
BNE 1\$
CMP SEL4,GOOD4
BNE 1\$
CMP SEL6,GOOD6
BNE 1\$
CMP SEL10,GOOD10
BNE 1\$
CMP SEL12,GOOD12

013702 012537 002266
013706 012537 002272
013712 012537 002274
013716 012537 002276
013722 012537 002300
013726 012537 002302
013732 012537 002304
013736 012537 002306

013742 017737 176502 002310
013750 000240
013752 017737 176474 002314
013760 000240
013762 017737 176466 002316
013770 000240
013772 017737 176460 002320
014000 000240
014002 017737 176452 002322
014010 000240
014012 017737 176444 002324
014020 000240
014022 017737 176436 002326
014030 000240
014032 017737 176430 002330

014040 023737 002310 002266
014046 001035
014050 023737 002314 002272
014056 001031
014060 023737 002316 002274
014066 001025
014070 023737 002320 002276
014076 001021
014100 023737 002322 002300
014106 001015
014110 023737 002324 002302

1960	014116	001011			BNE	1\$
1961	014120	023737	002326	002304	CMP	SEL14,GOOD14
1962	014126	001005			BNE	1\$
1963	014130	023737	002330	002306	CMP	SEL16,GOOD16
1964	014136	001001			BNE	1\$
1965						
1966	014140	000402			BR	2\$
1967	014142	062705	000002		1\$: ADD	#2,R5
1968	014146	000205			2\$: RTS	R5

```

1970                                     ;ROUTINE TO CHECK SEL2 TO SEL16
1971
1972
1973
1974
1975
1976 014150 012537 002272          CKREG:  MOV      (R5)+,GOOD2
1977 014154 012537 002274          MOV      (R5)+,GOOD4
1978 014160 012537 002276          MOV      (R5)+,GOOD6
1979 014164 012537 002300          MOV      (R5)+,GOOD10
1980 014170 012537 002302          MOV      (R5)+,GOOD12
1981 014174 012537 002304          MOV      (R5)+,GOOD14
1982 014200 012537 002306          MOV      (R5)+,GOOD16
1983
1984
1985 014204 017737 176242 002314    MOV      @KMVP02,SEL2
1986 014212 000240                    NOP
1987 014214 017737 176234 002316    MOV      @KMVP04,SEL4
1988 014222 000240                    NOP
1989 014224 017737 176226 002320    MOV      @KMVP06,SEL6
1990 014232 000240                    NOP
1991 014234 017737 176220 002322    MOV      @KMVP10,SEL10
1992 014242 000240                    NOP
1993 014244 017737 176212 002324    MOV      @KMVP12,SEL12
1994 014252 000240                    NOP
1995 014254 017737 176204 002326    MOV      @KMVP14,SEL14
1996 014262 000240                    NOP
1997 014264 017737 176176 002330    MOV      @KMVP16,SEL16
1998
1999
2000
2001
2002 014272 023737 002314 002272    CMP      SEL2,GOOD2
2003 014300 001031                    BNE      1$
2004 014302 023737 002316 002274    CMP      SEL4,GOOD4
2005 014310 001025                    BNE      1$
2006 014312 023737 002320 002276    CMP      SEL6,GOOD6
2007 014320 001021                    BNE      1$
2008 014322 023737 002322 002300    CMP      SEL10,GOOD10
2009 014330 001015                    BNE      1$
2010 014332 023737 002324 002302    CMP      SEL12,GOOD12
2011 014340 001011                    BNE      1$
2012 014342 023737 002326 002304    CMP      SEL14,GOOD14
2013 014350 001005                    BNE      1$
2014 014352 023737 002330 002306    CMP      SEL16,GOOD16
2015 014360 001001                    BNE      1$
2016 014362 000402                    BR       2$
2017
2018 014364 062705 000002          1$:     ADD      #2,R5
2019 014370 000205                    2$:     RTS      R5

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2057 ;ROUTINE TO SET MAINT MODE 1 AND CHECK DCT11 CLEAR SELO AFTER HAVING DECODED
2058
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2061 ;CALLING SEQUENCE:
2062 ; JSR PC,MAINM1
2063
2064
2065
2066 ;GIVE AN ERROR IF MASTER CLEAR IS NOT CLEAR BY DCT11
2067 ;
2068 ;MAINT1= MASTER CLEAR=1 * MAINT 1 =0 * MODE = 1 : T11=HOLD
2069
2070
2071
2072
2073
2074
2075 014474 005077 175750 MAINM1: CLR @KMVCSR
2076 014500 000240 NOP
2077 014502 000240 NOP
2078 014504 000240 NOP
2079
2080 014506 012777 044000 175734 MOV @MAINT1,@KMVCSR ;LOAD ADDRESS
2081 014514 012737 000000 002260 MOV #0,DELCT1
2082 014522 012737 000001 002262 MOV #1,DELCT2
2083 014530 004737 012702 JSR PC,WAIT2
2084 014534 004537 013612 JSR R5,CKSELO ;CHECK SELO=0 BUT MODE BIT =1
2085 014540 004000 .WORD 4000
2086 014542 000404 BR 1$ ;OK BRANCH
2087 014544 ERRHRD 2,EM0001,PRSELO
2088 014554 000207 1$: RTS PC
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;ROUTINE TO SET TEST NUMBER ON BSELO

;CALLING SEQUENCE:
; JSR R5,TSTNUB
; .WORD ,A

A=TEST MICRO PROGRAM NUMBER

2109 014556 012537 012412
2110 014562 053777 012412 175660
2111 014570 012737 000000 002260
2112 014576 004737 012722
2113 014602 000205

TSTNUB: MOV (R5),,NUB
BIS NUB,@KMVCSR
MOV #0000,DELCT1
JSR PC,WAIT1
RTS R5

;LOAD TEST NUMBER

;WAIT

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```

;ROUTINE TO WRITE OR READ ONE OF THE KMV11 REGISTERS

;CALLING SEQUENCE:
;JSR R5,WRITE
;.WORD A           A=ADDRESS TO WRITE
;.WORD B           B=DATA TO WRITE
;
;
;JSR R5,READ
;.WORD A           A=ADDRESS TO READ
;
;MICRO DIAG NB 47 DESCRIPTION:
;WRITE: PUT ADDRESS TO WRITE IN SEL2
;        PUT DATA TO WRITE IN SEL4
;        SET BIT 0 OF SEL6(WRITE BIT)
;        SET TEST NB 44
;        KMV11 CLEAR BSELO WHEN DONE
;
;READ:  PUT ADDRESS TO READ IN SEL2
;        CLEAR BIT 0 IN SEL6
;        SET TEST 47
;        KMV11 READ ADDRESS IN SEL2 AND CLEAR BSELO WHEN DONE

WRITE:  MOV (R5),@KMVP02 ;WRITE ADDRESS
        MOV (R5),@KMVP04 ; " DATA
        MOV #1,@KMVP06 ;BIT WRITE
        JSR R5,TSTNUR ;SEND TEST NB 44
        .WORD 47
        RTS R5 ;RETURN

READ:   MOV (R5),@KMVP02 ;SET ADDRESS TO READ
        CLR @KMVP04
        CLR @KMVP06
        JSR R5,TSTNUR ;SEND TEST NB 44
        .WORD 47
        JSR PC,TSTERR ;CHECK BSEL 0
        BR 1$ ;OK

```

014604	012577	175642	
014610	012577	175640	
014614	012777	000001	175634
014622	004537	014556	
014626	000047		
014630	000205		
014632	012577	175614	
014636	005077	175612	
014642	005077	175610	
014646	004537	014556	
014652	000047		
014654	004737	013074	
014660	000412		

2172	014662	000402				BR	2\$	
2173	014664	000401				BR	2\$	
2174	014666	000400				BR	2\$	
2175								
2176	014670				2\$:	ERRHRD	4,EM0004	;NO KMV ANSWER
2177	014700	004737	012732			JSR	PC,CHKMAX	
2178	014704	000205				RTS	R5	
2179								
2180	014706	017737	175542	012366	1\$:	MOV	@KMVP04,BAD	;READ DATA IN BAD
2181	014714	000205				RTS	R5	
2182								
2183								
2184								
2185								
2186								

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```
.MACRO ED$CALL XY
.LIST
;***** TEST'XY' *****
.NLIST
.ENDM
```

```
.MACRO BADHEAD
.RADIX 10
ED$CALL \T$TESTNUM+1
.RADIX 8
.ENDM
```

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.SBTTL GLOBAL ERROR REPORT SECTION

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

.NLIST BEX

014716	040	102	125	TIM:	.ASCIZ	/ BUS TIMEOUT/
014733	045	116	045	TFM36:	.ASCIZ	/#N#AREGISTER ADDRESS ERROR,ADDRESS = #06#A,UNIT = #02/
015021	115	101	123	EM0001:	.ASCIZ	/MASTER CLEAR FAIL TO RESET: DCT11 CAN'T CLEAR MASTER CLEAR /
015115	040	113	115	EM0002:	.ASCIZ	/ KMV11 REGISTERS CAN'T BE CLEARED /
015160	040	104	101	EM0003:	.ASCIZ	/ DATA COMPARE ERROR ON KMV11 REGISTER (SEL2 TO SEL16)/
015246	040	116	117	EM0004:	.ASCIZ	/ NO ANSWER FROM KMV11 /
015275	124	111	115	EM0006:	.ASCIZ	/TIMEOUT DURING KMV11 MICRO TEST /
015336	111	116	124	EM0007:	.ASCIZ	/INTERUPT OCCURED ON KMV11 AT INCORRECT VECTOR /
015416	113	115	126	EM0011:	.ASCIZ	/KMV11 REAL TIME CLOCK FAILED TO INTERUPT /
015470	107	105	116	EM0012:	.ASCIZ	/GENERATOR COUNT CAN'T BE READ OR WRITE CORRECTLY /
015552	107	105	116	EM0013:	.ASCIZ	/GENERATOR OUTPUT ISN'T IN A GOOD STATE(NO ACTION ON OUTPUT)/
015646	116	117	040	EM0033:	.ASCIZ	/NO CHANGE IN BAUD RATE GENERATOR COUNT /
015716	116	117	040	EM0014:	.ASCIZ	/NO ACTION ON BAUD RATE GENERATOR OUTPUT /
015767	105	122	122	EM0015:	.ASCIZ	/ERROR WHEN TRANSMITTING IN INTERNAL LOOP WITHOUT INTERUPTS /
016063	105	122	122	EM0016:	.ASCIZ	/ERROR WHEN TRANSMITTING FRAMES IN INTERNAL LOOPBACK MODE /
016156	105	122	122	EM0017:	.ASCIZ	/ERROR WHEN TRANSMITTING FRAMES IN EXTERNAL LOOPBACK /
016243	105	122	122	EM0022:	.ASCIZ	/ERROR DURING TRANSMISSION AND RECEPTION OF FRAMES /
016326	122	105	101	EM0023:	.ASCIZ	/REAL TIME CLOCK INTERUPT OCCURED TOO EARLY /
016402	111	116	103	EM0024:	.ASCIZ	/INCORRECT KMV11 REPLY /
016431	116	117	040	EM0027:	.ASCIZ	/NO LOOP BACK CONNECTOR,TEST NOT EXECUTED /
016503	105	122	122	EM0031:	.ASCIZ	/ERROR WHEN TRANSMITTING IN INTERNAL LOOP WITHOUT INTERUPTS /
016577	115	117	104	EM0032:	.ASCIZ	/MODEM SIGNAL ERROR ON CHANNEL IN EXTERNAL LOOPBACK /
016663	040	120	122	EM0035:	.ASCIZ	/ PROM REVISION IS NOT COMPATIBLE WITH DIAGNOSTIC REVISION/
016755	040	111	116	EM0036:	.ASCIZ	/ INTERUPT OCCURED ON DCT11 WHEN REAL TIME CLOCK IS DISABLE

2269	017050	045	116	045	MSELO: .ASCIZ /#N#A	SELO = #06#A	SHOULD BE = #06#N/
2270							
2271	017116	045	116	045	MREG0: .ASCIZ /#N#A	SELO = #06#A	SHOULD BE = #06/
2272	017162	045	116	045	MREG2: .ASCIZ /#N#A	SEL2 = #06#A	SHOULD BE = #06/
2273	017226	045	116	045	MREG4: .ASCIZ /#N#A	SEL4 = #06#A	SHOULD BE = #06/
2274	017272	045	116	045	MREG6: .ASCIZ /#N#A	SEL6 = #06#A	SHOULD BE = #06/
2275	017336	045	116	045	MREG10: .ASCIZ /#N#A	SEL10 = #06#A	SHOULD BE = #06/
2276	017402	045	116	045	MREG12: .ASCIZ /#N#A	SEL12 = #06#A	SHOULD BE = #06/
2277	017446	045	116	045	MREG14: .ASCIZ /#N#A	SEL14 = #06#A	SHOULD BE = #06/
2278	017512	045	116	045	MREG16: .ASCIZ /#N#A	SEL16 = #06#A	SHOULD BE = #06/
2279							
2280							
2281	017556	045	116	045	MINT: .ASCIZ /#N#A	GOOD = #06#A	BAD = #06/
2282							
2283	017612	045	116	045	MSELO: .ASCIZ /#N#A	BSELO = #06#A	SHOULD BE = #06/
2284							
2285							
2286	017654	045	116	045	MVECT: .ASCIZ /#N#A	RECEIVE BAD VECT = #06#A	SHOULD BE = #06/
2287							
2288							
2289							
2290							
2291							
2292	017730	045	116	045	MT11V: .ASCIZ /#N#A	RECEIVE VECTOR = #06#A	SHOULD BE = #06/
2293	020006	045	116	045	MFRAM1: .ASCIZ /#N#A	RECEIVE FRAME IS = #06#A	SHOULD BE = #06/
2294	020064	045	116	045	MFRAM2: .ASCIZ /#N#A	TRANSMIT SPEED IS = #06#A	FRAME LENGTH = #06/
2295							
2296							
2297	020146	045	116	045	MSTER1: .ASCIZ /#N#A	ERROR STATUS = #06/	
2298	020200	045	116	045	MSTER2: .ASCIZ /#N#A	WORD COUNT DISCREPANCY = #06/	
2299							
2300	020243	045	116	045	MODEM1: .ASCIZ /#N#A	TESTED MODEM SIGNAL IS = #06/	
2301	020307	045	116	045	MODEM2: .ASCIZ /#N#A	RESULT OF TEST IS = #06/	
2302	020346	045	116	045	MODEM3: .ASCIZ /#N#A	MODEM SIGNAL STATE IS = #06/	
2303	020411	045	116	045	MODEM4: .ASCIZ /#N#A	SEE TEST HEADER FOR SIGNAL DESCRIPTION /	
2304							
2305	020466	045	116	045	MRAMEF: .ASCIZ /#N#A	TXDATA = #06#A .	RXDATA = #06/
2306							
2307	020537	045	116	045	MLOOP: .ASCIZ /#N#A	NO LOOP BACK CONNECTOR, TEST NOT EXECUTED /	
2308					.EVEN		

2310	020616		BGNMSG	PRSELO		;REPORT SELO
2311	020616		PRINTB	#MSELO,SELO,GOOD		
2312	020646	004737 012732	JSR	PC,CHKMAX		;CHECK IF TOO MANY ERROR
2313	020652		BREAK			
2314	020654		ENDMSG			
2315						
2316						
2317						
2318	020656		BGNMSG	PRINT		
2319	020656		PRINTB	#MINT,GOOD,BAD		
2320	020706	004737 012732	JSR	PC,CHKMAX		;CHECK IF TOO MANY ERROR
2321	020712		BREAK			
2322	020714		ENDMSG			
2323						
2324						
2325	020716		BGNMSG	PRALL		;REPORT CONTENT OF ALL CSR'S
2326	020716		PRINTB	#MREG0,SELO,GOOD0		
2327	020746		PRINTB	#MREG2,SEL2,GOOD2		
2328	020776		PRINTB	#MREG4,SEL4,GOOD4		
2329	021026		PRINTB	#MREG6,SEL6,GOOD6		
2330	021056		PRINTB	#MREG10,SEL10,GOOD10		
2331	021106		PRINTB	#MREG12,SEL12,GOOD12		
2332	021136		PRINTB	#MREG14,SEL14,GOOD14		
2333	021166		PRINTB	#MREG16,SEL16,GOOD16		
2334	021216	004737 012732	JSR	PC,CHKMAX		;CHECK IF TOO MANY ERROR
2335	021222		BREAK			
2336	021224		ENDMSG			
2337						
2338						
2339						
2340						
2341						
2342						
2343	021226		BGNMSG	PRREG		;REPORT ALL CSR'S BUT SELO
2344	021226		PRINTB	#MREG2,SEL2,GOOD2		
2345	021256		PRINTB	#MREG4,SEL4,GOOD4		
2346	021306		PRINTB	#MREG6,SEL6,GOOD6		
2347	021336		PRINTB	#MREG10,SEL10,GOOD10		
2348	021366		PRINTB	#MREG12,SEL12,GOOD12		
2349	021416		PRINTB	#MREG14,SEL14,GOOD14		
2350	021446		PRINTB	#MREG16,SEL16,GOOD16		
2351	021476	004737 012732	JSR	PC,CHKMAX		;CHECK IF TOO MANY ERROR
2352	021502		BREAK			
2353	021504		ENDMSG			
2354						
2355						
2356						
2357						
2358	021506		BGNMSG	PADFLT		;ADDRESS TEST
2359	021506		PRINTB	#TFM36,ADDR,UNIT		
2360	021536	004737 012732	JSR	PC,CHKMAX		
2361	021542		ENDMSG			
2362						
2363						
2364						
2365						
2366						

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2369
2370 021544      BGNMSG  PBSELO           ;REPORT BSELO
2371 021544      PRINTB  #MBSELO,BSELO,GOOD
2372 021574 004737 012732 JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
2373 021600      BREAK
2374 021602      ENDMSG
2375
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2383 021604      BGNMSG  PVECT           ;REPORT VECTOR
2384 021604      PRINTB  #MVECT,VECT,GOOD
2385 021634 004737 012732 JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
2386 021640      BREAK
2387 021642      ENDMSG
2388
2389
2390
2391
2392 021644      BGNMSG  PRT11V          ;CHECK IF TOO MANY ERROR
2393 021644      PRINTB  #MT11V,VECT,GOOD
2394 021674 004737 012732 JSR      PC,CHKMAX
2395 021700      BREAK
2396 021702      ENDMSG
2397
2398
2399
2400
2401 021704      BGNMSG  PFRAME           ;REPORT FRAME ERROR
2402 021704      PRINTB  #MFRAM1,RXDATA,TXDATA
2403 021734      PRINTB  #MFRAM2,TSPEED,LENGTH
2404 021764 004737 012732 JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
2405 021770      BREAK
2406 021772      ENDMSG
2407
2408
2409
2410
2411
2412 021774      BGNMSG  PMODEM          ;REPORT MODEM SIGNAL ERROR
2413 021774      PRINTB  #MODEM1,GOOD
2414 022020      PRINTB  #MODEM2,BAD
2415 022044      PRINTB  #MODEM3,DATA
2416 022070      PRINTB  #MODEM4
2417 022110 004737 012732 JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
2418 022114      BREAK
2419 022116      ENDMSG
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2422
2423

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2427 022120
2428 022120
2429 022150
2430 022152
2431
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2434
2435 022154
2436 022154
2437 022200
2438 022224 004737 012732
2439 022230
2440 022232
2441
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BGNMSG PRAMEF
PRINTB #MRAMEF, TXDATA, RXDATA
BREAK
ENDMSG

;SHORT REPORT FOR FRAME ERROR

BGNMSG PRSTER
PRINTB #MSTER1, STAERR
PRINTB #MSTER2, WRDCNT
JSR PC, CHKMAX
BREAK
ENDMSG

;REPORT ERROR STATUS ,WORD CNT

;CHECK IF TOO MANY ERROR

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2458 022234
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2466 022234
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2475 022240
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.SBTTL REPORT CODING SECTION

: THE REPORT CODING SECTION CONTAINS THE
: "PRINTS" CALLS THAT GENERATE STATISTICAL REPORTS.
:--

BGNRPT

EXIT RPT

ENDRPT


```

2479          .SBTTL  INITIALIZE SECTION
2480
2481          ;////////////////////////////////////////////////////////////////////
2482          ;/ THE INITIALIZE SECTION CONTAINS THE CODING THAT IS PERFORMED
2483          ;/ AT THE BEGINNING OF EACH PASS.
2484          ;////////////////////////////////////////////////////////////////////
2485
2486 022242          BGNINIT
2487
2488
2523          .EVEN
2524
2525          .EVEN
2526
2527          .EVEN
2528
2529 022242          SETVEC  #140,#170000,#340          ;ODT ROM ADDRESS          ;JB REV A-0
2530
2531          ;INITIALIZE SUBROUTINE STACK
2532 022270 012705 012672          MOV      #SSTACK,R5
2533          ;STORE BASE LEVEL PROGRAM STACK POINTER
2534 022274 010637 002246          MOV      SP,PSTACK
2535 022300 005737 002250          TST      FTIME
2536 022304 001011          BNE      1$
2537 022306 013737 000004 002252          MOV      @#4,SAVE4
2538 022314 013737 000006 002254          MOV      @#6,SAVE6
2539 022322 012737 000001 002250          MOV      #1,FTIME
2540 022330 013737 002252 000004 1$: MOV      SAVE4,@#4
2541 022336 013737 002254 000006          MOV      SAVE6,@#6
2542
2543 022344          READEF  #EF.START          ;START COMMAND?
2544 022352          BCOMPLETE          SETUP          ;IF YES BRANCH
2545
2546 022354          READEF  #EF.CONTINUE          ;CONTINUE COMMAND?
2547 022362          BCOMPLETE          END
2548
2549 022364          READEF  #EF.NEW          ;NEW PASS?
2550 022372          BNCOMPLETE          NEXT          ;IF NOT EXIT SETUP
2551
2552 022374 012737 177777 012432 SETUP: MOV      #-1,UUT          ;INITIALISE UNIT NUMBER
2553
2554 022402 005237 012432          NEXT: INC      UUT          ;POINT NEXT UNIT
2555 022406 023737 012432 002240          CMP      UUT,L$UIT          ;ALL DONE?
2556 022414 001521          BEQ      ABORT          ;IF YES END OF PASS
2557
2558 022416 013701 012432          MOV      UUT,R1
2559 022422          PRINTF  #RUNNING,R1          ;PRINT RUNNING MESSAGE
2560          .EVEN
2561
2562
2563 022444          GPHARD  UUT,R1          ;GET P TABLE
2564 022454          BNCOMPLETE          NEXT          ;IF NOT AVAILABLE GET NEXT
2565
2566
2567 022456          GETPRM:
2568
2569 022456 011137 012450          MOV      (R1),KMVCSR          ;GET ADDRESS OF KMV11

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2570
2571 022462 011137 012452          MOV    (R1),KMVP02          ;GET POINTER TO KMV11 SEL02 REG
2572 022466 062737 000002 012452  ADD    #2,KMVP02
2573
2574 022474 011137 012454          MOV    (R1),KMVP04          ;GET POINTER TO KMV11 PORT REG - SEL 4
2575 022500 062737 000004 012454  ADD    #4,KMVP04
2576
2577 022506 011137 012456          MOV    (R1),KMVP06          ;GET POINTER TO KMV11 PORT REG - SEL 6
2578 022512 062737 000006 012456  ADD    #6,KMVP06
2579
2580 022520 011137 012460          MOV    (R1),KMVP10         ;GET POINTER TO KMV11 REG 10
2581 022524 062737 000010 012460  ADD    #10,KMVP10
2582
2583 022532 011137 012462          MOV    (R1),KMVP12         ;GET POINTER TO KMV11 REG 12
2584 022536 062737 000012 012462  ADD    #12,KMVP12
2585
2586 022544 011137 012464          MOV    (R1),KMVP14         ;GET POINTER TO KMV11 REG 14
2587 022550 062737 000014 012464  ADD    #14,KMVP14
2588
2589 022556 012137 012466          MOV    (R1)+,KMVP16        ;GET POINTER TO KMV11 REG 16
2590 022562 062737 000016 012466  ADD    #16,KMVP16
2591
2592 022570 011137 012434          MOV    (R1),KMVV00         ;GET POINTER TO VECTOR 0
2593
2594 022574 011137 012442          MOV    (R1),KMVV02         ;GET POINTER TO VECTOR 2
2595 022600 062737 000002 012442  ADD    #2,KMVV02
2596
2597 022606 011137 012440          MOV    (R1),KMVV04         ;GET POINTER TO VECTOR 4
2598 022612 062737 000004 012440  ADD    #4,KMVV04
2599
2600 022620 012137 012444          MOV    (R1)+,KMVV06        ;GET POINTER TO VECTOR 6
2601 022624 062737 000006 012444  ADD    #6,KMVV06
2602
2603 022632 012137 012436          MOV    (R1)+,KMVLVL        ;GET POINTER TO TX PRIORITY LEVEL
2604 022636 062737 000006 012446  ADD    #6,KMTLVL
2605
2606 022644 011137 012470          MOV    (R1),LOOP          ;GET LOOPBACK PARAMETERS:
2607
2608 022650 005037 002234          CLR    ERRCNT             ;CLEAR ERROR COUNT
2609 022654          EXIT    INIT
2610
2611
2612
2613 022660          ABORT: DOCLN             ;CLEAN UP AND ABORT PASS
2614 022662          EXIT INIT              ;EXIT
2615
2616
2617
2618
2619
2620 022666          045    116    045  RUNNING: .NLIST BEX          .ASCIZ /N#A RUNNING ON UNIT #D2#A /
2621
2622          .LIST BEX
2623          .EVEN
2624
2625
2626

```

KMV11 A LINE CNT DIAGNOSTIC
INITIALIZE SECTION

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B6

SEQ 66

2627 022724
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END: ENDINIT

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013701 012450
012705 000007
012737 022770 000004
012737 000300 000006
005711
000240
062701 000002
005305
001372
000405
062706 000004
013737 002252 000004
013737 002254 000006

.SBTTL AUTODROP SECTION

;;
; THIS CODE IS EXECUTED IMMEDIATELY AFTER THE INITIALIZE CODE IF
; THE "ADR" FLAG WAS SET. THE UNIT(S) UNDER TEST ARE CHECKED TO
; SEE IF THEY WILL RESPOND. THOSE THAT DON'T ARE IMMEDIATELY
; DROPPED FROM TESTING.

;-
.EVEN
; BGNAUTO

;DEVICE DOES NOT HAVE A "READY"
MOV KMVCSR,R1 ;R1 CONTAINS BASE KMV11 ADDRESS
MOV #7,R5 ;7 REGISTERS TO BE TESTED
MOV #2\$,4 ;SET OUT TIMEOUT TRAP
MOV #340,6 ;LEVEL 7 ;JB REV A-0
MOV #300,6 ;LEVEL 6 ;JB REV A-0
1\$: TST (R1) ;REFERENCE DEVICE REGISTERS
NOP
ADD #2,R1 ;NEXT REGISTER
DEC R5 ;DEC REGISTER COUNT
BNE 1\$;BR IF NOT LAST REGISTER
BR 3\$
2\$: ADD #4,SP
DODU LOGDEV
3\$: MOV SAVE4,4
MOV SAVE6,6
ENDAUTO

2677
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2684 023020
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2709 023020
2710
2711 023022

.SBTTL CLEANUP CODING SECTION

:/

:/ THE CLEANUP CODING SECTION CONTAINS THE CODING THAT IS PERFORMED
:/ AT THE END OF EACH PASS.

:/

BGNCLN

BRESET

ENDCLN

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023024

023046

045 116

045 DROPD:

023102

.SBTTL DROP UNIT SECTION

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

BGNDU

.EVEN

PRINTF #DROPD,RO ;UNIT DROPPED

EXIT DU

.NLIST BEX
.ASCIZ /#N#A UNIT #D2#A DROPPED/
.LIST BEX
.EVEN

ENDDU

2768
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2777
2786
2787 023104
2788 023104
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2794

.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.
:/

BGNAU
ENDAU

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2797
2798
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2800
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023106

.SBTTL HARDWARE TESTS

;START OF CODE BLOCK WHICH IS USED AS DATA
ROMMAP:;+
; TEST TO ...
;--

; BGNTST

; EXIT TST

; .EVEN
; ENDTST

2850 023106

BADHEAD

***** TEST1 *****
; *VERIFY THAT REFERENCING UNIBUS DEVICE REGISTERS
; *DOES NOT CAUSE A TIME OUT TRAP
BADHEAD

2851
2852
2853 023106

***** TEST1 *****

2854
2855 023106

BGNTST

2856 023106 013701 012450
2857 023112 012705 000007
2858 023116 012737 023154 000004

MOV KMVCSR,R1 ;R1 CONTAINS KMV11 ADDRESSES
MOV #7,R5 ;7 REGISTERS TO BE TESTED
MOV #2\$,4 ;SET OUT TIMEOUT TRAP

2859
2860 023124 012737 000300 000006

; MOV #340,6 ;LEVEL 7 ;JB REV A-0
1\$: MOV #300,6 ;LEVEL 6 ;JB REV A-0

2861 023132 005711
2862 023134 000240

TST (R1) ;REFERENCE DEVICE REGISTERS

2863 023136
2864 023142 062701 000002

NOP
ESCAPE TST ;NEXT REGISTER

2865 023146 005305
2866 023150 001370

ADD #2,R1 ;DEC REGISTER COUNT
DEC R5 ;BR IF NOT LAST REGISTER

2867 023152 000413
2868

BNE 1\$
BR 3\$

2869 023154 062706 000004
2870 023160 010137 002354

2\$: ADD #4,SP
MOV R1,ADDR

2871 023164 013737 012432 012422
2872 023172

MOV UUT,UNIT
ERRHRD 0,TIM,PADFLT ;TIME OUT ERROR

2873
2874 023202 013737 002252 000004

3\$: MOV SAVE4,4
MOV SAVE6,6

2875 023210 013737 002254 000006
2876 023216

ESCAPE TST

2877
2878 023222

ENDTST

2879
2880

.EVEN

```

2882 023224      BADHEAD
2883             ;***** TEST2 *****
2884 023224      ;CHECK PROM REVISION TO SEE IF COMPATIBLE WITH DIAGNOSTIC
                BADHEAD
                ;***** TEST2 *****

2885
2886
2887
2888
2889 023224      STARS 1
2890             ;READ LOCATION 2 OF THE PROM (ADDRESS 160002) WHICH CONTAINS PROM VERSION
2891             ;      NUMBER
2892             ;CHECK IF DIAGNOSTIC AND PROM ARE COMPATIBLE AND GIVE AN ERROR IF NOT
2893 023224      STARS 1
2894
2895
2896
2897
2898
2899 023224      BGNTST
2900 023224      004737 014372      JSR      PC,CLRKMV      ;CLEAR ALL REGISTERS
2901 023230      004737 014474      JSR      PC,MAINM1     ;SET MAINT MODE
2902
2903
2904 023234      004537 014632      REVPRO: JSR      R5,READ      ;READ LOCATION 160002
2905 023240      160002              .WORD      160002
2906
2907
2908 023242      023737 012424 012366      CMP      GDREV,BAD      ;LOOK IF COMPATIBLE
2909 023250      001410              BEQ      1$              ;YES
2910
2911 023252      ERRHRD 7,EM0035      ;REPORT THE ERROR
2912 023262      004737 012732      JSR      PC,CHKMAX     ;CHECK IF TOO MANY ERROR
2913 023266      ESCAPE TST
2914 023272
2915 023272      1$:
                ENDTST

```

2917
2918
2919 023274

2920
2921 023274

2922
2923
2924
2925
2926
2927
2928 023274
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2969
2970
2971 023274

```
BADHEAD
;***** TEST3 *****
;REAL TIME CLOCK TEST
BADHEAD
;***** TEST3 *****

STARS 1
;THIS TEST CHECK KMV11 REAL TIME CLOCK.
;THE DCT11 FULLY EXECUTE THIS MICRO TEST AND GIVE A RESULT VIA CSR'S
;TO THE HOST. (TIMING IN CHECKED BY DCT11)
;
;
;TEST DESCRIPTION:
;
;DCT11 ENABLE KMV11 CLOCK,AND THEN SET UP A 80 MS PERIODE CLOCK.
;
;DCT11 WAIT FOR AT LEAST 80 MS AND CHECK IF AN INTERUPT OCCUR
;ON DCT11 CHIP AT VECTOR 130
;
;
;DCT11 TURN OF CLOCK, WAIT AGAIN FOR MORE THAN 80 MS AND CHECK THAT
;NO INTERUPT OCCUR
;
;ERROR REPORTING:          BSELO=200          IF TIMEOUT DURING TEST
;                            BSELO=100          IF ERROR DURING TEST
;                            BSELO=TEST NUB     IF NO KMV11 ANSWER
;                            BSELO=0           IF TEST IS OK
;
;IF ERROR                  SEL6=1             IF NO INTERUPT OCCUR
;                            SEL6=2             IF BAD VECTOR
;                            SEL6=4             IF INTERUPT OCCUR WHEN CLOCK
;                            IS NOT ENABLE
;                            SEL6=10            INTERUPT OCCUR TOO EARLY
;
;
;                            SEL2=EXPECTED VECTOR
;
;
; MICRO TEST NB= 27
;
;
;CAUTION:                  KMV11 CRISTAL FREQUENCY CAN'T BE CHECKED WITH THIS TEST;
;                            FOR THAT THE OPERATOR MUST SCOPE THE CRISTAL SIGNAL
;                            DIRECTLY ON THE MODULE ON IC Y2 (13824 KHZ)

STARS 1
```

```

2973
2974 023274          BGNTST
2975 023274 004737 014372      JSR    PC,CLRKMV      ;CLR REG
2976 023300 004737 014474      JSR    PC,MAINM1     ;SET MAINT MODE
2977 023304 004537 014556      RTCLK: JSR    R5,TSTNUB
2978 023310 000027              .WORD    27
2979
2980 023312          WAITB    0,2      ;WAIT FOR TEST EXECUTION
2981
2982
2983 023332 004737 013074      JSR    PC,TSTERR     ;CHECK BSELO
2984 023336 000522              BR      1$           ;TEST OK
2985 023340 000423              BR      2$           ;TIMEOUT ERROR
2986 023342 000432              BR      3$           ;NO KMV ANSWER
2987
2988
2989 023344 022777 000001 167104  CMP    #1,@KMVP06    ;ERROR DURING TEST ,SEE WHICH ONE
2990 023352 001436              BEQ    4$           ;NO INTERRUPT OCCUR
2991
2992 023354 022777 000002 167074  CMP    #2,@KMVP06
2993 023362 001442              BEQ    5$           ;INT ON BAD VECTOR
2994
2995 023364 022737 000004 012456  CMP    #4,KMVP06
2996 023372 001454              BEQ    6$           ;INT OCCUR WHEN CLOCK IS DESABLE
2997
2998
2999
3000 023374 022737 000010 012456  CMP    #10,KMVP06
3001 023402 001460              BEQ    7$           ;INTERUPT OCCUR TOO EARLY
3002
3003 023404 000137 023564          JMP    10$          ;WRONG KMV11 ANSWER
3004
3005
3006
3007
3008 023410          2$:  ERRHRD    8,EM0006      ;TIMEOUT ERROR
3009 023420 004737 012732      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3010 023424          ESCAPE    TST
3011
3012
3013
3014 023430          3$:  ERRHRD    9,EM0004      ;NO KMV11 ANSWER
3015 023440 004737 012732      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3016 023444          ESCAPE    TST
3017
3018
3019 023450          4$:  ERRHRD   10,EM0011     ;NO INTERRUPT OCCUR
3020 023460 004737 012732      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3021 023464          ESCAPE    TST
3022
3023
3024
3025 023470 017737 166760 012374 5$:  MOV     @KMVP04,VECT  ;READ BAD VECT
3026 023476 012737 000130 002264  MOV     #130,GOOD
3027 023504          ERRHRD   11,EM0007     ;INTERUPT OCCUR AT A BAD VECTOR
3028 023514 004737 012732      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3029 023520          ESCAPE    TST

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3030
3031
3032 023524          6$:  ERRHRD  12,EM0036      ;INT OCCUR WHEN CHIP IS DESABLE
3033 023534 004737 012732  JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
3034 023540          ESCAPE TST
3035
3036
3037
3038
3039 023544          7$:  ERRHRD  13,EM0023      ;INTERUPT OCCUR TOO EARLY ON KMV11
3040 023554 004737 012732  JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
3041 023560          ESCAPE TST
3042
3043
3044
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3047
3048 023564          10$: ERRHRD  14,EM0024      ;INCORRECT KMV11 RESULT
3049 023574 004737 012732  JSR      PC,CHKMAX      ;CHECK IF TOO MANY ERROR
3050 023600          ESCAPE TST
3051
3052
3053
3054
3055 023604 000240          1$:  NOP
3056 023606          ENDTST
3057
3058
3059

```

3061 023610

BADHEAD
:***** TEST4 *****
:BAUD RATE GENERATOR TEST
BADHEAD
:***** TEST4 *****

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3063 023610

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3072 023610

STARS 1
:THIS TEST READ THE STATUS AND THE OUTPUT OF THE BAUD RATE GENERATOR
:DURING EACH PHASE OF THE CLOCK PULSE.
:NOTE:THIS TEST AND ALL THE VERIFICATIONS ARE MADE BY THE DCT11 WHICH
:ONLY GIVE TEST RESULT VIA CSR'S TO THE HOST(TIMING IS CHECKED BY DCT11)

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:
:TEST DESCRIPTION:
:-DCT11 LOAD GENERATOR COUNT WITH MAX COUNT (=+4.74 MSEC)
:-READ BACK GENERATOR COUNT ,STATUS AND VALIDATE REPOSE.

STEP 1:READ COUNT AFTER STARTING CLOCK
CLOCK COUNT MUST BE NEGATIVE
OUTPUT MUST BE = 1

ERROR REPORTING:
IF COUNT=POSITIVE BSELO=100=ERROR
SEL6 =1 =GENE COUNT CAN'T BE READ OR
WRITEN CORRECTLY
IF OUTPUT=0 BSELO=100=ERROR
SEL6 =2 =GENE OUTPUT IS NOT CORRECT

STEP 2: WAIT 2,5MSEC AND READ BACK AGAIN GENERATOR COUNT AND STATUS
OUTPUT MUST BE = 0

3100
3101
3102
3103
3104
3105
3106
3107
3108
3109

ERROR REPORTING:
IF OUTPUT =1 BSELO=100= ERROR
SEL6=10 =OUTPUT ISN'T IN A GOOD STATE

STEP3:WAIT 2.5 MSEC MORE AND READ BACK AGAIN GENERATOR COUNT AND STATUS
OUTPUT MUST BE = 1

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3126 023610

: ERROR REPORTING:
:
: IF OUTPUT=0
:
: -ELSE EXIT
:
:
: TEST 30= TEST GENERATOR A
: STARS 1

BSELO=100=ERROR
SEL6=40 =NO ACTION ON GENERATOR OUTPUT

```

3128 023610          BGNTST
3129 023610 004737 014372      JSR    PC,CLRKMV      ;CLR REG
3130 023614 004737 014474      JSR    PC,MAINM1     ;SET MAINT MODE
3131 023620 004537 014556      JSR    R5,TSTNUB
3132 023624 000030      .WORD  30
3133
3134
3135 023626          BDRGEN: WAITB  0,1      ;WAIT FOR TEST EXECUTION
3136
3137 023646 004737 013074      JSR    PC,TSTERR     ;CHECK BSELO TO SEE IF ERROR
3138 023652 000137 024052      JMP    BDROKO        ;TEST OK BR AT END
3139 023656 000402          BR     2$           ;TIME OUT ERROR
3140 023660 000401          BR     2$           ;NO KMV11 ANSWER
3141 023662 000410          BR     3$           ;ERROR DURING TEST
3142
3143
3144
3145 023664          2$:  ERRHRD  15,EM0004      ;NO KMV11 ANSWER
3146 023674 004737 012732      JSR    PC,CHKMAX     ;CHECK IF TOO MANY ERROR
3147 023700          ESCAPE TST
3148
3149
3150
3151 023704          3$:
3152 023704 017737 166546 002320  MOV    @KMVP06,SEL6  ;LOOK WHICH ERROR
3153 023712 022737 000001 002320  CMP    #1,SEL6       ;READ SEL6
3154 023720 001010          BNE    4$           ;LOOK IF ERROR 1
3155
3156 023722          ;GENE COUNT CAN'T BE READ OR WRITTE CORRECTLY
3157 023732 004737 012732      ERRHRD  16,EM0012   ;CHECK IF TOO MANY ERROR
3158 023736          JSR    PC,CHKMAX
3159          ESCAPE TST
3160
3161 023742 022737 000002 002320  4$:  CMP    #2,SEL6       ;LOOK IF ERROR 2
3162 023750 001010          BNE    5$           ;NO
3163
3164
3165
3166 023752          ;GENE OUTPUT ISN'T IN A GOOD STATE
3167 023762 004737 012732      ERRHRD  17,EM0013   ;CHECK IF TOO MANY ERROR
3168 023766          JSR    PC,CHKMAX
3169          ESCAPE TST
3170
3171
3172 023772 022737 000010 002320  5$:  CMP    #10,SEL6      ;EROR10?
3173 024000 001414          BEQ    GENOUT
3174 024002 022737 000040 002320  CMP    #40,SEL6
3175 024010 001410          BEQ    GENOUT
3176
3177 024012          ;WRONG KMV11 ANSWER
3178 024022 004737 012732      ERRHRD  18,EM0024   ;CHECK IF TOO MANY ERROR
3179 024026          JSR    PC,CHKMAX
3180          ESCAPE TST
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3183
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3185
3186 024032
3187 024042 004737 012732
3188 024046
3189
3190
3191
3192 024052
3193 024052

GENOUT: ERRHRD 19,EM0014
JSR PC,CHKMAX
ESCAPE TST

;NO ACTION ON GENERATOR OUTPUT
;CHECK IF TOO MANY ERROR

BDROKO:
ENDTST

3195
3196 024054

BADHEAD
:***** TEST5 *****
:TRANSMIT DIFFERENT FRAMES (OF 500 WORDS) AT 1.2 KBAUDS SPEED IN
:INTERNAL MODE WITHOUT ANY INTERRUPT ON CHANNEL A .
BADHEAD
:***** TEST5 *****

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3199 024054

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3205
3206
3207 024054

STARS 1
:QBUS WRITE DIFFERENT TX TABLE OF 500 WORDS, LOAD IN KMV11 CSR'S
:THE TX AND RX TABLE ADDRESS ,THE TABLE LENGTH AND TRANSFER SPEED
:
:
:
:DCT11 EXECUTE THE TRANSFER IN INTERNAL MODE ON CHA AND WRITE BACK
:IN RX TABLE (TRANSFER FROM QBUS TO KMV11 *DMA)
:QBUS CHECK BSELO TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF
:RX TABLE *TX TABLE

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:PARAMETERS SELECTION:
:SEL2* TX TABLE ADDRESS
:SEL4* TX TABLE LENGTH
:BSEL6* EXTENDED ADDRESS OF TX TABLE
:BSEL7* " " RX "
:SEL12* RX TABLE ADDRESS
:SEL14* SPEED SELECTION
:BSEL16* ERROR STATUS
:SEL10* RECEIVED BYTE COUNT DIFFERENCE BETWEEN RX AND TX TABLE
: >0 IF TX>RX
: <0 IF TX<RX
:BSELO* TEST STATUS

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3222
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3231
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3233

:TEST STATUS DESCRIPTION:
:BSELO* 0 *TEST DONE CHECK RX TABLE
:BSELO* 200 *TIMEOUT ERROR
:BSELO* TSTNB *NO KMV11 ANSWER
:BSELO* 100 *ERROR DURING TEST ,IN THAT CASE SEE WHICH KIND OF
:ERROR BY TESTING BSEL16.

3234
3235
3236
3237
3238
3239
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3241
3242

:ERROR STATUS DESCRIPTION:
:
:WHEN BSELO=100,GIVE STATUS AND WORD COUNT DISCREPANCY
:
:
:BSEL16* BIT14=1 *FCS ERROR
:BSEL16* BIT13=1 *OVERRUN ERROR

3243
3244
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3246
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3248
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```

3250      :      BSEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
3251      :      BSEL16= BIT7 =1 =RX ABORT ERROR
3252      :      BSEL16= BIT6 =1 =UNDERRUN ERROR
3253      :      BSEL16= BIT5 =1 =WORD COUNT DISCREPANCY
3254      :      BSEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
3255      :      BSEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
3256      :      BSEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
3257      :      BSEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USED
3258      :                                     ONLY DURING SELF TEST)
3259      :
3260      :MICRO DIAG TEST DESCRIPTION:
3261      :TEST 36      =TRANSMIT FRAMES AT 1.2KB SPEED ON CHANNEL A WITHOUT INTERRUPT
3262      :
3263      :
3264 024054 STARS 1

```

```

3266 024054          BGNTST
3267 024054 004737 014372      JSR   PC,CLRKMV          ;CLR REG
3268 024060 005037 012400      CLR   CHANEL
3269 024064 005037 002256      CLR   FLAG
3270 024070 004737 014474      JSR   PC,MAINM1        ;SET MAINT MODE
3271 024074 012737 000500 012410  MOV   #500,LENGTH      ;SELECT LENGTH
3272
3273 024102 012737 013224 012406  MOV   #KB1.2,TSPEED    ;SELECT SPEED
3274
3275 024110 012703 000001      INTTX: MOV  #1,R3       ;SELECT A PATTERN
3276
3277
3278 024114 005203      TXSTAR: INC   R3       ;NEW ONE
3279 024116          BREAK
3280 024120 013704 012410      MOV   LENGTH,R4       ;LOAD LENGTH
3281 024124 012702 002362      MOV   #TTABLE,R2      ;TX TABLE ADDRESS
3282 024130 004737 013152      10$: JSR   PC,GENER      ;WRITE TX TABLE
3283 024134 013722 012372      MOV   DATA,(R2)+
3284 024140 005304          DEC   R4
3285 024142 001372          BNE   10$             ;ALL DONE?
3286
3287
3288
3289 024144 013704 012410      MOV   LENGTH,R4
3290 024150 012702 006362      MOV   #RTABLE,R2      ;CLEAR RX TABLE
3291 024154 005022          CLR   (R2)+
3292 024156 005304          DEC   R4
3293 024160 001375          BNE   11$
3294
3295
3296
3297
3298 024162 013777 012406 166274  MOV   TSPEED,@KMVP14   ;SEND TX SPEED
3299 024170 012777 002362 166254  MOV   #TTABLE,@KMVP02  ;SEND TX TABLE ADDRESS
3300 024176 013777 012410 166250  MOV   LENGTH,@KMVP04   ;LOAD TX TABLE ADDRESS
3301 024204 012777 006362 166250  MOV   #RTABLE,@KMVP12  ;LOAD RX TABLE ADDRESS
3302 024212 005077 166240      CLR   @KMVP06
3303
3304
3305
3306
3307
3308 024216 004537 014556      JSR   R5,TSTNUB
3309 024222 000036          .WORD 36             ;DO TEST 36= CHA TEST
3310
3311
3312
3313 024224          WAITB 0.20          ;WAIT FOR TEST EXECUTION
3314
3315
3316 024244 004737 013074      JSR   PC,TSTERR       ;CHECK BSELO
3317
3318 024250 000427          BR   6$              ;TEST OK CHECK RX TABLE
3319 024252 000402          BR   3$              ;TIMEOUT ERROR
3320 024254 000401          BR   3$              ;NO KMV11 ANSWER
3321 024256 000410          BR   4$              ;CHECK SEL16 TO SEE WHICH ONE
3322

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3323
3324 024260          3$:  ERRHRD  25,EM0004          ;NO KMV11 ANSWER
3325 024270 004737 012732      JSR    PC,CHKMAX          ;CHECK IF TOO MANY ERROR
3326 024274          ESCAPE  TST
3327
3328
3329
3330 024300          4$:  ;ERROR DURING TEST READ ERROR STATUS
3331          ;TO CHECK WHICH ONE
3332
3333 024300 017737 166162 012416  MOV    @KMVP16,STAERR      ;READ ERROR STATUS
3334
3335 024306 017737 166146 012420  MOV    @KMVP10,WRDCNT      ;READ WORD COUNT DISCREPANCY
3336
3337 024314          ERRHRD  26,EM0031,PRSTER      ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
3338          ESCAPE  TST      ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
3339 024324
3340
3341
3342
3343
3344
3345
3346
3347
3348 024330 012702 002362          6$:  MOV    @TTABLE,R2          ;LOAD TXTABLE ADDRESS
3349 024334 012705 006362          MOV    @RTABLE,R5          ; " RXTABLE ADDRESS
3350 024340 013704 012410          MOV    LENGTH,R4          ;TABLE LENGTH
3351
3352 024344 022225          RXCK:  CMP    (R2)+,(R5)+      ;CHECK RX AND TX TABLE
3353 024346 001007          BNE    RXERR
3354 024350 005374          DEC    R4
3355 024352 001374          BNE    RXCK
3356
3357
3358
3359 024354 022703 000005          CMP    #5,R3
3360 024360 001255          BNE    TXSTAR
3361          ;ALL KIND OF PATTERN DONE?
3362 024362 000137 024504          JMP    RXEND
3363          ;NO TRY WHITH NEW ONE
3364 024366 162705 000002          RXERR: SUB    #2,R5
3365 024372 162702 000002          SUB    #2,R2
3366
3367 024376 011237 012402          MOV    (R2),TXDATA
3368 024402 011537 012404          MOV    (R5),RXDATA
3369
3370 024406 005737 002256          TST    FLAG
3371 024412 001014          BNE    7$
3372          ;LOOK IF 1ST ERROP
3373 024414          ERRHRD  27,EM0015,PFRAME      ;DATA CMP ERROR
3374 024424 005237 002256          INC    FLAG
3375 024430 062702 000002          ADD    #2,R2
3376 024434 062705 000002          ADD    #2,R5
3377 024440 000137 024344          JMP    RXCK
3378          ;POINT NEXT ADDRESS
3379 024444          7$:  ERRHRD  27,0,PRAMEF          ;SHORT REPORT

```

3380	024454	005237	002256		INC	FLAG	
3381	024460	062702	000002		ADD	#2,R2	
3382	024464	062705	000002		ADD	#2,R5	
3383	024470	022737	000010	002256	CMP	#10,FLAG	;POINT NEXT ADDRESS
3384	024476	001322			BNE	RXCK	;LOOK IF 10 REPORT
3385							
3386	024500				ESCAPE	TST	
3387							
3388							
3389	024504						
3390							
3391							
3392							
3393	024504						

RXEND:

ENDTST

```

3395
3396
3397
3398 024506      BADHEAD
                   ;***** TEST6 *****
3399             ;TRANSMIT DIFFERENT FRAME OF VARIOUS LENGTH (FROM 2BYTES TO 2K BYTES)
3400             ;AT 72 KBAUDS IN INTERNAL MODE ON CHANNEL A (TRANSMISSION WITH INTERRUPT)
3401 024506      BADHEAD
                   ;***** TEST6 *****

3402
3403
3404
3405
3406
3407
3408
3409 024506      STARS 1
3410             ;QBUS WRITE DIFFERENT TX TABLE OF VARIOUS LENGTH, LOAD IN KMV11 CSR'S
3411             ;THE TX AND RX TABLE ADDRESS ,THE TABLE LENGTH AND TRANSFER SPEED
3412             ;
3413             ;
3414             ;
3415             ;DCT11 EXECUTE THE TRANSFER IN INTERNAL MODE ON CHA AND WRITTE BACK
3416             ;IN RX TABLE
3417             ;QBUS CHECK BSELO TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF
3418             ;RX TABLE =TX TABLE
3419             ;SPEED=72 KBAUDS
3420             ;
3421             ;
3422             ;PARAMETERS SELECTION:
3423             ;   SEL2= TX TABLE ADDRESS
3424             ;   SEL4= TX TABLE LENGTH
3425             ;   BSEL6= EXTENDED ADDRESS OF TX TABLE
3426             ;   BSEL7= " " RX "
3427             ;   SEL12= RX TABLE ADDRESS
3428             ;   SEL14= SPEED SELECTION (= 141 IF 72KBAUDS)
3429             ;   BSEL16= ERROR STATUS
3430             ;   BSELO= TEST STATUS
3431             ;   SEL10= BYTE COUNT DESCREPNACY >0 IF TX>RX
3432             ;                                     <0 IF TX<RX
3433             ;
3434             ;
3435             ;TEST STATUS DESCRIPTION:
3436             ;   BSELO= 0 =TEST DONE CHECK RX TABLE
3437             ;   BSELO= 200 =TIMEOUT ERROR
3438             ;   BSELO= TSTNB =NO KMV11 ANSWER
3439             ;   BSELO= 100 =ERROR DURING TEST ,LOOK WHICH ONE BY TESTING BSEL16
3440             ;
3441             ;
3442             ;
3443             ;ERROR STATUS DESCRIPTION:
3444             ;
3445             ;   WHEN BSELO=100,GIVE CONTAINT OF ERROR STATUS AND WORD COUNT DISCREPANCY
3446             ;
3447             ;
3448             ;   BSEL16= BIT14=1 =FCS ERROR
3449             ;   BSEL16= BIT13=1 =OVERFUN ERROR

```

```

3450      :      BSEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
3451      :      BSEL16= BIT7 =1 =RX ABORT ERROR
3452      :      BSEL16= BIT6 =1 =UNDERRUN ERROR
3453      :      BSEL16= BIT5 =1 =BYTE COUNT DISCREPANCY
3454      :      BSEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
3455      :      BSEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
3456      :      BSEL16= BIT2 =1 =CLOCK PROBLEM (NO BUFFER EMPTY)
3457      :      BSEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
3458      :                                     ONLY DURING SELF TEST)
3459      :
3460      :
3461      : MICRO DIAG TEST DESCRIPTION:
3462      : TEST 40      =TRANSMIT VARIOUS LENGTH FRAME AT 72 KBAUDS ON CHANNEL A
3463      :
3464      :
3465 024506 STARS 1

```



```

3467 024506          BGNTST
3468 024506 004737 014372      JSR      PC,CLRKMV          ;CLR REG
3469 024512 005037 012400      CLR      CHANEL
3470 024516 004737 014474      JSR      PC,MAINM1        ;SET MAINT MODE
3471 024522 005037 002256      CLR      FLAG
3472
3473
3474 024526 012703 000005      MOV      #5,R3            ;SELECT RANDOM PATTERN
3475          ; THE FOLLOWING RATE WAS CHANGED FROM 72KB TO 64KB, AS 72KB CAUSED
3476          ; INTERMITTENT FAILURES OF THIS TEST. THIS SHOULD BE CHANGED TO
3477          ; 72KB IN A FUTURE RELEASE. IT IS RECOMMENDED THAT THIS TEST BE RUN
3478          ; AT 72KB (BY USING ODT).
3479          ;
3480 024532 012737 000154 012406  MOV      #KB72,TSPEED      ;SELECT SPEED ;JB REV A-0
3481          MOV      #KB64,TSPEED      ;SELECT SPEED ;JB REV A-0
3482 024540 012737 000001 012410  TXLTAR: MOV      #1,LENGTH      ;START WITH 2 CHARACTERS
3483
3484 024546 013704 012410      TXLBGN: MOV      LENGTH,R4
3485 024552 012702 002362      MOV      #TTABLE,R2
3486 024556 004737 013152      10$:   JSR      PC,GENER          ;WRITE TX TABLE
3487 024562 013722 012372      MOV      DATA,(R2)+
3488 024566 005304              DEC      R4
3489 024570 001372              BNE     10$
3490
3491 024572              BREAK
3492
3493 024574 013704 012410      MOV      LENGTH,R4          ;CLEAR RX TABLE
3494 024600 012702 006362      MOV      #RTABLE,R2
3495 024604 005022              CLR      (R2)+
3496 024606 005304              DEC      R4
3497 024610 001375              BNE     20$
3498
3499
3500
3501
3502
3503
3504 024612 013777 012406 165644  MOV      TSPEED,@KMVP14      ;SEND TX SPEED
3505 024620 012777 002362 165624  MOV      #TTABLE,@KMVP02      ; " TX TABLE ADDRESS
3506 024626 013777 012410 165620  MOV      LENGTH,@KMVP04       ; " " " LENGTH
3507 024634 012777 006362 165620  MOV      #RTABLE,@KMVP12     ;SEND RX TABLE ADDRESS
3508 024642 005077 165610      CLR      @KMVP06            ;CLR EXTENDED ADDRESS
3509
3510
3511
3512 024646 004537 014556      JSR      R5,ISTNUB          ;DO TEST 40= CHA TEST
3513 024652 000040              .WORD   40
3514
3515 024654              WAITB   0.2                  ;WAIT FOR TEST EXECUTION
3516
3517
3518 024674 004737 013074      JSR      PC,TSTERR          ;CHECK BSELO
3519
3520 024700 000427              BR      6$                  ;TEST OK CHECK RX TABLE
3521 024702 000402              BR      3$                  ;TIMEOUT ERROR
3522 024704 000401              BR      3$                  ;NO KMV11 ANSWER
3523 024706 000410              BR      4$                  ;CHECK SEL16 TO SEE WHICH ONE

```

```

3524
3525
3526 024710          3$:  ERRHRD  28,EM0004          ;NO KMV11 ANSWER
3527 024720 004737 012732  JSR      PC,CHKMAX          ;CHECK IF TOO MANY ERROR
3528 024724          ESCAPE  TST
3529
3530 024730          4$:
3531
3532
3533 024730 017737 165532 012416  MOV      @KMVP16,STAERR          ;READ ERROR STATUS
3534
3535 024736 017737 165516 012420  MOV      @KMVP10,WRDCNT          ;READ WORD COUNT DISCREPANCY
3536
3537 024744          ERRHRD  29,EM0022,PRSTER          ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
3538
3539 024754          ESCAPE  TST          ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
3540
3541
3542
3543
3544 024760 012702 002362          6$:  MOV      @TABLE,R2          ;LOAD TX TABLE ADDRESS
3545 024764 012705 006362          MOV      @RTABLE,R5          ; "  RX  "  "
3546 024770 013704 012410          MOV      LENGTH,R4          ; "  TX TABLE LENGTH
3547
3548
3549 024774 022522          RXLCK:  CMP      (R5)+,(R2)+          ;CMP TX AND RX TABLE
3550 024776 001015          BNE     RXLERR          ;BR IF ERROR
3551 025000 005304          DEC     R4          ;ALL DONE
3552 025002 001374          BNE     RXLCK          ;NO
3553
3554 025004 062737 000400 012410  ADD     #400,LENGTH          ;CHANGE LENGTH
3555 025012 022737 002000 012410  CMP     #2000,LENGTH          ;IS IT MAX?
3556 025020 100252          BPL     TXLBGN          ;NO DO TEST AGAIN WHITH NEW TABLE
3557
3558
3559 025022 005303          DEC     R3          ;SELECT OTHER PATERNS
3560 025024 001245          BNE     TXLTAR
3561
3562 025026 000137 025150          JMP     RXLEND
3563
3564
3565
3566 025032 162705 000002          RXLERR:  SUB     #2,R5
3567 025036 162702 000002          SUB     #2,R2
3568
3569 025042 011237 012402          MOV     (R2),TXDATA
3570 025046 011537 012404          MOV     (R5),RXDATA
3571
3572 025052 005737 002256          TST     FLAG          ;LOOK IF 1ST ERROR
3573 025056 001014          BNE     30$
3574
3575 025060          ERRHRD  30,EM0016,PFRAME          ;DATA CMP ERROR
3576 025070 005237 002256          INC     FLAG
3577 025074 062702 000002          ADD     #2,R2          ;POINT NEXT ADDRESS
3578 025100 062705 000002          ADD     #2,R5
3579 025104 000137 024344          JMP     RXCK
3580

```

3581 025110
 3582 025120 005237 002256
 3583 025124 062702 000002
 3584 025130 062705 000002
 3585 025134 022737 000010
 3586 025142 001314
 3587
 3588 025144
 3589
 3590
 3591
 3592
 3593 025150
 3594 025150

002256

30\$: ERRHRD 30,0,PRAMEF
 INC FLAG
 ADD #2,R2
 ADD #2,R5
 CMP #10,FLAG
 BNE RXLCK
 ESCAPE TST

;SHORT REPORT

;POINT NEXT ADDRESS
 ;LOOK IF 10 REPORT

RXLEND:
 ENDTST

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3597 025152

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3600 025152

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3607 025152

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```
BADHEAD
:***** TEST7 *****
:TRANSMIT DIFFERENT FRAMES OF VARIOUS LENGTH IN EXTERNAL LOOP BACK
:MODE ON CHANNEL A AT 72KB
BADHEAD
:***** TEST7 *****
```

```
STARS 1
:
:AT BEGINNING OF TEST ,CHECK IF LOOP BACK CONNECTORS ARE INSTALLED
:OR NOT:IF NOT INSTALLED = EXIT TEST AND GIVE ERROR MESSAGE
:*****
:
:
:
:QBUS WRITE DIFFERENT TX TABLE OF VARIOUS LENGTH, LOAD IN KMV11 CSR'S
:THE TX AND RX TABLE ADDRESS ,THE TABLE LENGTH AND TRANSFER SPEED (72KB)
:
:
:
:DCT11 EXECUTE THE TRANSFER IN EXTERNAL MODE ON CHA AND WRITE BACK
:IN RX TABLE
:QBUS CHECK BSELO TO SEE THE STATUS OF THE TEST AND IF TEST DONE CHECK IF
:RX TABLE =TX TABLE
:
```

```
:PARAMETERS SELECTION:
:SEL2= TX TABLE ADDRESS
:SEL4= TX TABLE LENGTH
: BSEL6= EXTENDED ADDRESS OF TX TABLE
: BSEL7= " " RX "
:SEL12= RX TABLE ADDRESS
:SEL14= SPEED SELECTION (=141 IF 72KB)
: BSEL16= ERROR STATUS
: BSELO= TEST STATUS
:SEL10= RECEIVE BYTE COUNT >0 IF TX>RX
: <0 IF TX<RX
```

```
:TEST STATUS DESCRIPTION:
: BSELO= 0 =TEST DONE CHECK RX TABLE
: BSELO= 200 =TIMEOUT ERROR
: BSELO= TSTNB =NO KMV11 ANSWER
: BSELO= 100 =ERROR DURING TEST ,LOOK WHICH ONE BY TESTING BSEL16
```

```
:ERROR STATUS DESCRIPTION:
```

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```

```

:
:   WHEN BSEL0=100,GIVE CONTAINT OF ERROR STATUS AND WORD COUNT DISCREPANCY
:
:
:   BSEL16= BIT14=1 =FCS ERROR
:   BSEL16= BIT13=1 =OVERRUN ERROR
:   BSEL16= BIT8 =1 =ILLEGAL INTERRUPT ERROR
:   BSEL16= BIT7 =1 =RX ABORT ERROR
:   BSEL16= BIT6 =1 =UNDERRUN ERROR
:   BSEL16= BIT5 =1 =BYTE COUNT DISCREPANCY
:   BSEL16= BIT4 =1 =DMA IN TIMEOUT ERROR
:   BSEL16= BIT3 =1 =DMA OUT TIMEOUT ERROR
:   BSEL16= BIT2 =1 =CLOCK PROBLEM
:   BSEL16= BIT1 =1 =DATA COMPARE ERROR BETWEEN TX AND RX TABLE (USE
:                                     ONLY DURING SELF TEST)
:
: MICRO DIAG TEST DESCRIPTION:
: TEST 42      -TRANSMIT VARIOUS LENGTH FRAME AT 72 KBAUDS SPEED ON CHANNEL A
:                                     IN EXTERNAL LOOP BACK MODE
:
:
: CAUTION:
: -----
: RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:
:
: NOTE:
: TO FULLY TEST KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
: EXTERNAL LOOP BACK CONECTOR
: EXTERNAL LOOP BACK CONNECTOR:
: -----
: KMV11 A CAN OPERATE EITHER IN RS422 OR RS 423 LEVEL CONVERTERS
:
: RS422 LOOP BACK:
: TO TEST COMPLETELY A KMV11 B IN RS422 MODE ,RUN THIS DIAGNOSTIC
: WITH LOOP BACK CONNECTOR PLUG :
: -USE H3255 TO LOOP DIRECTLY AT THE OUTPUT OF THE MODULE
: -USE H3251 PLUG AT THE END OF BC55U MODEM CABLE CONNECTOR ASSY.
:
: RS423 LOOP BACK:
: TO TEST COMPLETELY A KMV11-A IN RS423 MODE ,RUN THIS DIAGNOSTIC
: WITH LOOP BACK CONNECTOR PLUG :
: -USE H3255 TO LOOP AT THE OUTPUT OF THE MODULE
: -USE H3251 PLUG AT THE END OF BC55H MODEM CABLE CONNECTOR ASSY.
:
: RS232 LOOP BACK:
: SAME AS FOR RS423.
:

```

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3715
3716 025152

:CAUTION:
:USE OF M325 LOOP BACK CONNECTOR WILL CAUSE MESSAGES ERROR IN TEST 8.
:
:
:
:
:
:STARS 1

```

3718 025152          BGNTST
3719 025152 004737 014372      JSR    PC,CLRKMV      ;CLEAR REGISTERS
3720 025156 005737 012470      TST    LOOP          ;IS LOOP BIT=1?
3721 025162 001012          BNE    BGNTXA        ;YES GO ON TEST
3722 025164          PRINTF  #MLOOP        ;NO LOOP BACK CONNECTOR
3723                                ;TEST NOT EXECUTED
3724 025204          EXIT    TST
3725
3726
3727 025210 004737 014474      BGNTXA: JSR    PC,MAINM1 ;SET MAINT MODE
3728 025214 005037 002256      CLR    FLAG
3729
3730 025220 012703 000005      MOV    #5,R3         ;SELECT RANDOM PATTERN
3731 025224 012737 000141 012406  MOV    #KB72,TSPEED  ;SELECT SPEED
3732
3733 025232 012737 000001 012410  TXATAR: MOV    #1,LENGTH ;1ST TABLE LENGTH(1 WORD)
3734
3735 025240 013704 012410      TXABGN: MOV    LENGTH,R4
3736 025244          BREAK
3737
3738 025246 012702 002362      MOV    #TABLE,R2
3739 025252 004737 013152      10$:  JSR    PC,GENER    ;WRITE TABLE
3740 025256 013722 012372      MOV    DATA,(R2)+
3741 025262 005304          DEC    R4
3742 025264 001372          BNE    10$
3743
3744
3745
3746 025266 013704 012410      MOV    LENGTH,R4     ;CLEAR RX TABLE
3747 025272 012702 006362      MOV    #RTABLE,R2
3748 025276 005022          CLR    (R2)+
3749 025300 005304          DEC    R4
3750 025302 001375          BNE    20$
3751
3752
3753
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3755
3756
3757
3758 025304 013777 012406 165152  MOV    TSPEED,@KMVP14 ;SEND TX SPEED
3759 025312 012777 002362 165132  MOV    #TABLE,@KMVP02 ; " TX TABLE ADDRESS
3760 025320 013777 012410 165126  MOV    LENGTH,@KMVP04 ; " " " LENGTH
3761 025326 012777 006362 165126  MOV    #RTABLE,@KMVP12 ;SEND RX TABLE ADDRESS
3762 025334 005077 165116          CLR    @KMVP06       ;CLR EXTENDED ADDRESS
3763
3764
3765
3766
3767
3768 025340 004537 014556      1$:  JSR    R5,TSTNUB
3769 025344 000042          .WORD 42            ;DO TEST 42- CHB TEST
3770
3771
3772
3773 025346          2$:  WAITB 0.3         ;WAIT FOR TEST EXECUTION
3774

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```

3775
3776 025366 004737 013074          JSR    PC,TSTERR          ;CHECK BSELO
3777
3778 025372 000427                BR     6$                 ;TEST OK CHECK RX TABLE
3779 025374 000402                BR     3$                 ;TIMEOUT ERROR
3780 025376 000401                BR     3$                 ;NO KMV11 ANSWER
3781 025400 000410                BR     4$                 ;CHECK SEL16 TO SEE WHICH ONE
3782
3783
3784 025402                        3$:  ERRHRD  32,EM0004      ;NO KMV11 ANSWER
3785 025412 004737 012732          JSR    PC,CHKMAX         ;CHECK IF TOO MANY ERROR
3786 025416                ESCAPE  TST
3787
3788
3789 025422                        4$:  ;ERROR DURING TEST READ ERROR STATUS
3790                                ;TO CHECK WHICH ONE
3791
3792 025422 017737 165040 012416      MOV    @KMVP16,STAERR    ;READ ERROR STATUS
3793
3794 025430 017737 165024 012420      MOV    @KMVP10,WRDCNT    ;READ WORD COUNT DISCREPANCY
3795
3796 025436                ERRHRD  33,EM0022,PRSTER  ;ERROR WHILE TX,RX FRAMES,GIVE ERROR
3797                                ;GIVE ERROR STATUS,WORD CNT DISCREPANCY
3798 025446                ESCAPE  TST
3799
3800
3801
3802
3803
3804 025452 012702 002362          6$:  MOV    @TABLE,R2      ;LOAD TABLE PARAMETERS
3805 025456 012705 006362          MOV    @RTABLE,R5
3806 025462 013704 012410          MOV    LENGTH,R4
3807
3808 025466 022225                RXACK:  CMP    (R2)+,(R5)+  ;CHECK TX AND RX TABLE
3809 025470 001015                BNE    RXAERR
3810 025472 005304                DEC    R4
3811 025474 001374                BNE    RXACK
3812
3813 025476 062737 000400 012410      ADD    #400,LENGTH      ;CHANGE LENGTH
3814 025504 022737 002000 012410      CMP    #2000,LENGTH
3815 025512 100252                BPL    TXABGN
3816 025514 005303                DEC    R3
3817 025516 001245                BNE    TXATAR           ;SELECT NEW PATTERN
3818 025520 000137 025642          JMP    RXAEND           ;ALL DONE
3819
3820
3821
3822 025524 162705 000002          RXAERR:  SUB    #2,R5
3823 025530 162702 000002          SUB    #2,R2
3824
3825 025534 011237 012402          MOV    (R2),TXDATA
3826 025540 011537 012404          MOV    (R5),RXDATA
3827
3828 025544 005737 002256          TST    FLAG
3829 025550 001014                BNE    30$              ;LOOK IF 1ST ERROR
3830
3831 025552                ERRHRD  34,EM0015,PFR/ME  ;DATA CMP ERROR

```


3832	025562	005237	002256		INC	FLAG	
3833	025566	062702	000002		ADD	#2,R2	;POINT NEXT ADDRESS
3834	025572	062705	000002		ADD	#2,R5	
3835	025576	000137	024774		JMP	RXLCK	
3836							
3837	025602			30\$:	ERRHRD	34,0,PRAMEF	;SHORT REPORT
3838	025612	005237	002256		INC	FLAG	
3839	025616	062702	000002		ADD	#2,R2	
3840	025622	062705	000002		ADD	#2,R5	;POINT NEXT ADDRESS
3841	025626	022737	000010	002256	CMP	#10,FLAG	;LOOK IF 10 REPORT
3842	025634	001314			BNE	RXLCK	
3843							
3844	025636				ESCAPE	TST	
3845							
3846							
3847							
3848							
3849							
3850	025642				RXAEND:		
3851	025642				ENDTST		

3853
3854 025644

BADHEAD
:***** TEST8 *****
:TEST MODEM SIGNALS IN EXTERNAL LOOP BACK
BADHEAD
:***** TEST8 *****

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3856 025644

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3863 025644

STARS 1
:HOST SET TEST NUMBER 45
:DCT11 TEST MODEM SIGNAL 105,106,109,111,112,107,108,125,140,141
:BY SETTING AND CLEARING BIT 105,108,111,141,TIS AND TESTING
:BIT 106,109,125,107,112,142.

3864
3865
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:
:IF TEST =OK,DCT11 CLEAR BSELO
:IF ERROR SET 100 IN BSELO AND REPORT ERROR

3871
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3877

:
:ERROR REPORT DESCRIPTION:
:SEL2 INDICATE WHICH MODEM SIGNAL IS TESTED
:SEL4 INDICATE THE RESULT OF THE TEST
:SEL10 INDICATE IF IT WAS DURING A CLEAR OR A SET OPERATION

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:SEL 10 BIT 1=0 INDICATE A CLEAR OPERATION ON TESTED MODEM SIGNAL
: =1 " SET " " " " "

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:SEL2 FORMAT (TESTED SIGNAL):
:-----
: / / / / 141 / TIS / 111 / 108 / 105 /
:-----
: BIT 7 BIT 6 BIT5 BIT4 BIT3 BIT2 BIT1 BIT0

3890
3891
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:RESULT OF TEST (SEL4):
:-----
: / / / 106 / 125 / 109 / 142 / 112 / 107 /
:-----
: BIT 7 BIT 6 BIT5 BIT4 BIT3 BIT2 BIT1 BIT0

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:MODEM SIGNAL LINK:



:CAUTION:

:-----
:RUN ONLY WITH EXTERNAL LOOP BACK CONNECTOR:

:
:TO BE FULLY TESTED ,KMV11 DIAGNOSTIC MUST BE RUN WITH RS422 AND RS423
:EXTERNAL LOOP BACK CONECTOR

:EXTERNAL LOOP BACK CONNECTOR:

:-----
:KMV11 A CAN OPERATE EITHER IN RS422 OR RS 423 LEVEL CONVERTERS

:
:RS422 LOOP BACK:

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025644

; TO TEST COMPLETELY A KMV11 B IN RS422 MODE ,RUN THIS DIAGNOSTIC
; WITH LOOP BACK CONNECTOR PLUG :
; -USE H3255 TO LOOP DIRECTLY AT THE OUTPUT OF THE MODULE
; -USE H3251 PLUG AT THE END OF BC55U MODEM CABLE CONNECTOR ASSY.
;
;
; RS423 LOOP BACK:
; TO TEST COMPLETELY A KMV11-A IN RS423 MODE ,RUN THIS DIAGNOSTIC
; WITH LOOP BACK CONNECTOR PLUG :
; -USE H3255 TO LOOP AT THE OUTPUT OF THE MODULE
; -USE H3251 PLUG AT THE END OF BC55H MODEM CABLE CONNECTOR ASSY.
;
;
; RS232 LOOP BACK:
; SAME AS FOR RS423.
;
; CAUTION:
; USE OF H325 LOOP BACK CONNECTOR WILL CAUSE MESSAGES ERROR IN TEST 8.
;
;
;
; STARS 1

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3986 025644          BGNTST
3987 025644 004737 014372      JSR      PC,CLRKMV          ;CLEAR ALL REGISTERS
3988
3989 025650 005737 012470      TST      LOOP
3990 025654 001012              BNE      MODSIG          ;LOOP BACK PRESENT GO ON
3991
3992 025656          PRINTF  #MLOOP          ;NO LOOP BACK CONNECTOR
3993
3994
3995 025676          EXIT      TST          ;GO TO FOLLOWING TEST
3996
3997
3998
3999 025702 004737 014474      MODSIG: JSR      PC,MAINM1    ;SET MAINTENANCE MODE
4000 025706 004537 014556      JSR      R5,TSTNUB
4001 025712 000045              .WORD    45          ;SEND TEST 45
4002
4003 025714          WAITB    0,4
4004
4005 025734 004737 013074      JSR      PC,TSTERR        ;CHECK TEST RESULT
4006 025740 000430              BR       3$             ;TEST OK GO ON
4007 025742 000402              BR       4$             ;TIMEOUT
4008 025744 000401              BR       4$             ;NO TEST ANSWER
4009 025746 000406              BR       5$             ;ERROR DURING TEST ,LOOK WHICH ONE
4010
4011
4012
4013 025750          4$:      ERRHRD  36,EM0004    ;NO ANSWER
4014 025760          ESCAPE  TST
4015
4016 025764 017737 164462 002264 5$:      MOV      @KMVP02,GOOD    ;READ WHICH SIGNAL WAS TESTED
4017 025772 017737 164456 012366      MOV      @KMVP04,BAD     ; " " IS THE RESULT OF TEST
4018 026000 017737 164454 012372      MOV      @KMVP10,DATA    ;READ SIGAL VALUE
4019
4020 026006          ERRHRD  37,EM0032,PMODEM    ;REPORT ERROR
4021 026016          ESCAPE  TST
4022
4023 026022          3$:
4024 026022          MODEND:
4025
4026
4027 026022          ENDTST

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4048 026024
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4050 026026
4051 026036
4052 026046
4053 026060
4054 026072
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4064 026072
026075
026100
026103
026106
026111
026114
026117
026122
4065 026124
026127
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026135
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026157
4066 026160
026163
026166
026171
026174
026177
026202
026205
026210

.SBTTL HARDWARE PARAMETER CODING SECTION

```

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

```

BGNHRD

GPRMA ADDRES,0,0,160000,177776,YES
GPRMA VECTOR,2,0,0,674,YES
GPRMD PRIRTY,4,0,7000,4,7,YES
GPRMD LOOPBK,6,0,1,0,1,YES
ENDHRD

ADDRESS: .ASCIZ /MICRO-CPU CSR ADDRESS : /
VECTOR: .ASCIZ /MICRO-CPU VECTOR ADDRESS : /
PRIRTY: .ASCIZ /MICRO-CPU PRIORITY LEVEL : /

4067	026213	000			
	026214	111	123	040	LOOPBK: .ASCIZ /IS LOOP BACK CONNECTOR PLUGGED? 0=NO,1=YES: /
	026217	114	117	117	
	026222	120	040	102	
	026225	101	103	113	
	026230	040	103	117	
	026233	116	116	105	
	026236	103	124	117	
	026241	122	040	120	
	026244	114	125	107	
	026247	107	105	104	
	026252	077	040	060	
	026255	075	116	117	
	026260	054	061	075	
	026263	131	105	123	
	026266	072	040	000	
4068					.EVEN
4069					
4070					
4071					
4072					
4073					
4074					

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4081
4082
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4086
4087
4088 026272
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4099
4100 026274
4101
4102
4109
4110

.SBTTL SOFTWARE PARAMETER CODING SECTION

```

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

```

 BGNSFT

 ENDSFT

4112
4113 026274
4114 026274
4115
4122
4123 026414
 026420
4124 026420
4125
4126

\$PATCH: .BLKW 50

L\$LAST: LASTAD
 ENDMOD

```
4128  
4129  
4142  
4143 026420          BGNSETUP          1  
4144 026420          BGNPTAB  
4145 026424 177000   .WORD 177000  
4146 026426 000300   .WORD 300  
4147 026430 004000   .WORD 4000  
4148 026432 000001   .WORD 1  
4149 026434          ENDPTAB  
4150 026434          ENDSETUP  
4151  
4152  
4153  
4154  
4155  
4156          000001          .END
```

ABORT 022660
 ADDR 002354
 ADDRESS 026072
 ADR = 000020 G
 ASSEMB= 000010
 BAD 012366
 BDDAT 002360
 BDRGEN 023626
 BDROKO 024052
 BGNTXA 025210
 BIT0 = 000001 G
 BIT00 = 000001 G
 BIT01 = 000002 G
 BIT02 = 000004 G
 BIT03 = 000010 G
 BIT04 = 000020 G
 BIT05 = 000040 G
 BIT06 = 000100 G
 BIT07 = 000200 G
 BIT08 = 000400 G
 BIT09 = 001000 G
 BIT1 = 000002 G
 BIT10 = 002000 G
 BIT11 = 004000 G
 BIT12 = 010000 G
 BIT13 = 020000 G
 BIT14 = 040000 G
 BIT15 = 100000 G
 BIT2 = 000004 G
 BIT3 = 000010 G
 BIT4 = 000020 G
 BIT5 = 000040 G
 BIT6 = 000100 G
 BIT7 = 000200 G
 BIT8 = 000400 G
 BIT9 = 001000 G
 BOE = 000400 G
 BSELO 012370
 BSEL1 002332
 CBSELO 013644
 CHANEL 012400
 CHKMAX 012732
 CKALL 013702
 CKREG 014150
 CKSELO 013612
 CLRKMV 014372
 COUNT 002350
 C\$AU = 000052
 C\$AUTO= 000061
 C\$BRK = 000022
 C\$BSEG= 000004
 C\$BSUB= 000002
 C\$CEFG= 000045
 C\$CLCK= 000062
 C\$CLEA= 000012
 C\$CLOS= 000035
 C\$CLP1= 000006

C\$CVEC= 000036
 C\$DCLN= 000044
 C\$DODU= 000051
 C\$DRPT= 000024
 C\$DU = 000053
 C\$EDIT= 000003
 C\$ERDF= 000055
 C\$ERHR= 000056
 C\$ERRO= 000060
 C\$ERSF= 000054
 C\$ERSO= 000057
 C\$ESCA= 000010
 C\$ESEG= 000005
 C\$ESUB= 000003
 C\$ETST= 000001
 C\$EXIT= 000032
 C\$GETB= 000026
 C\$GETW= 000027
 C\$GMAN= 000043
 C\$GPHR= 000042
 C\$GPLO= 000030
 C\$GPRI= 000040
 C\$INIT= 000011
 C\$INLP= 000020
 C\$MANI= 000050
 C\$MEM = 000031
 C\$MSG = 000023
 C\$OPEN= 000034
 C\$PNTB= 000014
 C\$PNTF= 000017
 C\$PNTS= 000016
 C\$PNTX= 000015
 C\$QIO = 000377
 C\$RDBU= 000007
 C\$REFG= 000047
 C\$RESE= 000033
 C\$REVI= 000003
 C\$RFLA= 000021
 C\$RPT = 000025
 C\$SEFG= 000046
 C\$SPRI= 000041
 C\$SVEC= 000037
 C\$TPRI= 000013
 DATA 012372
 DATA1 = 052525 G
 DATA2 = 125252 G
 DELCT1 002260
 DELCT2 002262
 DFPTBL 002154 G
 DIAGMC= 000000
 DROPD 023052
 EF.CON= 000036 G
 EF.NEW= 000035 G
 EF.PWR= 000034 G
 EF.RES= 000037 G
 EF.STA= 000040 G
 EM0001 015021

EM0002 015115
 EM0003 015160
 EM0004 015246
 EM0006 015275
 EM0007 015336
 EM0011 015416
 EM0012 015470
 EM0013 015552
 EM0014 015716
 EM0015 015767
 EM0016 016063
 EM0017 016156
 EM0022 016243
 EM0023 016326
 EM0024 016402
 EM0027 016431
 EM0031 016503
 EM0032 016577
 EM0033 015646
 EM0035 016663
 EM0036 016755
 END 022724
 ERRBLK 002226 G
 ERRCNT 002234
 ERRMSG 002224 G
 ERRNBR 002222 G
 ERRTP 002220 G
 EVL = 000004 G
 EXADDR 012362
 E\$END = 002100
 E\$LOAD= 000035
 FLAG 002256
 FTIME 002250
 F\$AU = 000015
 F\$AUTO= 000020
 F\$BGN = 000040
 F\$CLEA= 000007
 F\$DU = 000016
 F\$END = 000041
 F\$HARD= 000004
 F\$HW = 000013
 F\$INIT= 000006
 F\$JMP = 000050
 F\$MOD = 000000
 F\$MSG = 000011
 F\$PROT= 000021
 F\$PWR = 000017
 F\$RPT = 000012
 F\$SEG = 000003
 F\$SOFT= 000005
 F\$SRV = 000010
 F\$SUB = 000002
 F\$SW = 000014
 F\$TEST= 000001
 GDDAT 002356
 GDREV 012424
 GENER 013152

GENER1 013274
 GENEX 013432
 GENINC 013424
 GENISH 013302
 GENOUT 024032
 GENRAN 013304
 GENROT 013260
 GENRO 013246
 GENR1 013236
 GENSEL 013170
 GENO 013210
 GEN1 013214
 GEN25 013230
 GEN52 013222
 GETPRM 022456
 GOOD 002264
 GOOD0 002266
 GOOD1 002270
 GOOD10 002300
 GOOD12 002302
 GOOD14 002304
 GOOD16 002306
 GOOD2 002272
 GOOD4 002274
 GOOD6 002276
 G\$CNT0= 000200
 G\$DELM= 000372
 G\$DISP= 000003
 G\$EXCP= 000400
 G\$HILI= 000002
 G\$LOLI= 000001
 G\$NO = 000000
 G\$OFFS= 000400
 G\$OFSI= 000376
 G\$PRMA= 000001
 G\$PRMD= 000002
 G\$PRML= 000000
 G\$RADA= 000140
 G\$RADB= 000000
 G\$RADD= 000040
 G\$RADL= 000120
 G\$RADO= 000020
 G\$XFER= 000004
 G\$YES = 000010
 HELP = 000000
 HOE = 100000 G
 IBE = 010000 G
 IDU = 000040 G
 IER = 020000 G
 INIFLG 012426
 INTFLG 012364
 INTTX 024110
 ISR = 000100 G
 IXE = 004000 G
 I\$AU = 000041
 I\$AUTO= 000041
 I\$CLN = 000041

I\$DU = 000041
 I\$HRD = 000041
 I\$INIT= 000041
 I\$MOD = 000041
 I\$MSG = 000041
 I\$PROT= 000040
 I\$PTAB= 000041
 I\$PWR = 000041
 I\$RPT = 000041
 I\$SEG = 000041
 I\$SETU= 000041
 I\$SFT = 000041
 I\$SRV = 000041
 I\$SUB = 000041
 I\$TST = 000041
 J\$JMP = 000167
 KB1.2 = 013224 G
 KB56 = 000174 G
 KB64 = 000154 G
 KB68 = 000146 G
 KB72 = 000141 G
 KIND 012376
 KMTLVL 012446
 KMVCSR 012450
 KMLVL 012436
 K MVP02 012452
 K MVP04 012454
 K MVP06 012456
 K MVP10 012460
 K MVP12 012462
 K MVP14 012464
 K MVP16 012466
 K MVV00 012434
 K MVV02 012442
 K MVV04 012440
 K MVV06 012444
 K MV11A 002000 G
 LENGTH 012410
 LOCK 002230
 LOE = 040000 G
 LOGDEV 002242
 LOKFLG 012430
 LOOP 012470
 LOOPBK 026214
 LOT = 000010 G
 L\$ACP 002110 G
 L\$APT 002036 G
 L\$AU 023104 G
 L\$AUT 002070 G
 L\$AUTO 022726 G
 L\$CCP 002106 G
 L\$CLEA 023020 G
 L\$CO 002032 G
 L\$DEPO 002011 G
 L\$DESC 002164 G
 L\$DESP 002076 G
 L\$DEVP 002060 G

L\$DISP	002132	G	L10016	022240	0\$BGNS =	000000	RXEND	024504	T\$NSO =	000000	
L\$DLY	002116	G	L10017	022724	0\$DU =	000001	RXERR	024366	T\$NS1 =	000005	
L\$DTP	002040	G	L10020	023016	0\$ERRT =	000000	RXLCK	024774	T\$PCNT =	000000	
L\$DTYP	002034	G	L10021	023022	0\$GNSW =	000001	RXLEND	025150	T\$PTAB =	010037	
L\$DU	023024	G	L10022	023102	0\$POIN =	000001	RXLERR	025032	T\$PTHV =	000001	
L\$DUT	002072	G	L10023	023104	0\$SETU =	000001	SAVE4	002252	T\$PTNU =	000001	
L\$DVTY	012672	G	L10024	023222	PADFLT	021506	SAVE6	002254	T\$SAVL =	177777	
L\$EF	002052	G	L10025	023272	PBSELO	021544	SAVPC	002244	T\$SEGL =	177777	
L\$ENVI	002044	G	L10026	023606	PFRAME	021704	SAVPC1	002344	T\$SIZE =	000006	
L\$ERRT	002220	G	L10027	024052	PMODEM	021774	SAVREG	013452	T\$SUBN =	000000	
L\$ETP	002102	G	L10030	024504	PNT =	001000	SAVSTA	002346	T\$TAGL =	177777	
L\$EXP1	002046	G	L10031	025150	PRALL	020716	SELO	002310	T\$TAGN =	010041	
L\$EXP4	002064	G	L10032	025642	PRAMEF	022120	SEL1	002312	T\$TEMP =	000000	
L\$EXP5	002066	G	L10033	026022	PRI =	002000	SEL10	002322	T\$TEST =	000010	
L\$HARD	026026	G	L10034	026072	PRINT	020656	SEL12	002324	T\$TSTM =	177777	
L\$HIME	002120	G	L10035	026274	PRIPTY	026160	SEL14	002326	T\$TSTS =	000001	
L\$HPCP	002016	G	L10036	026424	PRI00 =	000000	SEL16	002330	T\$\$AU =	010023	
L\$HPTP	002022	G	L10040	026434	PRI01 =	000040	SEL2	002314	T\$\$AUT =	010020	
L\$HW	002154	G	MAINM1	014474	PRI02 =	000100	SEL4	002316	T\$\$CLE =	010021	
L\$ICP	002104	G	MAINT0 =	054000	PRI03 =	000140	SEL6	002320	T\$\$DAT =	010040	
L\$INIT	022242	G	MAINT1 =	044000	PRI04 =	000200	SETUP	022374	T\$\$DU =	010022	
L\$LADP	002026	G	MAXERR	002232	PRI05 =	000240	SSTACK	012672	T\$\$HAR =	010034	
L\$LAST	026420	G	MAXPRI =	000300	PRI06 =	000300	STAERR	012416	T\$\$HW =	010001	
L\$LOAD	002100	G	MBSELO	017612	PRI07 =	000340	SVCGBL =	000000	T\$\$INI =	010017	
L\$LUN	002074	G	MCLR =	040000	PRREG	021226	SVCINS =	177777	T\$\$MSG =	010015	
L\$MREV	002050	G	MFRAM1	020006	PRSELO	020616	SVCSUB =	177777	T\$\$PC =	000001	
L\$NAME	002000	G	MFRAM2	020064	PRSTER	022154	SVCTAG =	177777	T\$\$PRO =	010000	
L\$PRIO	002042	G	MINT	017556	PRT11V	021644	SVCTS =	177777	T\$\$PTA =	010037	
L\$PROT	002122	G	MLOOP	020537	PSTACK	002246	SVCTST =	177777	T\$\$RPT =	010016	
L\$PRT	002112	G	MODEM1	020243	PVECT	021604	S\$LSYM =	010000	T\$\$SOF =	010035	
L\$REPP	002062	G	MODEM2	020307	QV.FLG	012431	TFM36	014733	T\$\$TES =	010033	
L\$REV	002010	G	MODEM3	020346	RANCLC	013404	TIM	014716	T1	023106	G
L\$RPT	022234	G	MODEM4	020411	RANDN	002342	TSPEED	012406	T2	023224	G
L\$SOFT	026274	G	MODEND	026022	RANEX	013422	TSTERR	013074	T3	023274	G
L\$SPC	002056	G	MODSIG	025702	RANGEN	013324	TSTNUB	014556	T4	023610	G
L\$SPCP	002020	G	MRAMEF	020466	RANMTA	002340	TTABLE	002362	T5	024054	G
L\$SPTP	002024	G	MREG0	017116	RANSEC	013410	TXABGN	025240	T6	024506	G
L\$STA	002030	G	MREG10	017336	RANSEL	002336	TXATAR	025232	T7	025152	G
L\$SW	002236	G	MREG12	017402	RANST	002334	TXDATA	012402	T8	025644	G
L\$TEST	002114	G	MREG14	017446	RAN1	013336	TXLBGN	024546	UAM =	000200	G
L\$TIML	002014	G	MREG16	017512	RAN2	013354	TXLTAR	024540	UNIT	012422	
L\$UIT	002240	G	MREG2	017162	RAN4	013412	TXSTAR	024114	UUT	012432	
L\$UNIT	002012	G	MREG4	017226	READ	014632	T\$ARGC =	000001	VECT	012374	
L10001	002164		MREG6	017272	REGADR	012472	T\$CODE =	003032	VECTOR	026124	
L10002	020654		MSELO	017050	REVPRO	023234	T\$ERRN =	000045	WAIT1	012722	
L10003	020714		MSTER1	020146	ROMMAP	023106	T\$EXCP =	000000	WAIT2	012702	
L10004	021224		MSTER2	020200	RSTREG	013532	T\$FLAG =	000040	WRDCNT	012420	
L10005	021504		MT11V	017730	RTABLE	006362	T\$FREE =	026434	WRITE	014604	
L10006	021542		MVECT	017654	RTCLK	023304	T\$GMAN =	000000	X\$ALWA =	000000	
L10007	021602		NERRS	013024	RUNNIN	022666	T\$HILI =	000001	X\$FALS =	000040	
L10010	021642		NEXT	022402	RXACK	025466	T\$LAST =	000001	X\$OFFS =	000400	
L10011	021702		NUB	012412	RXAEND	025642	T\$LOLI =	000000	X\$TRUE =	000020	
L10012	021772		NUMBER	002352	RXAERR	025524	T\$LSYM =	010000	\$LSTIN =	000000	
L10013	022116		0\$APTS =	000000	RXCCK	024344	T\$LTNO =	000010	\$LSTTA =	000000	
L10014	022152		0\$AU =	000000	RXCNT	012414	T\$NEST =	177777	\$PATCH	026274	G
L10015	022232		0\$BGNR =	000000	RXDATA	012404					

. ABS. 026434 000
 000000 001
ERRORS DETECTED: 0

VIRTUAL MEMORY USED: 28944 WORDS (114 PAGES)
DYNAMIC MEMORY: 20060 WORDS (77 PAGES)
ELAPSED TIME: 00:02:40
CNKMBA.BIC,CNKMBA.SEQ/-SP-SVC34.MLB/ML,CNKMBA.MAC